

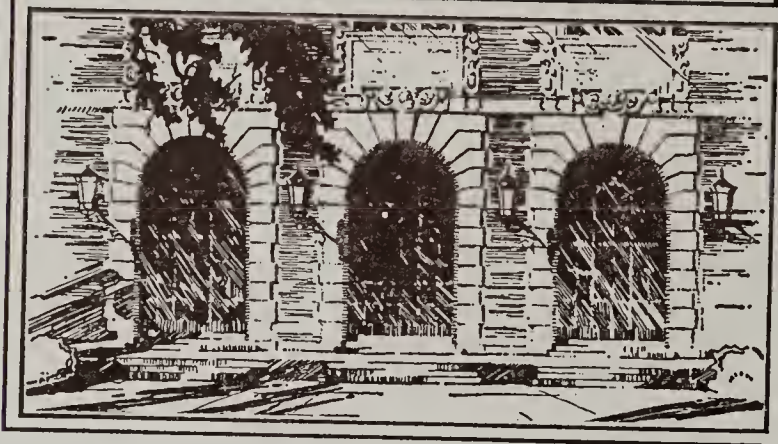
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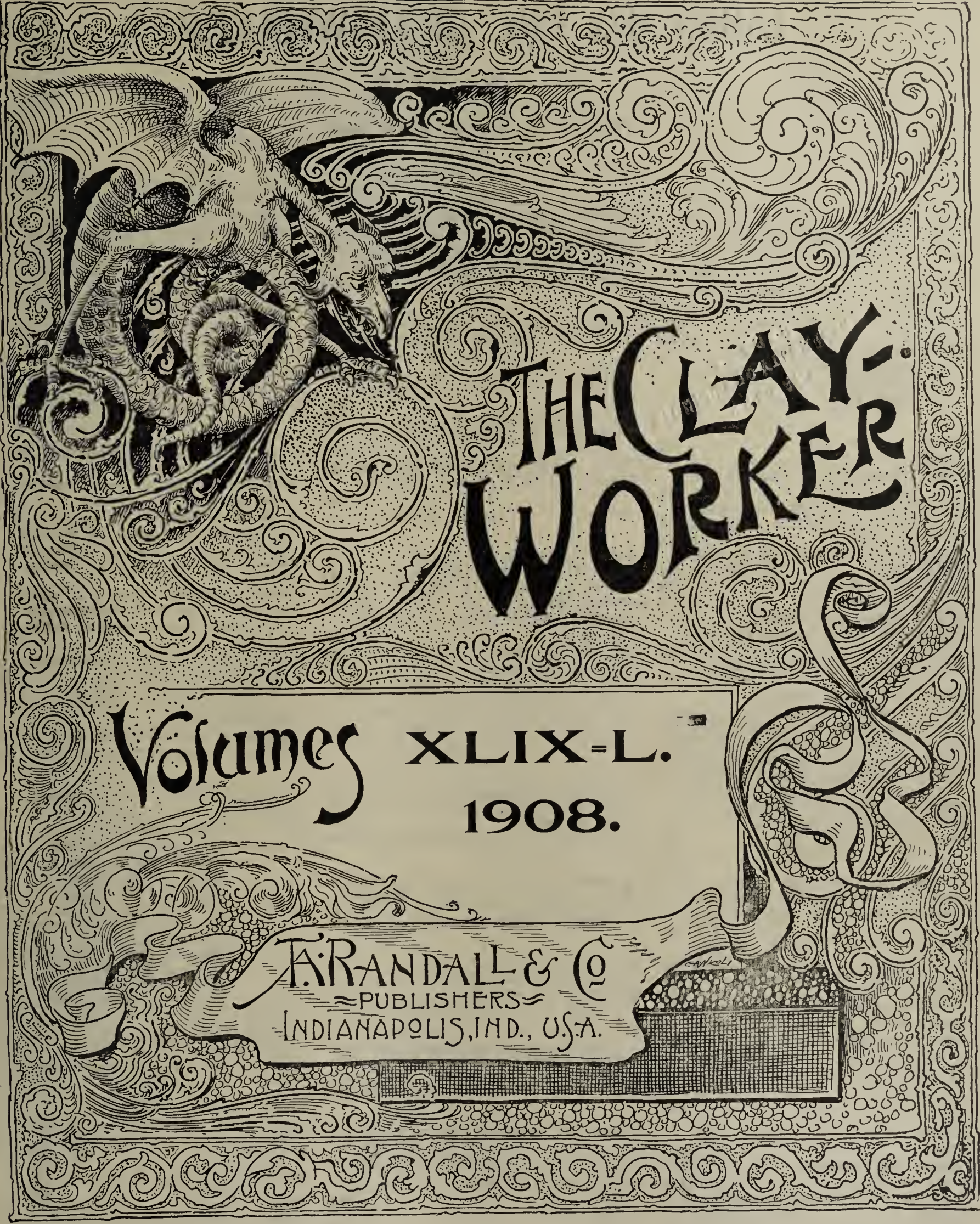
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THE CLAY- WORKER

Volumes XLIX-L.
1908.

A. RANDALL & CO
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INDIANAPOLIS, IND., U.S.A.

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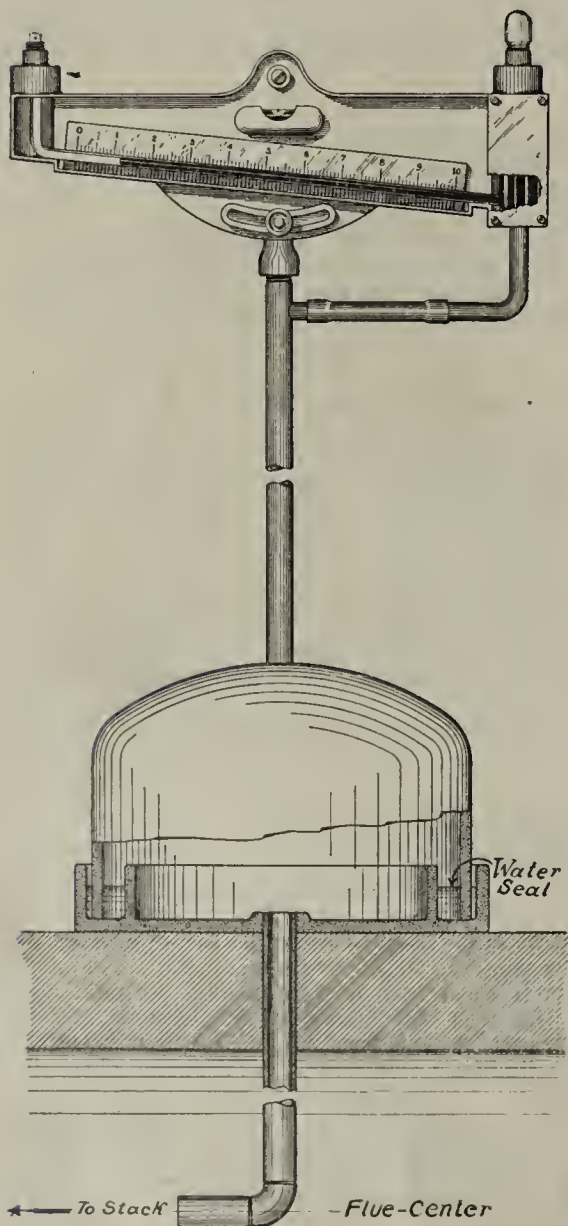
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DID YOU SEE OUR NEW DRAFT GAGE

Illustrated and Described in This Issue of
The Clay-Worker?

You can get one for \$12.00. Or our Seger Draft Gage for \$7.00. Or our Suspended, Inclined Tube Draft Gage for \$10.00. The last is similar to the Ohio Gage, the oil reservoir being a metal box, instead of a glass bulb.

THE CERAMIC SUPPLY AND CONSTRUCTION COMPANY,

Contracting Engineers and Machinists, Manufacturers of Special Clay-working Machinery and Controlling Apparatus, and Dealers in Pottery and Brickyard Supplies.

280 NORTH FRONT STREET, COLUMBUS, OHIO.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. XLIX.

INDIANAPOLIS, IND., JANUARY, 1908.

No. 1.

Written for THE CLAY-WORKER.

COLUMBUS, THE CONVENTION CITY.

The Mecca Toward Which the Eyes of all Brick Manufacturers are Turned This Year. N. B. M. A. Convention to be Held There February 3d to 8th at Southern Hotel.

IN THE PIONEER days when the Indian built his fires on the banks of the Scioto River, where Columbus now stands, no one dreamed that a few score years after he had journeyed to his happy hunting ground, there would thrive on the site of his old rendezvous a city named after that "Great

Discoverer," and known far and near as the convention city of Ohio. Such is the fact today, however, for the city built on the east bank of the quiet Scioto, and the outgrowth of an old Indian village, attracts within its busy cyclic boundaries on the average more than one convention a day the year through.

Owing to its central location, Columbus is one of the most get-at-able cities in the nation. Its superior railroad facilities, comprising eighteen steam and over eight electric railroads, bring an almost continuous stream of visitors from all directions. As it is also the center of the clay market and the capital of the state, it is not surprising that the National Brick Manufacturers' Association's Executive Committee has



The Beautiful Brick and Terra Cotta Entrance to the Union Depot, Columbus, Ohio

decided to hold the Twenty-Second Annual Convention there. Columbus is noted for its level, well paved, shaded streets, beautiful residences and handsome commercial structures, a large majority of which are built of brick. No city in the country can boast of more substantial brick structures in proportion to population.

It is here that the Ohio State University Ceramic School is preparing young men for higher positions in the ceramic world, under the careful, trained hand of Prof. Edward Orton, who is known throughout the land for his great, good work



Base of Flag Staff, in Terra Cotta, on Union Station.

in upbuilding the clay industries. This is a wonderful school, with its well equipped laboratories, class and testing rooms. One of the attractions of this year's program will be the day given to the convention delegates for the inspection of America's pioneer ceramic school, and learn from observation what pen can not tell.

Columbus is a city of brick built homes, a natural condition for a metropolis, the center of the press brick trade in the United States, and the home market for such large firms as the Columbus Brick and Terra Cotta Company, the Ohio

Mining and Manufacturing Company, the Iron Clay Company, the Shawnee Flash Brick Company, the Hanover Press Brick Company, the Columbus Contractors and Supply Company, the Columbus Clay Products Company, and the New Straitsville Impervious Brick Company.

There are few cities which can boast of so many excellent brick residences and buildings. The building brick interests are always flourishing, for brick buildings are the rule and frame structures the exception. The demand for building brick has increased amazingly of late years, many large buildings now being in the course of construction. The downtown business thoroughfares are lined with imposing commercial structures and modern skyscrapers, all faced with brick and terra cotta.

In fact, when one alights from the train at Columbus, the first thing which attracts attention is the Union Depot, one of the finest, most ornate and commodious in the country, made almost entirely of clay products. It is an unusual structure, the waiting rooms, ticket offices, restaurants, information bureaus, toilets, barber shops and check rooms are built high above the level of the tracks, and one must ascend one of the several broad stairways to reach the top of the bridge-like passageway that spans the tracks and leads to the main entrance of the station. One must walk along a wide cement passageway for some distance before he arrives at the street entrance, where a grand archway executed in terra cotta stands out in bold relief against the sky. From the farther side of High street, which is the main thoroughfare of Columbus, and passes this beautiful structure, he can glance back, before taking a car for the Southern Hotel, and view with admiration the fine architectural effect, which is a lasting monument to the wonderful skill and art of the designer and builder.

On our way south to the Southern Hotel, we pass many beautiful brick and terra cotta structures, one of the most artistic of which is the Columbus Trust and Savings building, standing at the corner of Long and High streets. This is undoubtedly one of the finest office buildings in the United States. The lower stories and cornices are faced with terra cotta exceptionally ornamental in character. It was furnished by the Northwestern Terra Cotta Company, of Chicago, as was also the terra cotta in the Union Depot. The intervening stories are faced with the Iron Clay Company's famous iron buff spot brick. This is not the only building in Columbus, Mr. D. C. Meehan, the head of the latter company, can point to with pride, in mentioning buildings made of his product, for he has a large number of imposing structures to his credit, to say nothing of the many residences. The Columbus Brick and Terra Company, of which Mr. L. G. Kilbourne is president, has done its full share in building up the city, and furnishing the contractors and architects with excellent press brick. There is hardly a square in the residential district but has a building constructed of their brick.

These red building brick are furnished for the most part by the Hanover Press Brick Company, the Columbus Clay Products Company and the Columbus Contractors and Supply Company, and the local yards which are small, but turn out good products.

The buildings on the Ohio State University campus are all of brick, each has its distinctive architectural appearance, the latest and perhaps most attractively built of which are the Engineering building, the Hall of Agriculture, and the large brick agricultural stables, all made of the Groveport Corduroy brick of the Columbus Clay Products Company.

Columbus a Brick Paved City.

Columbus is not only a brick built city, but can also claim the good fortune of being a brick paved city as well. The visitor is always impressed with the excellence of the brick pavements of Columbus, for they are so smooth that they are easily kept clean, and have proven so durable that the cost of maintenance is almost nothing, compared with the cost of

repairing asphalt, wooden block and other paving. These advantages are so marked that of late years scarcely none but brick pavements have been put down. In this respect the city's record is one that paving engineers may study with profit.

In 1887 there was less than a mile of brick paved thoroughfares, while today there are over a hundred miles of brick paved streets within the city limits. This is a remarkable record, when it is considered that the city has, all told, but about one hundred and forty-three miles of paved streets. In 1907 there were over nine miles of miscellaneous brick and block put down, to only eight-tenths of a mile of asphalt. Not only is the relative cost of asphalt per mile more than that of the brick streets, but the brick pavements wear so little that it is plain to every observer that they will last for years to come, while the asphalt streets deteriorate faster and faster with each succeeding season. The brick paved streets, even where the traffic is heavy, show very little wear, and on the light traffic streets there is no perceptible wear at all. The excellence of these brick paved streets is due in no small degree to the quality of the brick used. Ohio pavers are unsurpassed in quality. Not only this, but they are laid right. The specifications adopted by the National Brick Manufacturers' Association are followed closely in Columbus, and this of itself insures an excellent pavement. So it is fitting that the next convention is to be held in Columbus, to show to the association members what good work they have done in the past, and what is ahead of them for the future.

Brick Plants In and About Columbus.

There are nearly twelve small yards within the city limits, all of which have a capacity of less than 30,000 per day, but they turn out a good product and have a hard time making the supply suit the demand.

The Fish Pressed Brick Company and the Capital City Brick Company, which were the largest brick plants in Columbus, are both now in the hands of a receiver and have not been in operation for many months. The Streit plant uses surface clay, but they dry their brick in a furnace-fired hot floor dryer. The Schmitt plant, which is located on Parsons avenue, in the southeastern part of the city, make building brick from surface clay, incorporating slag and cinders to prevent their ware from cracking or checking. They make a good brick and have a capacity of 26,000 daily. They dry their ware in the open and burn in old fashioned clamp kilns. The Conrad yard uses the river bottom clay and has a capacity of 24,000. They use steam power. The Ford plant has a Hercules six-mold machine, one dry pan and six kilns, and use shale, making about 1,780,000 annually. Nearly all the remaining yards have about the same capacity, using mostly surface clay, drying in the open and burning in open top kilns. The combined daily output within the city limits during the summer season is about 150,000 daily.

There has been built during the past year a sand-lime brick plant, which has been shut down for some time. The Bell Pottery, which was built a number of years ago, has never been successfully operated, and has stood idle for a greater part of the time since its completion.

Nine miles to the east of Columbus, at Taylor's Station, is the busy plant of the Columbus Contractors and Supply Company. They use a red and blue shale, which they have to dynamite and throw into cars by means of a Marion steam shovel. They burn their brick with gas in four up-draft Swift kilns and twelve round down-draft kilns, turning out on the average of 80,000 daily. This is a very interesting plant, and will be written up more fully in a subsequent issue.

Twelve miles from Columbus, at Groveport, on the Hocking Valley Railroad, and reached by the Lancaster-Columbus trolley line, is located the Columbus Clay Products plant, the manufactory of one of the finest red corduroy brick on the

market today. This is also an interesting plant, and is, at the present time, making many improvements, the most important of which is the erecting of more kilns, to give the plant a larger output. They make on an average of 30,000 brick daily, which number they expect to triple within the year. This plant will be given space in an early issue.

Around the Circle.

In central Ohio there is a group of plants easily reached by train, and which it will be well worth the clayworkers' time to pay a visit. These plants will be covered in an illustrated lecture by Prof. Edward Orton, Jr., of the Ohio State University, at the coming convention, for one of the evening's entertainments. In this way the National Association brings the plants to the convention, so that the visitors may hear of the great clay State's centrally located clay industries. It would be out of reason to undertake such a problem of covering all the plants in the State, so that the se-



Columbus Trust and Savings Building.

lection of the lecture on the clay products of central Ohio is a wise one.

This trip with the lantern slides and Prof. Orton as our guide, will take us through many of Ohio's largest and best clay plants of every description, covering the different common clay plants, and also the many higher, more scientific clay industries, such as mosaic tile, china, stoneware and art pottery.

Some of the plants to be visited are mentioned in the following list, which gives the reader a small idea of how interesting this lecture will be.

The Delaware Clay Manufacturing Company.

This plant, located at Delaware, twenty-four miles north of Columbus, and owned by Dennison Brothers, is one of the finest fireproofing plants in the country. It turns out an enormous quantity of good quality of fireproofing materials,

each and every department being subject to the closest observation from visiting parties. A trip to this plant would be well worth any clayworker's time.

Columbus Contractors' Supply Company.

This plant, which was mentioned in a previous paragraph of this article, will receive its due share of prominence in the lecture, and views taken from different parts of the plant will be shown. They make a good grade of building brick, using shale and burning their ware with gas.

Columbus Clay Products Company.

This plant is located at Groveport, twelve miles from Columbus. They make a specialty of fine red corduroy brick. They also manufacture a gun metal face brick, which is receiving much deserved attention from contractors and architects.

The Logan Plants.

Some forty miles southeast of Columbus, at Logan, we find three clay plants doing their full quota of work, in giving to the world good, substantial clay products. The Logan Brick Manufacturing Company is one of the largest in the district, using fifty-two kilns. They turn out millions of brick annually, finding a ready market for their excellent ware, which has a good reputation for strength, beauty and durability.

The Logan Clay Products Company is an old, well known firm, which possesses a well regulated plant, the product from which is much in demand. They manufacture sewer pipe, fireproofing and brick. Their crystallized salt glazed brick are without an equal in the country today.

The Logan Pottery Company has a small plant, but turns out good ware.

Columbus Brick and Terra Cotta Company.

At Union Furnace, not far from Logan, is located one of the oldest and best press brick plants in the world. We need not speak of this company's reputation, for their product is shipped to all parts of the United States, and is known by almost every contractor and builder. So great is the demand for their product that the brick are generally sold months in advance of the burning. Under the guidance of our friend, Mr. Ben Fisher, as many of the convention delegates as wish can make an enjoyable trip to Union Furnace (weather permitting), and will be well paid for their effort, for this is a veritable town of itself, with its general stores, depot and residences, built by the company for their employee's convenience and comfort. Space will not permit a description of this plant; it is immense, as is the kind hospitality that is always shown the visitors by the president, Mr. L. G. Kilborne.

National Fireproofing Company.

Over the hill from Union Furnace, at Haydenville, on the Logan-Athens division of the Hocking Valley Railroad, this company operates a busy plant, turning out thousands of tons of fireproofing materials annually, and employing a large force of men. They manufacture all grades of fireproofing, shipping many carloads daily in all directions. This plant is now being enlarged and many improvements made. It is but a half hour's ride from here to the

Nelsonville Paving Brick Plant.

Here, at Nelsonville, is one of the finest paving brick plants in Ohio, having many original features that you will find in no other plant of its character in the country. Its paving material is of the best quality, and needs no introduction to the brick manufacturing world. While this plant is now in the throes of a general strike, which has lasted several months, due to the labor agitator, they expect to be operating in a short time. A trip to this plant, for those who have never had the opportunity of looking through it, will please and surprise the visitors. There are many unique methods used in the manufacture, chief of which is the goose neck arrangements below the pug mill, from which the stream of clay is pushed, cut up into brick on an automatic cutter, and shot down a three-division chute to the represses. The use of electricity in the mine and for hauling the transfer

cars, shows the modern methods of the plant. Mr. Doan, the manager and secretary-treasurer, will be pleased to have those who wish to do so, visit and inspect the plant.

Athens Brick Company.

Not far from Nelsonville, on the same railroad, and using for the most part the same kind of raw materials as the Nelsonville plant, is the Athens Brick Company, a number of stockholders of which have heavy interests in the Nelsonville plant. This is another interesting paving brick plant, and furnishes Ohio with millions of brick annually.

Trimble, Glouster and MacArthur are small towns in this vicinity that have plants making good clay wares.

Columbus-Hocking Coal and Iron Company.

This plant is located at Greendale, due east from Logan, and to the southwest of New Straitsville. The plant was but recently completed, costing, it is claimed, \$450,000. At this plant they have installed large continuous kilns, with gas producers. The plant was erected on a most elaborate scale, the best of materials being used in the construction, and all modern conveniences installed. The plant has not as yet been successfully operated, due to trouble from the gas producer. It is hoped that this can be remedied by the time the convention convenes, and that the plant at that time can be in complete operation.

New Straitsville Impervious Brick Company.

This plant is turning out some fine press brick, made from a No. 3 fire clay and shale, having a daily capacity of 25,000. Mr. J. D. Martin, a graduate of Ohio State University, is manager.

Iron Clay Brick Company.

At Rock Run, a short distance from New Straitsville, on the road to Shawnee, is located the press brick plant of the above company. This plant turns out an excellent line of iron buff speckle brick.

Ohio Mining and Manufacturing Company's Plant,

At Shawnee, one of the largest press brick plants in Ohio, is busily turning out its good grade of brick. During the last year this company has erected a new plant, some 1,800 feet to the north of the old one, in which they will make stiff mud impervious front brick. They have built a large ten chamber Youngren continuous kiln, which has a total capacity of 80,000, and will be fired with producer gas.

Ludowici-Celadon Roofing Tile Company.

If we go north to New Lexington from Shawnee, we may visit one of the finest roofing tile plants in the world. An illustrated writeup of this plant appears in this issue. Here is also located the New Lexington High Voltage Electrical Insulator Company and the New Lexington Brick Company, both making a good quality of ware in their respective fields. At Junction City, a half hour's run from here, we may visit a large sewer pipe plant.

The Crooksville Plants.

This city is a few miles northeast of New Lexington, and connected with Zanesville by trolley and steam cars. Here are located nearly a dozen potteries, not the least of which is the Crooksville China Company, and the great Star Stoneware Company's plant. The Crooksville Paving Brick Company makes a high grade paving brick of much strength and durability, finding much trouble in making the supply equal to the demand.

The Roseville Plants.

Like Crooksville, Roseville is a pottery center, with its large Ransbottom Art Pottery Company, the McCoy Pottery Company, and the Roseville Pottery Company. Here are also located the Devonshire Brick Company and the Ohio Press Brick Company, the latter owned by the great Hydraulic system. It is needless to say that this latter plant turns out a good quality of press brick. Mr. W. Clark, a graduate of Ohio State University Ceramic School, is superintendent.

In close proximity to Roseville and Crooksville are the two

towns of Fultonham and Satillo, the former being the site of the two McClure & Sons Company plants, while the latter can claim to its credit the Buckeye Stoneware Company's plant.

Zanesville Clay Industries.

This is a veritable nest of clayworking industries, the greatest of which is the American Encaustic Tile Company, the finest plant of its kind in the world. The Mosaic Tile and Zanesville Tile plants are also located here. One of the finest art ware potteries in the country today is that of S. A. Weller Company, which puts upon the market some of the

most beautiful ware made. There are many other interesting potteries here, among which are the Roseville Pottery, the J. B. Owens Pottery, and the Zanesville Art Pottery Company. The T. B. Townsend Company operates two large capacity plants, for the production of hollow, common and sewer block and high grade paving brick. The Oakland Pressed Brick Company operates a plant here, which manufactures a high grade press brick. There is always to be seen in the exhibition rooms of the N. B. M. A. conventions samples of their products. The Harris Brick Company's plant is also in full operation here. The latest addition to the clay industries of

OHIO STATE UNIVERSITY BUILDINGS



UNIVERSITY HALL



POWER PLANT



NEW ARMORY BUILDING



BIOLOGICAL BUILDING



CHEMICAL HALL



HAYES HALL

Zanesville is the Fischer Veneer Tile Company, an illustrated writeup of which is given in this issue.

The Hanover Press Brick Company.

This plant furnishes Columbus with a goodly share of her red face brick. The Hanover famous red is well known, and has a ready market. A writeup of this plant will be given space in our columns at an early date.

This short summary of the clay plants of central Ohio is printed with a view of impressing the brick manufacturers with the fact that the coming convention will afford them a fine opportunity for visiting a number of up-to-date and interesting plants of varying character. J. E. RANDALL.

SOME THINGS WORTH REMEMBERING.

OUR COUNTRY hasn't gone to the dogs yet. Our crops in 1907 were worth seven billion dollars; \$500,000,000 better than for 1906. Good crops mean good business for railroads, merchants, manufacturers and professional men who serve farmers. No single branch of manufactures is equal to agriculture, but our manufacturers as a whole count for more than our crops by eight billion dollars worth. This may be reduced by business depression, but it can not be

Written for THE CLAY-WORKER.

NOTES FROM THE CERAMIC DEPARTMENT, OHIO STATE UNIVERSITY.



IT HAS BEEN a considerable time since a letter has been sent in to THE CLAY-WORKER concerning the progress of affairs at this school, and as important changes have taken place recently, I have thought that the clayworkers of the country might be glad to hear something on this subject, especially as the impending visit of the National Brick Manufacturers Association at Columbus next month will give many of them an opportunity to see the school for themselves.

When, thirteen years ago, this school was first organized, it started with one small lecture room, office and museum combined, and two small laboratories in the basement of Orton Hall. For twelve years, the department quietly worked and grew, gaining only a few small increases in working space, until the demand for room became too pressing to be longer ignored. The clayworkers of Ohio once more lent their assistance to the university, in pressing the claims of the ceramic department before the legislature. At the same



School of Mines Building, O. S. U., in Which Are the Class Rooms, Laboratories, etc., of the Department of Ceramics.

wiped out. Hundreds of millions of tons of coal must be used and that means that hundreds of thousands of men must be paid for mining it.

The daily wants of eighty-six million people make an enormous demand upon our farm and factory products. Those people at any given moment are wearing eighty-six million suits of clothing, eighty-six million pairs of shoes besides the extra supplies carried in merchants' stocks. They occupy twenty million houses which must be kept in repair, and hundreds of thousands of new houses must go up in the next year. Two million new residences must be completely fitted out. The farmers must have thousands of miles of new wire fencing. The railroads, however much they want to retrench, must order millions of tons of new rails or see their cars go bumping over the ties. They must have thousands of tons of coal, new locomotives, and thousands of cars, with roadbed kept in repair and men to maintain their systems. The manufacture of things to exchange with each other will keep most Americans busy. America is the focal center of optimism; it is essential to the life and health of American institutions, American industries and American business. When you hear someone say the country has gone to Hades, make up your mind that it has not and never will. Our resources are boundless, and of all times this is the time to show our faith and confidence in the country itself to make good.—Exchange.

time, the other mineral industries of the state united in a similar request for a new building, which should house the departments of mining, metallurgy and ceramics, the three great branches of the mineral industry.

The funds became available in the summer of 1905, and the building was at once constructed. It was not until the fall of 1906, after the next recurring legislature had made an appropriation of \$22,500 for the partial equipment of the building, that we were able to move into the new quarters. Of this sum about \$8,500 fell to the ceramic department, to cover the expenses of moving and re-equipment. Instruction has now been given in the new building for one year, and the newness of things is beginning to wear off, and the various parts of the work are beginning to run smoothly again.

Fig. 1 shows the exterior of the School of Mines building. The ceramic department occupies the entire west wing from the center to the left end of the first two floors, and three rooms at the extreme left end of the third floor, in all amounting to about 35 per cent. of the total floor space of the building, the remaining 65 per cent. being divided between the departments of mining and metallurgy. The space occupied by our department is nearly three times the greatest area occupied in the quarters in Orton Hall.

The rooms thus far equipped are as follows: (1) Direc-

Views of the Department of Ceramics, Ohio State University



Balance Room, Chemical Laboratory. There are Seven Balances, Each Resting on a Separate Wall Desk. North Light Only Used by Day, Electricity by Night.



The Lecture Room, from the Southwest, Looking Northeast. The Electric Lantern is Throwing a Diagram of a Kaolin Mine on the Screen.



Ceramic Store Room, Showing Large Bins for Heavy Supplies, Small Bins for Less Used Materials, and Glass Door Cabinets for the Expensive Oxides and Colors. Table for Weighing Out Occupies the Farther Corner.



The Chemical Laboratory. A Class at Work on the Analysis of Clays. The Desk Tops are of Stone. The Hoods are of Glass, Iron, and Stone.



The Plaster Shop, Showing Hand-Power Turning Wheel, Plaster Bin, Work Benches and Molds.



Students' Locker Room and General Workroom. Only Hand-Power Machines Used in This Room. In the Distance the Mo'd Room and Plaster Shop are Seen.

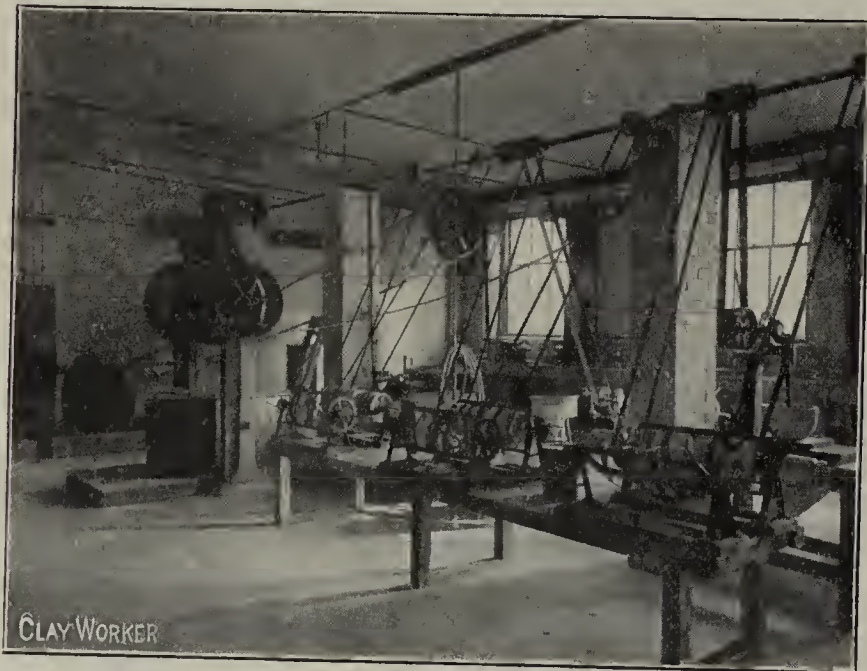
tor's office, (2) director's private laboratory, (3) class room, (4) chemical laboratory, with instructor's office and balance room adjoining, (5) ceramic work room and locker room for students, (6) plaster shop, (7) mold storage room, (8) pottery machine room, (9) brick machine room, (10) grinding and screening room, (11) ceramic store room, (12) kiln room, (13) assistant professor's office, (14) thesis and experiment room. There are, in addition, two large rooms, originally designed for a drafting room, and for a museum, neither one



Pottery Machine Room, Looking West. In the Right Corner is the Pneumatic Sifting Machine, Beyond are the Two Filter Presses. Along the South Wall are Two Jiggers.

of which is yet equipped for use. The completion of the equipment will probably be procured from the next legislature, and will occupy another year or more of time after the appropriations are made. Meanwhile, those portions of the equipment already installed are giving great satisfaction.

A series of views of the various rooms and their equip-



Pottery Machine Room, from the Northwest Corner, Looking Southeast. The Jar Mills Occupy the Foreground, the Large Ball Mill the Left Center, and Motor and Switchboard the Left Edge.

ment is given herewith. The titles under each view explain fully what is being shown.

At the time that this building and its equipment was planned, it was the desire of the director and the officers of the institution to build for the future, so that the normal growth of the department might be cared for for some years to come. At the end of one year's occupation, the astounding fact develops that already the department is virtually full.

The classes this year are using practically all of the space and all of the equipment of the department. The number of students enrolled is as follows:

Freshmen	17
Sophomores	20
Juniors	21
Seniors	13
First year, short course.....	8
Second year, short course.....	8
Specials	3
Total	90

Since both short course, long course, and special students take some of the classwork side by side, it happens that the various laboratories are likely to become congested, although the number of students represented in any one class may not seem large. For instance, there are 23 enrolled in the sophomore course in ceramic chemistry, while in the junior course of lectures in ceramics, there are 36 students enrolled; and in the senior ceramic laboratory course, engaged in clay testing, etc., there are 22 enrolled. In addition to these, there are various special students taking other work, which can not be conveniently listed.

The teaching corps has materially altered this year. Professor Orton still remains as the active head of the depart-



Kiln Room. East Side Looking North. The Black Kiln in the Foreground is a Revelation Oil-Fired Kiln in Operation at the Time the Picture was Taken. Beyond it is a Gas-Fired, Up-Draft Kiln, and in the Distance a Coal-Fired, Down-Draft Kiln. Brick Bins with Iron Doors are Shown Along the Right Hand Wall for Storage of Coal, Coke, and Fuel Supplies.

ment, and carries the work in clayworking, lectures and laboratory. He has brought in as assistant professor, Mr. R. C. Purdy, who, by his ability and force, achieved a brilliant success at the University of Illinois, during the first two years of the ceramic department there. Professor Purdy has fine experience as a practical ceramist, has acquired a reputation as a successful and thorough ceramic investigator, and now brings to his work the prestige of two years of successful teaching. Having originally studied at Ohio, and acted as instructor there for several years, he takes up his new duties with ease and readiness, and already the good effects of his presence are being felt.

Professor Purdy's work at present is the teaching of ceramic chemistry, and the teaching of the courses in cement manufacture. As his assistant in the work, Mr. J. M. Knote has been secured. Mr. Knote is a chemist of fine acquirements, is a graduate of Wittenberg College, and holds a Master's degree in chemistry from Ohio State University. He has been taking work in the department of ceramics for some time past, and has been engaged in an experimental

investigation of some importance at the Logan Brick Manufacturing Company's plant at Logan during the past summer.

As Professor Orton's assistant in the ceramic laboratory, Mr. W. G. Worcester has been secured. Mr. Worcester holds the certificate of the short course in ceramics at Ohio State University, and has a number of years' experience as a roofing tile maker, having designed, built and operated several plants. It is ordinarily impossible to secure a man of his experience for this position, but a strong desire to carry on some experimental work has been the inducement which enables the department to secure him for one year.

With the teaching force thus increased, with a largely improved equipment, with a building designed for our needs, and with larger numbers of students than ever before, the prospects of good results, both in the form of well trained graduates, and useful investigations into ceramic problems, are better than ever before. The students themselves seem to have caught the enthusiasm which permeates the department and are working actively and vigorously. They have recently organized the local Ceramic Society, which they maintain by their own work, and which has proven a most useful tool in helping them to help themselves.

The teaching force and students alike are looking forward with keen anticipation to the coming of the American Ceramic Society and National Brick Manufacturers' Association to Col-

A DREAM SPOILED.

PAW! ANOTHER DREAM spoiled, at least disfigured with a note of discord that takes the sweetness of harmony out of it. And, this dream is not a selfish dream of our own all together, but one in which was pictured good things for all brick men, both at home and at the works. Not so long ago, some bright light of genius up in Pennsylvania, announced the discovery of a chemical, a little of which added to water and ashes sprinkled with this water would enable one to reburn ashes and get a lot of fire therefrom. In fact, the pen picture of the discovery was almost enough to lead one into the belief that more fire and better fire could be obtained from the ashes than was gotten originally out of the coal and other substances from which the ashes were produced. It would be impossible to picture, in detail, the dreams and castle building this started. It began, of course, with the home, where a man could go out to his ash barrel and fix up enough fuel to do him next year, so that when the ice man gets through with the summer and the coal man comes around again, we could all say "Nay, nay, Pauline." Think of the pleasure it would be to any householder to turn down the coal man and tell him he did not need him any more. But this is only the small end of the dream, only the beginning from which there started and gradually developed mind pictures that solved the problem of fuel for burning brick. We would not need any fuel, we need not worry about gas



Kiln Room from the Northwest Corner, Looking Southeast. The Coal-Fired, Down-Draft Open, and Showing its Contents of Saggers, is Seen on the Left. The Draft Gauge and Pyrometer are Seen Standing Against the Brick Pier in the Center. In the Center, the Oil-Fired Revelation Kiln and the Dryer are Seen. Flues Supported on Eye Beams and Brick Piers are Well Shown.

umbus during the winter. They anticipate with great pleasure the exceptional opportunity of listening to the proceedings of these organizations, and the chance to meet the prominent men of the clay industry, face to face. On the other hand, doubtless many clayworkers of the United States will enjoy the opportunity to see and study in operation the workings of this school for clayworkers. The problem of ceramic education, which was undertaken here thirteen years ago, amid the openly expressed doubts and warnings of practical clayworkers all over the country, has now existed long enough to justify itself, and opportunities will be given to those who are interested, to not only see the working of the department, but also to learn something of the success which its representatives have met as they have gone forth to take their place in the busy world.

EDWARD ORTON, JR.

We find a "man of the hour" every once in a while and ought to be satisfied with that, but occasionally we wish we might have a man for nearly every hour. Anyway, we could stand a few more of these "men of the hour" who do things.



Kiln Room, West Side, Looking North. The Front of the Up-Draft, Gas-Fired Kiln Shown on the Right. The Flue Connecting all of the Kilns with the Stack Shows in the Right Upper Corner. Along the North Wall may be Seen the Deville High Temperature Furnace, the Gas-Fired Fritt Furnace, and a Small Gas Muffle Furnace.

producers and all these other things. All the old time brick-maker would have to do, would be to hunt up his old ash pile and for the next ten years wax fat and prosperous on what he had evidently been wasting in years gone by.

Now, experts are punching holes in the theory of burning ashes. It is pointed out, that theoretically and strictly speaking, ashes, that is, true ashes, represent a residue, that part of fuel which is incombustible. Of course, it is admitted that the name of ashes is applied to all solid matter falling through the grates that is not consumed, and some unburned coal in fine particles finds its way into the ashes, and is in reality coal dust rather than ashes. This, it is claimed, will burn, that is, will burn to the extent of consuming the coal dust and other combustible particles mixed in with the ashes, and there is probably enough of this to demonstrate that there is quite a lot of waste in burning coal, but when it comes to burning ashes, the experts say that the genuine article can not be burned. If the ashes contain a considerable amount of coal and coke, they may, by special method, be made to produce more heat and may even be used again in the furnace profitably. It looks like what we are to get out of this in the end is not really a

means of burning ashes, but an awakening to the fact that there is lots of unconsumed fuel going into the ash pit. Then, after this awakening will come a devising of ways and means to prevent such fuel from going to waste. We will, it seems without question, get some good results out of it in this way, so that the agitation has not, by any means, been in vain. Still, who cares for a little thing like that?

MICROBES OF STRENUITY.

IT IS SAID THAT a Bavarian pathologist has discovered that fatigue is produced by toxin, and intimates that he has an antitoxin which produces counter effect. Or in other words, has what would virtually be a microbe of strenuity. In short, plain English, we may have that tired feeling cured if this man's theory proves to hold water and have injected into us in its place a hankering for work. There is something just a little bit familiar about this. It is not so long ago that there was a great furor in the sensational Sunday newspapers about a discovery to the effect that laziness is a disease, that is, a physical disease instead of a mental one, and can be treated and cured as any other physical ailment. After the froth of sensation was blown off this story, and it was boiled down to real facts, it developed that the United States Marine Hospital Service had discovered in tunnels and quarries, especially in the south, that people are subject to certain ailments which manifest themselves in the form of great lassitudes, and that the cause of these ailments are microbes peculiar to the earth, and are bred and developed originally among people working in tunnels and deep cuts and quarries. May be this new sensation will boil down the same way, or may be it's simply a re-echo of the former discovery, and then again may be it's something different. May be it's the real article, may be we are to have microbes of strenuity that can be injected into any one and create a great desire for work. Usually we think it would be a good thing if we could. We see some fellow every once in a while who looks like an injection of ginger of some kind would make a better man of him, a more useful man in this world, and then, entirely aside from the great army of ordinary mortals who periodically in some instances, and continually in others, need more of the strenuous element, there is another army known as the hobo. These in time, when they strike a city in a strictly virtuous mood, get a treatment of soap and water. But, just think what a great work could be accomplished if instead of having to worry with scrubbing them up and know that they were going to get dirty again, all that would have to be done would be to get them up and inject a little of the antitoxin, or whatever it might be that removes the tired feeling and creates a desire to work. Then they not only would get their own soap and do their own washing, but would become useful citizens. In other words, it looks like it would be a great blessing if we had something to cure that tired feeling and make us all hunger for work. It would not only lighten up many a household, but would make the burden easier on many an employer of help, and he could trim down expenses by dispensing with some of his foremen who have to keep right after the men all the time, because the men would naturally want to work so badly that they would keep at it all the time, and may be so much so that one would have to go around with a club and make them stop at night. But, right here enters a counter element of danger which shows that it would not be an unmixed blessing. There might come times when some employer, either unscrupulous in himself, or in desiring to get even for past

short comings on the part of his men, would so inoculate his employes with this treatment that they would not want to quit work at all, and in this way he might not only get more than his share out of them, more work than he had paid for, but he might also cause overproduction and that would spoil the market, lower prices and clean out the profit account. There are no doubt many people who, and especially at this season of the year, would be benefitted by an injection or inoculation of microbes of strenuity, but like all good things, it furnishes some room for abuse, and consequently we are not inclined to rashly express an opinion about its benefits, at least not till we know more about its actuality.

OBJECTIONS TO HOLLOW TILE FOR EXTERIOR WALLS.

The City Council of Los Angeles, acting on a report from the Building Inspector, has declined to amend the building ordinance by adding a provision permitting hollow tile blocks to be used for outer walls of buildings inside the fire limits. This has been taken in answer to a set of resolutions recently passed by the American Institute of Architects asking the Council to modify the building laws so as to permit the use of hollow tile blocks for walls of buildings not more than thirty feet in height. The report of the inspector was as follows: "In my estimation it would be extremely unwise to



Factory Office of the American Terra Cotta and Ceramic Company.

allow the use of hollow tile blocks for exterior or interior weight-bearing walls within the fire limits, for the reason that it has been demonstrated that said tile is such an excellent non-conductor that the outer wall or shell of the tile will become red hot when subjected to intense heat, while the interior wall of the tile is comparatively cool. The result is that the outer shell of tile (owing to expansion) will break away from the connecting web, after which a wall of such tile carrying any considerable load would collapse by buckling. In the event of a fire in a building of ordinary construction, which might be located in close proximity to a structure built of hollow tile, there would be grave danger that the burning timbers falling against such a structure would penetrate the wall and thus set fire to the contents of said hollow building. Even an ordinary blow will fracture the tile in such a wall, and the backing of a heavy wagon against the building would be liable to cause quite a break, to say nothing of the opportunities offered to a mischievous boy or any one else armed with a heavy hammer, who could with very little effort break through the walls of such a structure."

Written for THE CLAY-WORKER.

TERRA COTTA IN ARCHITECTURE.



HAT EGGS ARE to the cake, terra cotta is to the modern building. It is an important factor in the substantial part, and for "frosting" and ornamentation it can't be beat. (Differing therein from the aforesaid eggs.)

Anyone who wanders through downtown Chicago with his eyes somewhat elevated from the curb line, will be inclined to subscribe to the truth of this statement. If he is lucky enough to get a terra cotta man at a moment when the latter isn't too busy to talk to him about terra cotta on big and little jobs outside Chicago, he will be dead sure it is right.

The ornamental uses of terra cotta in building—that is, the cornice and band effects for exterior decoration are too familiar in use to call for discussion. The ornamentation intent is as old as the use of terra cotta. The results being

terra cotta is preferable to stone. In almost every instance in which stone is used we see it on the lower floors only. The upper stories are carried out in terra cotta or front brick, or most frequently in the pleasing combinations obtained by employing both these clay products, high finish materials. The use of terra cotta in exterior walls has increased, terra cotta authorities say, one hundred per cent. in the last five years. More and more often we see terra cotta being employed alone for the exterior finish. Even the stone work in many of the handsomest buildings now being erected is altogether omitted from the items of outside construction.

The Republic building, a fine new structure at Adams and State streets, is a good example of the use of terra cotta from sidewalk level to cornice top. The material was furnished by the Northwestern Terra Cotta Company. Still another job of the Northwestern Terra Cotta Company's furnishing, is the Ford building, Detroit, Mich., with an enamel finish like the Railway Exchange building, Chicago, and in this building also the terra cotta runs all the way. The new building of the Commercial National Bank is one of the "show" jobs recently



Factory of the American Terra Cotta and Ceramic Company as Seen Across the Lily Pond.

produced today show the greatest advance in this department. They are examples of true art. In conformation, color work, durability and adaptability this material far exceeds any other that could be put to this use.

It is in its employment not only as ornamentation, but as the sole material in entire great fronts of the modern building, giving an exterior surface for story after story of the largest skyscrapers, however, that terra cotta is achieving its greatest triumphs today. Terra cotta men claim for their product the distinction of being the very best for use on walls of buildings of steel construction. They assert that it can be attached most readily to the structure; that it is absolutely fireproof and weatherproof, and that so constructed is as solid as anything can be made. Its superiority over stone is easily seen. It is much lighter and easier to handle at great heights. Stone, especially ornamented stone, is far more expensive, and, moreover, it is far more difficult to prepare stone for the walls of these steel structures, than it is to use terra cotta.

Scarcely a metropolitan building but demonstrates that

handled by this company. The building has two fronts, and the terra cotta of granite finish, to match the four lower floors, is used on the fifteen stories.

One of the most interesting pieces of terra cotta work now on view among the downtown skyscrapers is the result of a sort of artistic conference in which took part Gates and Prosser, of the American Terra Cotta Company, and Jarvis Hunt, the well known architect. The American Trust and Savings building, Clark and Monroe streets, was their subject. In each of the stories above the stone work, forty different shapes of terra cotta blocks have been employed, the dimensions of some of the blocks running seventeen inches by three inches. The finish of the terra cotta is a rough glazed surface, having a speckled cast, and this, with the scheme worked out in lines through the unusual forms of the blocks, presents a striking appearance. It was a good deal of an experiment, but it has proved a highly successful venture—about fifteen stories high and every inch of it a success.

Terra cotta serves its ornamental purpose not only in the skyscrapers, where it receives but passing attention, given

generally to one striking detail at a time, but is used with good effect in some of the most handsome residences of the country. It may be used in combination with other materials, as in the highly artistic Clifford residence in Minneapolis, where American Terra Cotta is blended with raindrop brick for the exterior effect; or solely in its own different forms, as in the residence of J. R. True, president of the Northwestern Terra Cotta Company, in which he used his own company's product to build "the terra cotta home of a terra cotta man." The general effect in white enamel terra cotta is attractive, and when one comes nearer and notes the wonderful detail work, harmonizing in lines and shadings, he realizes that there is something decidedly worth while in modern architecture from an artistic point of view after all. The entrance to Mr. True's home is considered one of the city's architectural gems.

It was the intention of the writer to describe two terra cotta homes of two terra cotta men, but W. D. Gates, president of the American Terra Cotta Company (this in case any one needs an introduction to Gates and his genial smile), gave

through the factory and found this fellow had finished a group that was, in the words of the poet, "a Loola." The chief figure was a satyr—second cousin to the one now on guard at the terra cotta fountain. Behind him, and a little to one side, was the figure of a woman with both arms thrown about Pan's shoulders, her face upturned persuasively. And Pan, old boy, with a delightful leer had just turned his face towards hers, his villainous old mouth all made up for a kiss.

"What's that," asked Gates, blushing, "a Katzenjammer?"

"Not much; haven't touched a drop in a month; that's pure art," replied the designer indignantly. Gates admitted he must be right, for the lady was posing in the all together, but he shook his head.

"Hide it," he murmured faintly. "Anthony Comstock might raid us if he knew."

One day Gates had an architect visiting the plant with him. In an unused corner they ran across Pan and the lady still waiting.

"Whoop!" exclaimed the architect who knew something



Factory Office of the American Terra Cotta and Ceramic Company, Viewed From the Roadway.

up his terra cotta home at Hindsdale some time since, and his near-terra cotta home, at Terra Cotta, he has recently daubed over with cement. Gates' friends have joked him about it a good deal, and have inquired anxiously if he was "stucco'n the job?" Gates replied that he had done it as a sort of penance, lest life among so much of its terra cotta good things should prove too perfect. He allowed himself one indulgence, however, in the shape of a fountain set off by his favorite terra cotta and Teco ware. He might deny himself the world and the flesh in the guise of his favorite building product, but he couldn't separate himself from that devil of a Pan standing guard over the lilies in the fountain. If you look you can see Gates playing peek-a-boo with Pan from beside one of the seven-foot vases which stands beneath the pergola back of the fountain. Precisely Pan's relation to his Satanic Majesty has not been determined, but Gates admits he is a pretty rough looking citizen, and then explains how he got into a pact with the tribe of Satyrs.

It all came about because one of the American Terra Cotta designers had a taste for pure art. One day Gates went

of pure art himself. "Wakes the old statue up, doesn't it? I must have that."

The dour Scotchman who set the group had another idea. He contemplated (modestly) only the satyr's grotesque visage with its one ear at attention and the other lopping rakishly, and the pursed-up lip.

"Maun be lookin' for th' coospitor," he commented.

Well, it's a far cry from office buildings to satyrs, even when they're made from the same material, and it's to be hoped Mr. True won't feel jealous because I've rambled on so about Mr. Gates' fountain, and said so little about Mr. True's beautiful home. But, in truth, in the five years since the True home was built it has become so justly famous that more than mention of it is almost trite, and Gates' turn to Pan theism is something new.

It's not so far a cry from Pan to pottery, for it was from pottering with pottery that Gates drifted from pandering to Pan—to the extent of providing that attractive pan of water otherwise known as the pool or fountain in which the sensuous lines of the insensate form of the old satyr find daily reflec-

tion. Gates is a clayworker by instinct. He set sail on his business career flying the black flag of the law at masthead, but he ran shoal on a claybank because he just naturally let his eyes wander from the North Star to the Big Dipper, and he has stuck there ever since. Clay products is his line, terra cotta his specialty; but pottery, Teco ware in particular, is with him an obsession, and he can't get away from it, and doesn't want to any more than you can get away from Gates, or want to, after he has once got hold of you for one of his "buttonhole talks."

"When I first started out," said Gates not long ago in telling about himself and his pottery, "I got out a card: 'William D. Gates, manufacturer of terra cotta, vases, brick, wall copings, tile, sewerpipe, etc.,' and when the cards were ready if I found I had left off anything important I had it put on the next day. Soon I found that if I confined myself to one thing that I could do well, that was plenty. I confined myself to terra cotta. I nursed that idea for two or three years, and then we started to make pottery. Anyone who can run a pottery as a business by itself can claim title as a great

any originality in the work. I may bring out a fine vase today. A man looks at it and says: 'That was copied from the Romans;' or 'That was copied from the Assyrians.' Now, as a matter of fact, it is not a direct copy at all, for I have not copied it from them. But there is a line running through the human mind. Perhaps I see a vase today, and the impression of it will stay with me and will have its effect on me in after years.

"Then when we come to the question of geometric curves, we note that there are men who have theories that all these things in the old Greek and Roman times were worked out by strictly geometric rules. A man demonstrated to me a short time ago that he could work out the plans of the Parthenon by geometrical propositions. Yet that man, in trying to work out a vase design in the same geometrical method, would fall down; but if you drew a vase, with his geometrical theories, he, in an hour or two, would show you with his geometrical theories why you got such a curve, but he could not construct it. It can be constructed mathematically unquestionably, but it has to be pleasing to the eye,



Gates' Near-Terra Cotta House, With its Quaint Teco Vases and Other Decorations

financier. I think I have referred to it before. The idea suggests itself that I must have been like a lot of other people, who discover a claybank when they are off on a vacation. They fail to distinguish between a claybank and a national bank. They think that they can draw on the claybank without limit, and cash what they scoop out like a draft on a national bank. There is a connection between the two, for the claybank needs the national bank behind it to work it successfully.

"If you wander through one of our large department stores, and saunter through their pottery department, you will wonder that anybody should think it worth while or have the nerve to make any more pottery. Yet it is an attractive line of business, and I suppose that is what keeps us all at it. I really think there is nothing more attractive than the little area of lines that comes within the potter's field. Just the slightest variation in curve makes the good vase or the poor one. No matter how much experience a man has had in drawing that line on the paper, he is fooled when he brings it out in the work. Then again it is hard to get credit for

and the slightest change in one of those curves will make all the difference in the world in the appearance of the vase.

"There are quantities of vases made and there are any number of ways of making them. But there are no high walls about the work nowadays. At least there are none around our place, and there are no locked doors. We get together and we find one man who has tried one plan, and another who has tried another, and so on, and we exchange our ideas in experimenting along lines that save expenditures."

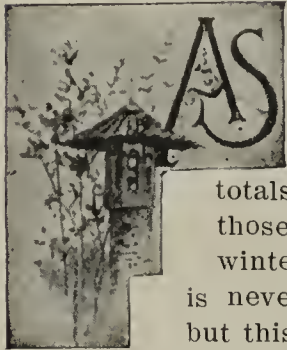
There are certainly no forbidding walls about Terra Cotta. Everything is free and open and attractive, and the Teco ware stands all about, some of the terra cotta urns being higher than a man's head. Gates himself won't be there for a few months, but the real Gates welcome will still be extended by his son, who is coming as fast as a young man can, into the heritage of his father's winning ways. Meanwhile Gates will be journeying abroad through the Mediterranean and into the Land of the Nile, getting some new lines into his brain, later to find expression in his wonderful

pottery, and mayhap erasing some old lines from that kindly face of his. He takes his sketchbook with him, and when he gets back we'll look for some "personally illustrated" buttonhole talks.

SCRIP.

Written for THE CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND THE NORTH-WEST.



PREDICTED LAST month, the building record in Minneapolis and St. Paul suffered a very severe setback during December. Very little new work has been started, and the building permit totals will undoubtedly prove much lighter than those of a year ago. Owing to the severe winters in Minnesota, the month of December is never a heavy one with the building trades, but this year has been especially light, as, owing to the present financial stringency, no one has cared to make any definite preparations for the future until it could be known positively whether or not the predictions of the banks that the trouble would blow over were well founded. The northwest has suffered less from the recent troubles than any other section of the country, and the feeling has been general that there would be an early and marked improvement to the situation, but there has been no inclination to anticipate the change, and practically everybody has postponed making definite arrangements for the new year until there was absolutely no danger of a prolonged stringency. The month has been given over largely to finishing up as much of the old work as possible, and getting things in shape for the coming season, and, owing to the small amount of new work announced, things are more nearly cleaned up than usual. There has been nothing new started except the usual amount of dwelling houses. The opinion prevails that the year of 1908 will be a good one in the building line, as the financial stringency is about over, so far as this section is concerned, the banks having resumed unrestricted currency payments, and building materials generally are lower than for some time. All this, together with the generally prosperous condition of the northwest should, it is thought, result in one of the biggest building years in the history of the twin cities.

Even with the heavy decline in building operations during the last six weeks, the year of 1907 passes into history as one of the best that this section has ever experienced. Profits to builders have been equitable, wages have been good, there has been a reasonable return on capital invested, labor troubles have been of minor importance, and there was no reason locally why the record could not have continued up to the close of the year, in which case there can be no doubt but that all records would have been eclipsed. The value of the open shop as a preserver of peace has been more strongly demonstrated, and it has been fully shown that the usual petty disturbances and handicaps imposed by the interferences accompanying the closed shop are unnecessary and detrimental to all concerned. Labor has prospered well during 1907, and a good wage schedule has been maintained, while the employer has had the freedom of choice and of operation.

The value of building at outside points also seems to be

the largest in history. Larger and better buildings and more of them are included in the reports from the cities and towns of the northwest. The interior towns have been building with a greater regard for the future than ever before. The materials have been more carefully selected, greater attention has been paid to architectural appearance, and to strength and durability of construction. While prices have declined materially during the fall on all building materials, the manufacturers have experienced a good year, and there are very few poor reports being made.

The Minnesota State Association of Builders' Exchanges held its annual meeting at Stillwater on December 11th. The meeting was signally successful, over five hundred delegates being in attendance, all parts of the state being well represented. Much business of importance to the association was transacted, and St. Paul was selected for the next year's meeting. Officers were elected as follows: President, J. W. L. Corning, St. Paul; first vice president, W. A. Elliott, Minneapolis; second vice president, H. A. Hall, Duluth; third vice president, A. H. Hatch, Faribault; secretary-treasurer, A. V. Williams, St. Paul; executive committee, A. P. Cameron, St.



The Gates Fountain, Over Which Pan Stands Guard.

Paul; N. W. Nelson, Minneapolis; P. P. O'Neil, Faribault; C. Thompson, Stillwater, and E. Zauft, Duluth. A banquet was served at the Sawyer House, O. H. Ilson acting as toastmaster.

The St. Paul Builders' Exchange held its annual meeting December 3d, and officers were elected as follows: President, Wm. Rhodes, first vice president, A. Rankin; second vice president, A. Dahlman; treasurer, A. C. Raynor; secretary, A. V. Williams. One hundred and seventy-five firms at present hold memberships in the Exchange.

The Minneapolis Builders' Exchange election will be held in January. The committee on nominations has announced its list of candidates. W. A. Elliott and H. B. Cramer were to be given no opposition for the offices of president and treasurer, respectively.

M. S. Detweiler, a well known Minneapolis architect, died last month at Rochester, Minn., after a prolonged illness. He was a member of the firm of Bell & Detweiler until last summer, when failing health compelled him to retire. Among the larger buildings on which Mr. Detweiler had worked, the most important is the new capitol building at Pierre, S. D.,

now under construction. The deceased was a Mason, and was buried under the auspices of that order at Austin, Minn. A widow and infant son survive him.

The National Fireproofing Company, through its northwestern representative, Harold Johnson, of Minneapolis, has closed the contract for about eighty carloads of hollow tile work, to be used on the new Thomas store building, Minneapolis.

Harry W. Jones, the Minneapolis architect, who was almost fatally injured in an automobile accident last summer, will return from his trip around the world during the month of January. Latest advices are that he is much improved in health.

The Tipton (Iowa) Brick and Tile Works will enlarge its plant, and will install considerable new machinery.

The Dows Brick and Tile Works, of Dows, Iowa, made nearly a million and a quarter tile during the past year.

J. F. Jacoby has resigned as manager of the brickyard at Coon Creek, ten miles north of Minneapolis, to accept a similar position at Kansas City.

The Corwith (Iowa) Brick and Tile Works has filed arti-

THE BUILDING OUTLOOK.

CONTRADICTORY AS IT may seem, it is a logical fact, that the present depression in financial circles should encourage building operations next year. For the time being, of course, building operations, like everything else, are suffering somewhat. In some parts of the country, in fact, it looks like somebody had sandbagged the building material trade, and it had not yet recovered and gotten its bearings. Dealers in building material are buying for immediate needs only, and real estate men and others who have been planning some pretentious undertakings in the way of new structures of magnitude are holding up their deals until the financial situation recovers from the shock of the recent panic. As a result, of course, many employes of the building trades are out of work for the time being, and many contractors have nothing much to do but wind up jobs on hand, and sometimes even then they have to do slow, so that the builders may be able to meet their payrolls. To look at the matter, therefore, purely in the light of present conditions, the building outlook is rather discouraging, and it will probably continue that way until the end of the year now. There is every year a sort of mid-winter let up anyway, and this year it has just come a little more suddenly, and from other causes, instead of waiting for the weather to force a cessation of business.

Now for that ray of encouragement that may be seen in the present depressing conditions in financial circles. It is well known that while buildings are a necessity, the majority of them are not immediate necessities, and, during flourishing times, while building material is comparatively high, many projected building enterprises are held up and put off until next year, and it is thought that prices may get easier. There have, in fact, been many instances where architects' plans and estimates were actually exceeded by the real figures when submitted by contractors, and building plans were postponed because of the excessive cost alone. It is expected that there will come, as a result of the present depression, some easing down in the cost of building material, and in the point of the cost of securing help to erect buildings. It is to be hoped that there will not be any sharp decline in any

one class of material, but yet there is not much question but what the cost of erecting buildings next year will be much lower than what it would have been to erect the same building last year or even this year. It is this factor that will lend encouragement to those contemplating pretentious building operations as soon as the financial world has recovered its confidence and activity is again restored. There is a fair chance, therefore, that building operations will be pushed forward next year with more energy than they have been during the past few years, because of the opportunities to get material and to do the work at a lower cost than has been possible during the past few years. We all know that certain things have been too high, and especially has the cost of laying brick been too high, and bricklayers and other employes have contended that the wages they have been asking are essential to their own well-being, and are necessitated by the cost of everything that enters into their living being higher, and increased wages simply help to meet it.

With everything slacking down to a more rational level, meat, clothing, and everything else, the cost of living, if not the material itself, should be reduced, and, in the end effect



Gates and His Monster Teco Lawn Vase.

cles of incorporation. Capital, \$20,000. L. Wollenberg and others.

The Marshalltown (Iowa) Brick and Tile Works will begin the manufacture of glazed brick and tile next season.

The Fort Pierre (S. D.) Brick and Tile Company has been incorporated by Chas. J. Harland and associates. It is capitalized at \$50,000.

G. M. Allbrook, of Delhi, Iowa, may form a company and establish a brickyard at Oskaloosa.

C. E. Phillips, of Big Stone, S. D., may start a brick plant near Groton, S. D.

The Farmers' and Mechanics Savings Bank, of Minneapolis, has just announced that it will begin the erection of a new bank building early in the spring on the site of the present building. It will be about twice the size of the present building, and will cost about \$100,000. T. WIN.

Quite a few bargain sales in mining stocks are now making a noise like the old-time gold brick, but so long as anxiety to get rich quick outweighs better judgment there will be picking of some kind for the sharpers.

enough of a saving in the ultimate cost in a building of magnitude to make it a splendid period for building operations as soon as the business world gets over its present addled condition and settles down and starts going ahead right. This is what should happen, and, if the signs read right, next spring should bring with it a healthy revival in building operations.

A CRYING NEED FOR CHEAP TILE ROOFING.

"THE DAY IS COMING," said the Colonel, "when we will want and demand something better than wooden shingles for roofing purposes, in the construction of our moderate cost buildings. I do not know much about the clay roofing tile business, but from the way they are making other kinds of tiling, for hearths, mantels and things like that, for example, it strikes me that your clay people might turn their searchlight on this roofing tile question and unearth something good. What we want is something to take the place of shingles, and something that is not too heavy and too difficult to put on. Ordinarily tiling is too heavy to please the lumber yard man for the average dwellings, but if you can devise a way to successfully manufacture a plain light roofing tile, and can reduce the cost of manufacture down where it won't



General View of Ludowici-Celadon Plant, at New Lexington, Ohio.

make the roof cost too much as compared to the rest of the house, there is practically no limit to the quantity that might be sold. I think, too, that this is a more plausible and likely pipe dream to realize than the one you have just been wrestling with, but I really don't know anything about it except that there is room to market something of this kind if you can only get something that will fill the bill."

"What about the chance for enlarging the market for brick among the lumber people?" I asked. "Is there not a chance to build that up considerably by a campaign of education, especially now that structural lumber has gone up so high?"

"Well yes, but I have an idea the educational side of it ought to take a little different form from what you are probably thinking about. Your people are doing a good work in promoting the idea of training schools to educate the boys in brick laying, but I believe you ought to extend this idea and give the general public a lot more information than it has got on the subject of bricklaying. I don't know just how would be the best way to go about it, but if you can once get the people, the building public, informed on the details of brick laying so that instead of being regarded as a special art, they may get the idea that any man with a head on him

can soon learn to lay brick, get to see and understand the whole thing so that it will be more simple to them, like carpentering, they will turn more generally to the use of brick in ordinary home building. It's the laying of the brick in the wall that is the bugbear to the average man who contemplates building, and if they could only understand brick laying as well as they understand carpentering they would take to building with brick just as readily as they have been taking to building with lumber."

"There is food for thought in that idea," I admitted, "and the problem of giving instructions should not be so



Where the Shale is Blasted.

very difficult. Not so difficult as the other problem of reaching the general public with these instructions."

"Now, that may not be as difficult as it looks," he replied, "if your people will only go at it in a thorough manner and keep it up. Get some of your best writers on such sub-



On the Way to the Storage Shed.

jects to write articles for the various farm papers and home magazines, and things like that. Such papers are, and always have been full of articles telling how to make something out of lumber, how to ply the carpenter trade, in other words, and I see no reason why your people could not educate them to the use of brick in the same way."

Do you know there is an eye opener in that suggestion. It opens the way to possibilities that look like they are worth while. Can we do it? Can we promote the use of brick by instructive measures of this kind? If so, why not do it?

Written for THE CLAY-WORKER.

A FINE ROOFING TILE FACTORY.

Ludowici-Celadon Plant at New Lexington, Ohio, Turning Out Beautiful Ware.

APPROACHING THE Ludowici-Celadon tile factory, which is located on the outskirts of New Lexington, Ohio, the eye is attracted by the beautiful tile roofs with which most of the buildings and sheds about the plant are covered. The transfer tracks running in around the



The Large Tile Press at Work.

kilns and shipping sheds are all protected by the ridged roofs, and with the dryer sheds and other buildings covered with the same uniform tiling, the scene is made a most inviting one to the visitor.

In front of the nearest kilns we can see a number of evenly



The Cutting Table and Return Belt.

stacked piles of roofing tile, but these are not large, as the stock yard has been well thinned out, due to the unusual demand for this product during recent years.

Four railroad switches run into the yard, two on the left and two on the right, skirting the loading platforms. Here we see a line of men wheeling loads of tile from the kilns to the cars. Far up on the hill, back of the plant, we can see the cars of raw material gliding down into the storage sheds. Everywhere there is an atmosphere of hustle and activity.

In visiting a plant of this character, the most effective way is to trace the path of the raw material from its bed, through

the plant, to its final disposition in the freight cars as the rich red finished product. So we will start at the shale bank west of the plant, where there is a solid wall of shale 35 feet high, covered only by an inch or so of subsoil. The company owns 125 acres of this rich shale land, which runs in a uniform strata over the whole tract. The shale is shoveled into bottom dump cars which, when filled, are pulled on the level to the top of an incline, where the horse steps to one side, allowing the car to swing on down to the plant by means of specific gravity.

The storage shed is an unusually large one, holding about 60 days' capacity. The clay is dumped from a high trestle along the center of the shed, where it is allowed to remain until needed. Two flying belts run the entire length along either side of this large pile of raw material. The shale is shoveled onto these belts as needed and conveyed to the crusher. From two American Clayworking Machinery Company's nine-foot dry pans, the ground material is elevated to inclined screens on the third floor, from which it drops to the large bins on the second floor, built over the four auger machines, two of the American Clayworking Machinery Company's make, and two of the Bonnot Company's.

Three special tile presses of the company's own design are employed. The single tile cutter is of the company's



Interior View of Kiln Set with Roofing Tile.

own design. This makes one tile at a time, counter sinks, trims the corners, and finishes the tile with one push of the lever. This cutter turns out 5,000 square feet of tile a day, the whole capacity being 110 squares daily. One of the illustrations of this article shows the cutter in operation, with the return belt carrying the spoiled tile back to the auger machine to be worked over.

The tile presses are heavily built, and have served the company well in the five years of active service since the plant's construction. The pallets of tile are placed on cars and shoved into a fifteen double track tunnel dryer, where waste heat is used from the cooling kilns for the drying of the green tile. A New York blower fan controls the draft, and sucks the heat into and out of the dryer. The heat is conveyed to the dryer through underground flues. It takes thirty-six hours for the ordinary size tile to dry. Above the dryer the large ware, such as cut hips, enclosed valleys and finials are dried.

The ware is burned in fifteen thirty-foot kilns of round down-draft construction. Natural gas is used as the fuel, with cones for scientific and accurate burning. Their clay must be burned to cone two, or a temperature of about 1,200 degrees C. Three eighty-foot stacks, made of building block, are employed for draft.

Natural gas is the finest fuel known in the clayworking

industries, and gives the ware a rich color, but the price of gas has so increased during the past year that the company is now installing a new system of burning. This will be the only one of its kind in the country. A large furnace is to be employed, built somewhat like a large pottery kiln. Near by, coal will be crushed in a crusher to a fineness that will pass a 100 mesh screen, and then blown, by means of a fan, into the furnace, which will be heated to a high temperature to start with. The theory is that this pulverized coal will burn in its passage through the furnace, the flame and heat being drawn down to the bottom and through under-



Tile Roofed Transfer Track and Sheds.

ground flues to the kilns by a fan attached to the stack. The heat will pass into the kilns from the underground flues into a circular flue around the inside walls of the kiln. Dampers will be placed in twenty old fire boxes, which will enable them to regulate the temperature. This method of burning, they



Furnace and One of the Flues to be Used in New Method of Burning.

believe, will prove very economical. We print a view of the furnace, with the flue leading to the kiln as it appeared during our recent visit.

From the cooled kilns the ware is taken to the stock sheds, which are built on either side of the large group of kilns. These sheds are 300 feet long and 28 feet wide, with depressed tracks on either side, thus facilitating greatly the loading of the tile. The power of the plant consists of a 550 h. p. Buckeye engine, for the main building, a 45 h. p. engine

and a 75 k. w. generator for the lighting, and a 10 h. p. gas engine for running the machine shop. The water supply comes from five driven wells, averaging 100 feet in depth, pumped by means of compressed air.

This plant is one of the three large yards run by this company, which has offices in New York, Cleveland, Pittsburg and Chicago. They manufacture a high grade of goods of nearly every description and style in the tile business. Their tile for trimmings include crestings, ridging, hip rolls, hip starters, terminals, and finials. They have made a number of matt green glazed tile, which are very attractive.

This is a well known firm, and has been putting high grade tile on the market for many years. Their latest catalog is very attractive, setting forth all grades of their ware. This can be obtained by writing to any of their several offices, or to their general offices in Cleveland, O.

A CORRECTOR OF DESTINIES.

Our feminine contemporary, The Delineator, is undertaking on a rather pretentious scale the task of finding homes for children needing homes and furnishing children for homes that need children.

In other words, it is undertaking, in connection with orphans' homes and various other charitable institutions of



Finials, Crests and Tile as They Appear in the Stock Yard.

great cities, to help shape the destinies of children to better ends than they might reach unassisted, appear in the ordinary of events.

It is a very laudable undertaking, too, and as such we commend it and can unhesitatingly advise any of the readers of THE CLAY-WORKER who have childless homes and want to adopt children to study the offerings of The Delineator. We fear, however, that The Delineator doesn't realize how big a job it has tackled, and are frank to say that while we take off our hats to their ideas as to dress and things of that kind pertaining to our better halves, it will find the shaping of the destinies of children a much more complicated task than the shaping of a new gown. We fear it is laboring under some misapprehension in its idea of finding homes where there is a big, clean farmhouse with green meadows surrounding it in which to place orphan children. There are childless farm homes which are beautiful, but they are the exception rather than the rule, and it is among the farm homes spoken of as desirable that children thrive best and are already most numerous. We wish our contemporary well in this undertaking, but fear that they haven't thoroughly realized the bigness of the job they have cut out for themselves.

Written for THE CLAY-WORKER.

BRICK PAVED COUNTRY ROADS.

A Source of Great Convenience and Profit to the Farmers Who Have Access to Them.



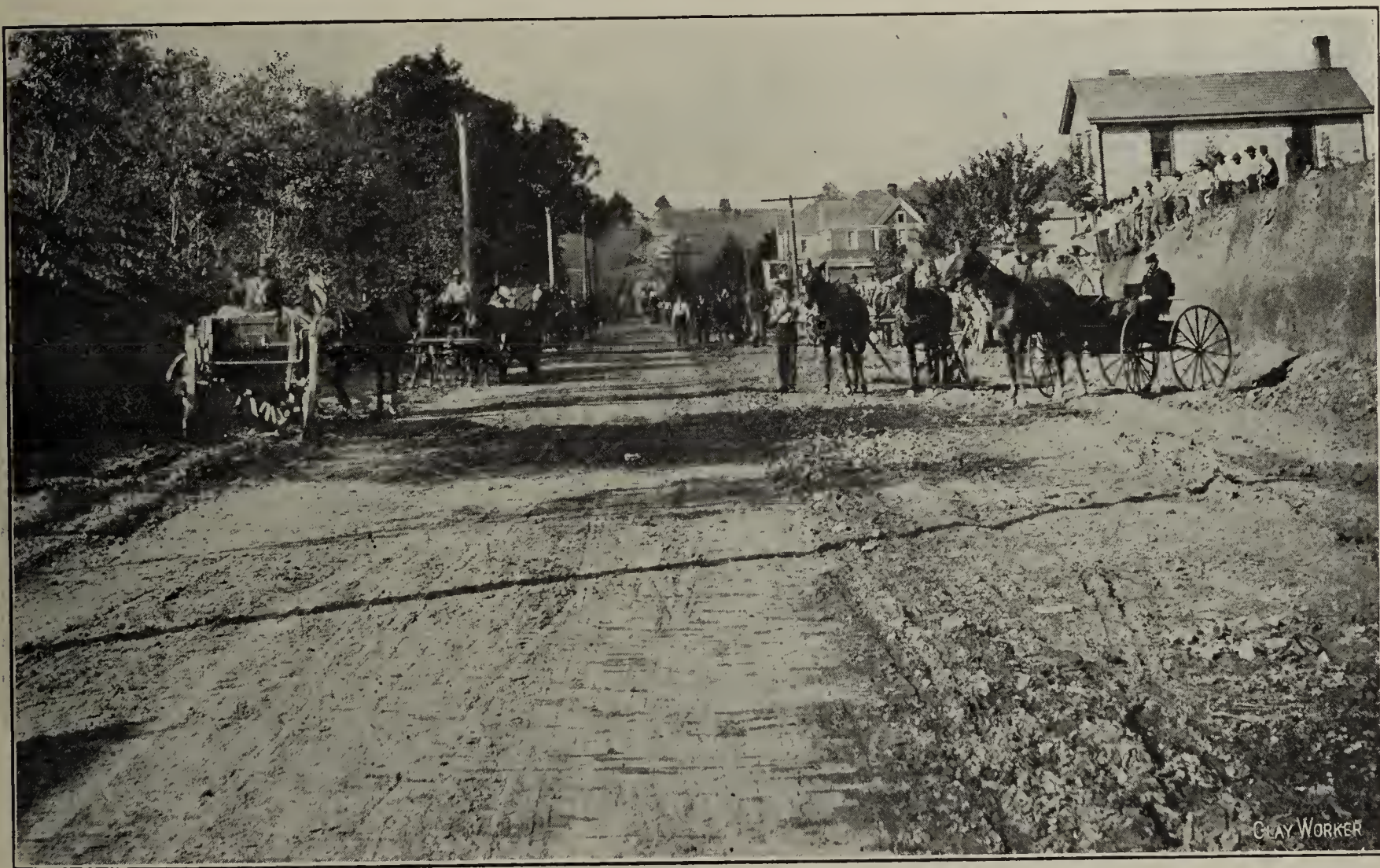
HAS BEEN conceded that the year 1907 was a record breaker for country road paving and improving in eastern Ohio and western Pennsylvania. There is reason to believe that, with the financial condition of the country in a normal condition, more country road paving will be done this year than last, for the great good to be gained by such improvements is fast becoming known.

In past years, the farmer, in many instances, strenuously opposed the improvement of the road in front of his property on account of having to pay additional taxes. The

on either side by a concrete curb 4x12 inches, and banked on the outside by an 8x12 inch bed of broken stone. The pavement is flush with the top of the curb, and is laid on a foundation of four inches of broken stone and two inches of screened sand.

Both under and surface drainage has been provided, nearly 50 feet of cast iron pipe being used. The drains lead to concrete culverts. Side drains follow the entire length of the road. The improvement of this road starts at the foot of the mountains, across the river, at Kittanning, Pa.

Over two million brick have been used in the improvement of Calcutta road, extending north from the city of East Liverpool, to Calcutta, in Columbiana County, Ohio. This improvement was done under the direction of the city, township and county authorities, bonds being issued to complete the task. It was only a few years ago that it required the efforts of four horses to pull a small milk wagon over this road in the wet season to the city. The road was seldom traveled in those days. But now, in making a journey to



The Brick Paved Country Road Near East Liverpool, Ohio, Soon After it Was Opened to Traffic.

farmer has changed his views today, for he now is convinced that to have the country highways improved means an increased valuation on his property.

Up a mountain side in Armstrong County, Pennsylvania, a piece of road improvement was completed, in November, by the Pennsylvania State Highway Commission at a cost of \$40,562.72, a contract which was successfully completed by Rhinehart Brothers, East Liverpool, Ohio. Before the commission started this work, detailed plans for the new road were finished by Assistant State Highway Commissioner Charles F. Hamilton, of Franklin, Pa. In order to test the use of paving blocks for such purposes, 3,000 feet of a 10,900 foot contract was paved with the "Chamfered Hillside Block," manufactured by the Kittanning Clay Manufacturing Company, of Kittanning, Pa. What was considered the worst part of the road was laid in this block. This was on an eight per cent. grade, and included a thirty-six degree curve, which formed a complete "S."

The paved road is fourteen feet in width. It is projected

Lisbon, the county seat, the road is used to the exclusion of others, although the route is two miles farther.

This four-mile paved road is built upon a foundation of ten inches of broken stone and two inches of gravel and sand. The sides are protected by a brick-on-end, and against both sides is built a 12x12 bank of small broken stone, and against this stone dirt has been rolled in solid. Over 100,000 yards of excavation was necessary before paving was started.

Because of the geographical condition of the country through which this four-mile road was built, the width varies, a part being sixteen feet in width, the other portion being but nine feet wide. The construction of the road does not vary throughout the contract.

Proper drainage was a feature of construction, the whole road being well provided with surface drainage pipe, while all necessary under-drainage has been completed. Rhinehart Brothers, of East Liverpool, completed this contract within eight months, the entire improvement being worth over \$100,000.

All brick for this work was from the eastern Ohio factories,

the bulk of the shipments coming from the Toronto territory. Additional road improvements will be started this spring, some of which will be under the direction of the Ohio state authorities.

A WORD FOR THE BOY.

By J. K. Turner.

RESTRICTION of APPRENTICES is becoming so universal that in various parts of the country the authorities are beginning to take notice of the scarcity of skilled help, as demonstrated in the appointment by Governor Douglass, of Massachusetts, of a Commission on Industrial and Technical Education.

The report of the commission to the commonwealth was recently submitted, and is quite a voluminous affair. It shows that the first intimation of the scarcity of skilled mechanics came from a committee of manufacturers in Massachusetts,

but with its own limitations, and is wise enough to see that the more it has to give the more it will receive.

The commission, in commenting upon the trades schools now extant, has the following to say:

"The work of the classes of the Y. M. C. A. and the enormous number seeking to advance themselves in correspondence schools seems to indicate that, while there is a large interest which is real and vital, these means do not bring about the desired relief."

In fact, the commission put the question directly to Charles F. Warner, principal of the Technical High School, of Springfield, Mass., and asked him if he had any plan to propose. His reply was:

"I have not thought so far."

The commission finds that "the more intelligent the person should become, the better a workman he is likely to be—more thoughtful, more careful, more considerate, and more inventive."

The commission further finds, without any recommendation along this course, that the young men who would be



Completing Brick Paved Country Road Between East Liverpool and Calcutta, Ohio.

away back in 1869, right after the war, when the committee petitioned the commonwealth for help.

Among the important findings of the commission we find the following, which proves that organized labor is in no small measure responsible for this scarcity:

"This commission early became aware that its purpose and work encountered the suspicion and hostility of many of the labor unions of the state. This was expressed by individual members and by accredited representatives."

The commission found that in a number of instances processes of manufacture and construction are made more difficult and expensive because of the lack of skilled workmen. This lack is not chiefly a lack of manual dexterity, but a lack of industrial intelligence. By this is meant, mental power to see beyond the task that occupies the hand for the moment, to the operations that preceded and those that are to follow—power to take in the whole process, knowledge of materials, idea of costs, idea of organization, business sense, and a conscience which recognizes obligations.

Such intelligence is always discontented, not with its con-

ditions, but with its own limitations, and is wise enough to see that the more it has to give the more it will receive. This would indicate that it is the consensus of opinion that the skilled mechanic should learn from the older practitioners in shops and factories.

The commission finds that the productive industries of the state depend mainly upon chance for recruiting their service. A few apprentices are indentured, and many so-called apprenticeships are falsely named.

The commission further states that this condition tends to increase the cost of production, to limit the output in quantity and lower the grade in quality. Industries so recruited can not long compete with industries recruited from men who have been technically trained.

In the long run, that industry, wherever in the world it is located, which combines general intelligence, and the broadest technical knowledge and the highest technical skill, will command the markets of the world.

The above thoughts are given you to warn you of the increasing dangers to the boy of today. By a steady and

persistent effort, labor unions have reduced the number of apprentices in the shops to an alarming extent. This policy, from the standpoint of mechanical ability is absolutely suicidal, even if we could lose sight entirely of the rights of the American boy.

This question was asked of the business agent of the Iron Molders' Union, one of the most prominent figures in the labor circles which control that organization:

"What is to become of the boy, if they restrict apprentices in that trade—restrict them as they have for several years past?"

And his reply was:

"To hell with the boy; let his father support him."

The height of a man's earning capacity in the iron trades is reached at the age of 40, when he begins to decline. If he marries young and raises a family successfully, his boy should, at the proper age, begin to bear a portion of the father's burden. Every rightminded boy desires to learn a trade, but frequently finds that the rights guaranteed him by the Constitution have been usurped by the labor leader, in his effort to place a false value upon wages, so that only



A Stretch of Brick Paved Country Road in Course of Construction near Calcutta, Ohio.

one boy in ten can learn his father's trade; the others are driven to the store, work house, or penitentiary.

In the store he can become nothing but a dry goods clerk. The age when he should be learning a trade is an age of impressions. If he is left to run wild on the streets at the age when he should be learning a trade, he is liable to get wrong impressions as to right and wrong, especially when the laws of the land are openly violated by a band of men, who prevent the boy from following his natural bent of learning a trade.

We want your voice in every labor union hall, in every shop and every factory in this country for the BOY. We want you to work night and day in this fight for the American Boy. Insist upon the right of the boy to have the privilege granted him under the Constitution of the United States, that he should be allowed to follow his bent, as a mechanic, exactly as he is allowed to follow that bent on questions of a moral and religious nature.

The employer is not always fair in this matter. His anxiety for quick returns frequently reacts upon the boy, and he does not always get a fair chance.

In the old days it took seven years to learn the printers' trade, and then the man was compelled to work three more years under competent journeymen before he was considered a competent printer.

Labor unions seem to be following the trend of the early Christians—attempting to coerce thought, and labor unions will follow in the footsteps of such leaders in religious thought and go down to defeat. Of that, there is no question.

He who rules the universe has his eye on this, and the

old saying: "The mills of the gods grind slowly, but they grind exceedingly fine," will apply to that wrong as it did to the wrong of Spain and the Spanish Inquisition; but, in the meantime, you can each and every one do much to alleviate the suffering of the boy of today. Warn your fellow workers of the dangers in this country of this insidious policy of the labor unions; always let your voice be heard in the demand that the American boy shall and must be allowed to follow the dictates of his own judgment, without let or hindrance of any Caesar in the guise of a walking delegate. It may be your boy tomorrow!

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE MONTH OF December has gone down in history as the dullest month in the clay industry which the Puget Sound has experienced in years. Building is practically stopped in all large towns. Municipal improvements are all stopped, and no new contracts are let nor advertised.

Most of the brick plants have shut down; they are either making repairs or are completely idle. Brick prices are still held at the same level, and, as there is no demand for them, it is useless to cut the prices at present.

In the smaller towns, where local improvements have not been affected as much as in the large towns, some building is still going on. In the Yakima Valley the common brick proposition is very encouraging. There are practically no brick in North Yakima, nor Toppenish, while in Granger there are only some 200,000 brick left for the winter supply. Some brick are shipped to these towns from Tacoma, but next spring all yards expect to start up again in full force.

In Spokane some sharp reductions have been made in building materials in general, which has stimulated the effect upon building. Lumber dropped 16 per cent.; cement 5



View of Brick Paved Road Up Mountain Side, Armstrong County, Pa.

cents a barrel; hardware 25 per cent., and brick \$1.50 per thousand. Contractors say that there is good demand for building, and that work will be plentiful.

The yard which C. A. Bartz purchased some time ago, located near Centralia, will be equipped with modern machinery, and Mr. Bartz hopes to have the whole plant in operation early next spring.

C. R. Gutherless, of Seattle, bought the yard owned by Peake & Son, located at Leavenworth. The new company will be known as the Leavenworth Brick Company, and be ready to start operation early next spring. C. R. Gutherless moved here recently from the east. He is at the head of the new concern, and has had long experience as a brick-maker. If experiments prove satisfactory, Mr. Gutherless will install a dry press and make front brick.

The F. H. Goss Brick Company, of Tacoma, was recently reorganized with some strong financial backing. The new plant will be located near the Tacoma smelter, and it is understood that some of the head men of the smelter company are interested with Mr. Goss in the new company. The new plant will have a capacity of 50,000 brick per day. Only common brick will be manufactured at present. The

clay has, however, been tested by experts, and will make good sewer and paving brick. SIWASH.

Seattle, Wash., December 31, 1907.

Written for THE CLAY-WORKER.

THE EFFECT OF HEAT UPON CLAYS.

FIFTH PAPER.

A. V. Bleininger.

Vitrification.



AFTER THE OXIDATION process is completed the temperature of the kiln can now be raised, and the burning may proceed more rapidly towards the finish. In this part of the burn the changes wrought by the heat upon the clay are more pronounced and more evident to the eye. If oxidation has been carried on at about 850 C., the clay will be found to possess some strength, decidedly greater than that at dehydration. As the temperature is raised the strength increases quite rapidly, although the structure may continue to appear the same. What causes this change in hardness? Evidently the first stage of vitrification is being entered upon. We may say, therefore, that vitrification extends over a long range of temperature, and is at work long before the familiar earmarks of the typical vitrified body are observed. As the name implies, vitrification is a process tending to form glass, that is, to fuse the clay into glass. Now this fusion begins, we might say, during and immediately after oxidation, resulting first in the consolidation and hardening of the clay. That we observe at first no evidence of vitrification is due to the fact that the amount of fusible matter in the clay at the low temperature in question is very small. It just suffices to bring about some cementing action, but no more. On raising the temperature just a little higher, more of the fusible matter is formed and the clay becomes more compact; at still a higher temperature the quantity of fusible material is again larger, and we may be able to observe the change by the glassy or vitrified appearance of the clay body. This continues until complete vitrification, and finally fusion, has taken place.

The rate of vitrification depends primarily upon the character and the amount of fusible material present. By fusible material we mean that combination of silica, alumina, iron oxide, lime and alkalis present in the clay, which will produce the most fusible mixture possible. This most fusible combination necessarily differs for every clay. A fire clay evidently contains not only a smaller amount of this low fusing mixture, but also the latter differs in its composition from the most fusible combination of a paving brick shale or a lime carrying glacial material. According to the natural laws the first fused portion of a clay, small though it be in amount, always represents the lowest melting combination it is possible to produce. The composition of the fluxing aggregate varies likewise as the temperature rises. The fluxing portion of the same clay at 900° differs decidedly from the one at 1,000°; it not only is greater in amount, but also is composed of a different combination of silica, alumina, iron, lime and alkalis, being richer in silica, and, when taken by itself, naturally more infusible than the mixture at the lower temperature. This variable flux is called eutectic mixture by the theoretical investigators. As the amount of fused matter increases in a clay it creeps through the interstices between the coarser grains of clay and finally surrounds them, at the same time filling up the pores. Thus the apparent volume of the ware decreases, and we have what is called fire shrinkage.

The first fluxing combination probably involves the fine grained feldspar, iron oxide and lime; later as the temperature

rises the fine portion of the quartz is drawn into solution, then, perhaps more of the above fluxes, the coarser feldspar grains being gradually attacked until finally only the coarser quartz particles retain their shape, being surrounded on all sides by a fused magma. In other words, the whole process is a kind of solution.

In the nature of the case, the glass forming reactions are never allowed to be complete, as we do not care to soften the body too much. Enough of a firm skeleton must remain to hold up the structure.

It is evident from this, hence, that the physical structure, and especially the size of grain of the different minerals present, is of vital importance in governing the kind and amount of the body flux to be formed. The finer the quartz grains, for instance, the more readily they will be dissolved and assimilated, and vice versa. This is the reason why we sometimes add sand or coarse grog in order to assist the body in retaining its shape. It is needless to repeat that the many variations in the vitrification of different clays are, in a large measure, caused by differences in fineness of grain.

As to the rapidity of fusion, the presence of lime and ferrous oxide is, as we know, of decided significance. Any lime content above, say 7 per cent. of lime, will hasten vitrification so that such a clay may be useless for purposes like the manufacture of paving brick. In all clay wares the interval between the point of complete vitrification and the point of fusion should be as large as possible, since, evidently, this means safe burning. In the case of the presence of ferrous oxide we have obviously only one remedy, complete oxidation before attempting to raise the heat.

For the purpose of considering the various stages of the process, taking the clay through vitrification to fusion, we can divide it into several steps, depending on what kind of a fracture the clay shows, and the amount of water absorbed by it. Thus we have the stony or earthen fracture stage, incipient, dense, complete and viscous vitrification, and finally fusion.

The first stage is the one commonly found in common building brick. No sign of glassiness is shown, the clay absorbs water eagerly and in considerable amounts; the color is a light red, and the iron is to a large extent present as the uncombined ferric oxide. Incipient vitrification is indicated by the darker color, and especially by the fact that the clay absorbs much less water and also takes up the latter more slowly. For a certain clay which the writer has in mind the water absorbed during the earthy stage was about 15 per cent, and during the incipient vitrification stage about 7 per cent. The hardness as expressed by the crushing strength is considerably greater also, being approximately 8,000 pounds per square inch compared with 4,500 pounds for the earthy stage, the clays being worked by the stiff mud process in each case. Neither of the two degrees of burning, of course, allow the brick to be used for paving purposes.

In the dense vitrification stage we observe that the pores are largely closed, and that the absorption of water is reduced to about ½ per cent. of the weight of the clay. The color is darkened to a chocolate brown, and for many paving brick clays the maximum toughness is displayed. We might say, therefore, that the clay is at its best at this point. The fracture shows a dense, compact, but not a glassy surface. In complete vitrification we have practically no absorption of water, the color is darkened still more, and the fracture shows a decidedly glassy appearance. Many clays suffer a decrease in toughness though the crushing strength may be very high. The rattler test thus may bring out sharply the difference between the two stages.

In viscous vitrification the glass producing process has progressed still further, so far, in fact, that the brick are deformed and become kiln marked more or less. At the same time it is observed that the clay becomes vesicular, that is, filled with small cavities or bubbles, which cause it to become

weaker and useless for paving brick. Fusion naturally is the last step, which, in our work, of course, is only accidental.

In working a clay it is, hence, important that we become acquainted with the range of the different stages, and in order to obtain this information we could proceed as follows: Make a number of brick from the same bar of clay, being careful that the bar be composed of clay of the same temper. Let these brick be marked and dried. When dry they are to be put in a position in the kiln so that they can be drawn out through the door by means of a hook. The brick might be provided with a hole for this purpose. As close to the brick as possible set a number of cones, assorted according to the nature of the clay, whether it be a red burning or a number two fire clay. In the former case use, say, eight cones—numbers 09, 07, 05, 03, 02, 1, 2, and 3; corresponding to these place in position eight or sixteen of the selected trial brick. As soon as cone 09 goes down brick No. 1 is pulled, and the same thing is done for the other cones, the firing, of course, to proceed as usual. These brick, as soon as drawn, should be covered heavily with dry, hot sand, so as to cool them as slowly as possible. When cooled, each brick is to be weighed, and then allowed to soak in water for 48 hours. Still better, the brick might be boiled in water and then soaked for the time specified. This process helps along the expulsion of air from the pores of the clay. By weighing the brick again the weight of water absorbed by each is ascertained. Dividing the weight of water absorbed by each brick by the weight of the brick, and multiplying by one hundred, we obtain the per cent. of water absorption. This enables us to compare the porosities, and to judge the progress of vitrification. Naturally, the brick farthest from vitrification will absorb the most water, while the vitrified trial shows little or no absorption. If the decrease in the amount of water absorbed is a gradual one, extending over a number of cones the vitrification is gradual, which shows that the clay has a safe range. This enables us to pick out the standard amount of water absorption, which our best brick should have.

Supposing, then, if we are making paving brick, we go into a kiln just being emptied and pick out a lot of brick from top to bottom, and allow all of them to soak, and determine the water absorbed by them. Then we classify the brick, having first marked them when dry with numerals painted on with white paint, so that, for instance, brick absorbing from no water to 1 per cent. are put in one class, those taking up from 1 to 2 per cent. into another, the 2 to 4 per cent. brick into the third, 4 to 5 per cent. into the fourth, and the 5 to 7 per cent. into the fifth. By testing each batch of brick in the rattler, we will soon have a pretty good idea which vitrification range is best for our product.

If we care to represent our absorption results graphically, so as to obtain a picture of the progress of vitrification, we could take a sheet of ordinary co-ordinate paper, and plot the cone numbers along the bottom and the per cent. absorption along the side. The curve produced by joining the points will give us a good idea of what our clay does.

As to the water absorption test, of course, we can go as far as we please in regard to accuracy, though it would not be necessary. We could use small brick, soak them in water in a bell jar connected to a simple water suction pump which draws out the air from the pores, and permits of a more thorough absorption. In this case we would not use an ordinary grocer's scale, but would resort to the use of a little more accurate balance.

In some engineers' specifications we read statements in regard to a specific gravity requirement, and as they are put they are sheer nonsense. But it might cause us to ask whether there is any relation between the specific gravity of clay and its vitrification. In answer to this question we must acknowledge that there is, though at first sight it will puzzle us somewhat. By specific gravity of a substance

we mean the ordinary weight of it, divided by its loss of weight when suspended in water. This is best illustrated by taking metric weights. Supposing we take a piece of burnt clay and find it to weigh 100 grams. We then allow it to soak in all the water it can and tie a fine silk thread around it, and suspend it from the beam of a balance in a glass of water. On weighing it in this condition, we obtain as its weight 61.5 grams. It has lost, when suspended in water, 100-61.5 grams, which is equal to 38.5 grams. Now, dividing the ordinary weight in air, 100 grams, by the loss in weight, 38.5 grams, we obtain the specific gravity, which is almost 2.6. In other words, the clay is 2.6 times as heavy as water. Scientifically speaking, the specific gravity of a substance is its weight in air, divided by the volume of water displaced by it, or its own volume. In the accurate sense we call it density.

The way in which we have obtained the specific gravity of our piece of clay is not entirely accurate, as there are some air bubbles or blisters inside of the clay, which tend to make it appear lighter, and we can not fill these cavities with water, as they are closed up. Yet it does not matter very much, as we can get all the information we need from this simple determination.

To come back to our original question, we ask again, What relation is there between specific gravity and vitrification? To be brief, we can say that clay becomes lighter as vitrification proceeds. Or, in other words, a cubic inch of clay, at the "earthy" stage weighs more than a cubic inch of vitrified or even fused clay. The writer realizes that it appears to be a paradoxical proposition, for does it not seem that the clay must become denser as it shrinks in the fire? Yet the fact remains that the farther vitrification has progressed the smaller will be its specific gravity, as any one can prove for himself by making the simple experiment. The decrease in specific gravity is due to the natural phenomenon that on partial or complete fusion of a silicate the density decreases. In addition, numerous small cavities or bubbles, which form inside of the clay, likewise tend to decrease the apparent density or specific gravity.

As early as 1828 the chemist Rose found that vitrified, translucent porcelain had a lower specific gravity than the opaque, underburnt material of the same composition. A number of other experimenters have found the same to be true.

For this reason we could determine for each temperature the specific gravity of a clay, just as we found the absorptions of water by burning at different cones. Similarly, we could also find the best specific gravity of a clay at which it shows the most desirable properties. In addition, we would obtain the vitrification range of a clay, for the quicker the specific gravity drops from cone to cone the more rapid must be the progress of vitrification, and hence the shorter the range of vitrification, that is, the less suitable the clay would be for most purposes, and vice versa. In clay testing, the drop in specific gravity, therefore, is a matter to which attention must be paid.

OHIO'S CLAY PRODUCTS FOR 1907.

Ohio, at the capital city of which the Twenty-second Annual Convention of Brick Manufacturers is to be held February 3d to 8th, leads all other States in the production of clay products in 1906 with a total value of this product of \$31,014,165. Of this amount, \$17,023,806 was for brick and tile, and \$13,990,359 for pottery. According to these figures, which are fresh from the United States Geological Survey, Ohio ranks second in brick production, being exceeded only by Pennsylvania, and first in the production of pottery, the total pottery production being twice that of New Jersey and nearly half of the total production of the United States.

Written for THE CLAY-WORKER.

A FOUR THOUSAND DOLLAR FIRE-PROOF COTTAGE OF HOLLOW TILE.

Especially Designed for the "Clay-Worker," by Charles E. White, Jr., Architect.



THESE DAYS of constantly declining quality, and decreasing quantity in lumber, it is not strange that architects are giving much consideration to masonry materials of all kinds. Masonry, of course, has prevailed in many sections of the country, even in small buildings, but lumber has been the material most easily and economically obtained, and therefore most commonly used for the structural skeleton of houses.

The almost incredible transition of timber from its position as king, to its present place at the foot of the scale,

walls cracks in a few month's time. Its floors deflect (even when the joists are "crowned") to a position considerably below the horizontal plane. The vertical members of the frame lack that rigidity so necessary in practicable construction.

The Passing of Lumber.

It is largely habit that has caused architects to continue to employ timber in construction, in spite of its very apparent deterioration, although the slightly lower first cost of timber as against masonry, has contributed its influence as well. We are all creatures of habit, and some development of great importance, some crisis, is usually required to bring about anything resembling a change in our ideas or methods. As the lower first cost of timber is more than offset by increased cost of repairs, it can not be said that timber is any longer an economical material.

That we are on the verge of an era of masonry construction is not now doubted by any one. Timber has not only decreased in quality, but has been so extensively used that,



A FIRE-PROOF COTTAGE—Charles E. White, Jr., Architect, Oak Park, Chicago.

has been so rapid that we can scarcely realize its import upon the architecture of the present and the future.

As a matter of fact, the real value of timber as a structural substance ended four or five years ago, when spruce and pine ceased to be obtainable, and hemlock became the standard material for the frames of wooden buildings. Hemlock is not, and never has been a desirable timber for building purposes. It has a very open grain, with little elasticity. Its peculiar fibre seems to preclude all efforts to season it, so that for all practical purposes it remains constantly "green." A hemlock scantling laid down with one end across another timber will sag in a few hours, and if then reversed, will sag as readily in the opposite direction. We have many times observed an apparently sound hemlock scantling break from mere lack of cohesion of its fibres, when suddenly picked up from a pile by a workman. The lack of density in its fibres, or, as it is called, the "fatigue" of all hemlock timber, makes it most undesirable for structural purposes. In a building built of hemlock, the plaster upon its

at the present rate of consumption, it is a matter of a few years only before it will disappear altogether. The National Forest Service estimates that the wood pulp supply alone will be exhausted in twenty-one years. This means that in twenty-five or thirty years, at present rate of consumption, the United States will have ceased to be a timber producing country, and will be obliged to import such lumber as it needs. The constantly increasing price for lumber, as a natural sequence to its scarcity, will prohibit its use for structural purposes long before the supply has been exhausted. Within a short time, no doubt, our timber will be conserved for use only in those operations where it is indispensable. For building purposes, the timber will be employed in sash, doors, floor and cabinet work. The railroads will use it for ties and poles, though they are already anticipating the situation, by experiments with concrete ties and posts. The pulp wood industries will continue to use timber in enormous quantities, unless they can procure a satisfactory substitute. It is to be hoped that the indispensable work of the National

Forest Service will be augmented and continued, for the conservation of our timber, before it has been entirely depleted. There are so many necessary uses for timber, that a lumber famine, which now seems imminent, would cause privation to many of our industries.

All these facts point to the immediate substitution of masonry materials for all building operations, whether large or small. We may conservatively predict its use in constantly increasing ratio, while the most apparent decline in the use of timber for structural purposes will continue. It will be used more and more sparingly, until, possibly some day we may see specimens in the glass cases of the museums labeled "very rare, formerly used for buildings!"

Already we may say, that the householder who builds his cottage of timber is unwise. The man who uses timber in a house costing upwards of ten thousands is insane! What would we say of an individual who clothes his family in cotton garments, when wool costs but little more, looks better, and is much more servicable? What shall we say then, of the house owner who builds with an unsound, quickly depreciating material, when materials of permanency cost so little

tion, particularly useful as a building material. Composed as it is of clay, burned hard in a hot fire, its durability and strength are assured. As a medium for the expression of architectural beauty, it is just beginning to be appreciated by the profession.

The ancients recognized the beauty of tile, by facing many of their brick walls with decorative tiles. The idea of combining the hollow wall construction and a decorative facing into one structural unit, did not, however, occur to them. It remains for the architects of today to introduce this excellent material in this manner. Perhaps the greatest assets of hollow tile, so far as architectural beauty is concerned, are color and texture. In these two qualities, tile stands alone. There is no other material which offers even approximately the possibilities of beauty in color and texture, that do clay hollow tiles.

Color and Texture.

Color is readily and permanently obtained by the same glazing process used so extensively in pottery. Texture is secured by stamping or modeling, on the surface of the freshly made tile, a decorative design. This may be accomplished



FRONT ELEVATION
SHOWING ALTERNATE SCHEME FOR PARAPETS

more that he soon recovers the value of the greater expenditure, and really saves money in the end?

Materials of Clay.

Clay products have always held an important place in our American architecture. Their use in building construction increases every day. Materials of clay are economical, durable and beautiful. They are conveniently obtained in almost every section of the country. Hollow tile has come slowly to the front, as an excellent clay product, worthy the attention of manufacturers and architects. As a material for house building, it is practically in its infancy, though we may confidently expect that it will rapidly pass from childhood to youth. There is no better building material to be found. It fulfills all the requirements of the architect—economy, strength, durability and beauty.

The principle of the hollow wall was well understood by early Roman builders, who frequently formed air spaces in their brick walls, for insulation against heat and cold, and for purposes of economy. It is this cellular construction in hollow tile that makes it, with its properties for perfect insula-

tion, particularly useful as a building material. The machine finish on the face of the tile also contributes to its texture. These qualities of texture and color will undoubtedly in the course of the next ten years, seriously modify the architecture of America, in cottages as well as more pretentious structures, just as architectural terra cotta has already produced so marked a change in American commercial architecture. Terra cotta is now more often used in architectural designs than any other material, though a few years ago it was hardly known in this country. The use of hollow tile in connection with terra cotta molded surfaces will undoubtedly extend as rapidly, providing the manufacturers of hollow tile will place their material on the market, in convenient sizes, shapes and colors, so that architects can readily obtain them.

The greater desirability of tile over brick is largely because of its possibilities for color, the increased size of the unit (which permits of increased economy in manufacture, handling, and construction) and its cellular character (which permits of plastering directly upon the wall, without the use of furring strips). We do not expect any falling off in the use of such an excellent material as brick, but we do anticipate an enormously increasing demand for hollow

tile. It remains for the far seeing manufacturers to equip themselves for producing at moderate cost, this most desirable material. Just one glance at the dreary monotony of our colorless towns and cities, and one thought of what they might be—glowing in all the beauty of color harmony—golden browns, dull greens, soft reds and yellows—will convert the most conservatively inactive anti-progressionist!

The \$4,000 Cottage.

The plans for the cottage illustrated herein, provide for a building that shall be consistently and sanely expressive of the material to be used—hollow tile. Special thought has been given to the problems of construction, as well as to structural permanency, and architectural appearance. A house as ordinarily planned for frame construction is wholly inadapted for use with hollow tile, or, for that matter, any material other than frame. Each material requires a special expression of its own, or, architecturally, it loses its individuality. A design may be deemed sane, only when it logically involves in a frank manner all the materials of its parts, and indicates consistently the uses to which it is to be put.

In a building which is designed primarily for permanency—that is, durability with minimum repairs, the floor construction should be of masonry, as well as the walls. The floors projected in this design are of the system known as "Johnson" building which is designed primarily for permanency—that is, durability with minimum repairs, the floor construction should be of masonry, as well as the walls. The floors projected in this design are of the system known as "Johnson" system. They consist of sheets of metal fabric, not unlike wire fencing, re-inforced with steel rods on which are placed hollow tile units, bedded in mortar, the tiles covered on the top with clean cinders. Bedded in the cinders are V shaped wood strips upon which to nail the floor boards, since the hard surface of the concrete covering sometimes employed has been found unpleasant for dwellings. The halls and porches can be very well covered with flat tile, 6x6 inches, as can also the hearth of the fireplace.

If masonry is a good construction for floors, so is it also for roofs. On the other hand, however, roofs are usually sloping, and this sloping construction would prove expensive to maintain in a masonry roof. Let us therefore consider that the ordinary sloping roof would not be consistent in this design, and employ a flat roof in its place—a roof built precisely like the floors, but covered with cement, sloping sufficiently to shed water, and waterproofed with gravel roofing applied directly to the cement surface. We see at once that our design, for the use of hollow tile, with masonry floors and roofs, has, by the nature of its requirements, an individual character. These materials call for a plan, rectangular in form (to simplify the floor and roof construction), with a flat top. In such a building the perfect insulation of the cellular construction in the roof protects the dwellers from both heat and cold, and the storage space usually required in an attic is provided in the basement. It has been found that goods may be stored in a dry basement. They will not become musty if kept on a rack where the air can circulate beneath.

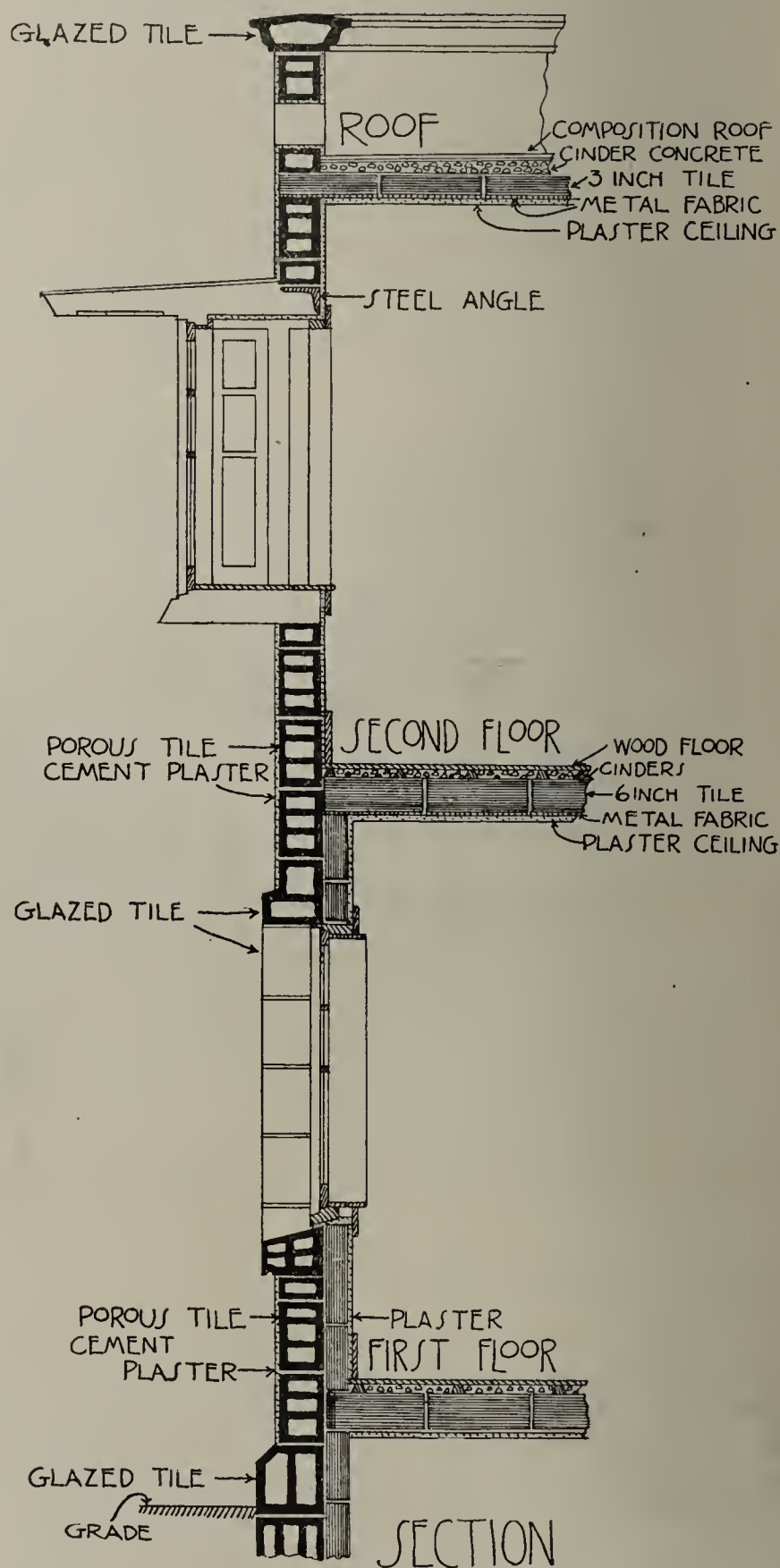
Method of Construction.

This design calls for walls of hollow porous tile, plastered upon the outside with cement mortar. In order to take advantage of all the possibilities of hollow tile, a frieze of hollow tile, glazed upon the outside surfaces, extends entirely around the building at the level of the second story windows. The architraves around the windows, the window sills, and the base and coping courses are also of this same glazed tile, of stock pattern.

It is clear that the lumber used in a building of this char-

acter has been reduced to a minimum. It is logically used merely for top floors, sash, doors, and cabinet work. Of course it would be possible to go a step farther, and have the sash and frames of metal, with wire glass, but such a construction would hardly be feasible in a dwelling. A building built along the lines of this design is sufficiently fireproof for all practical purposes. If insurance upon such is carried at all, the rate ought to be so low that it would be almost a negligible factor.

Inside partitions are built of hollow tile, four inches thick,



from cellar to roof. These interior tiles are set on end, with the cells extending vertically; thus space is provided for the various water, plumbing, heating and lighting pipes to the second story. The exterior tiles, however, are usually laid with the cells extending horizontally, except under very excessive loads, where vertical tiles may become necessary. In dwelling construction the loads are light, and tiles laid upon their sides are usually more conveniently handled. Tile which are to be plastered, are porous, and scratched upon

the surfaces before baking. This treatment assures a perfect adherence between the clay and the plaster.

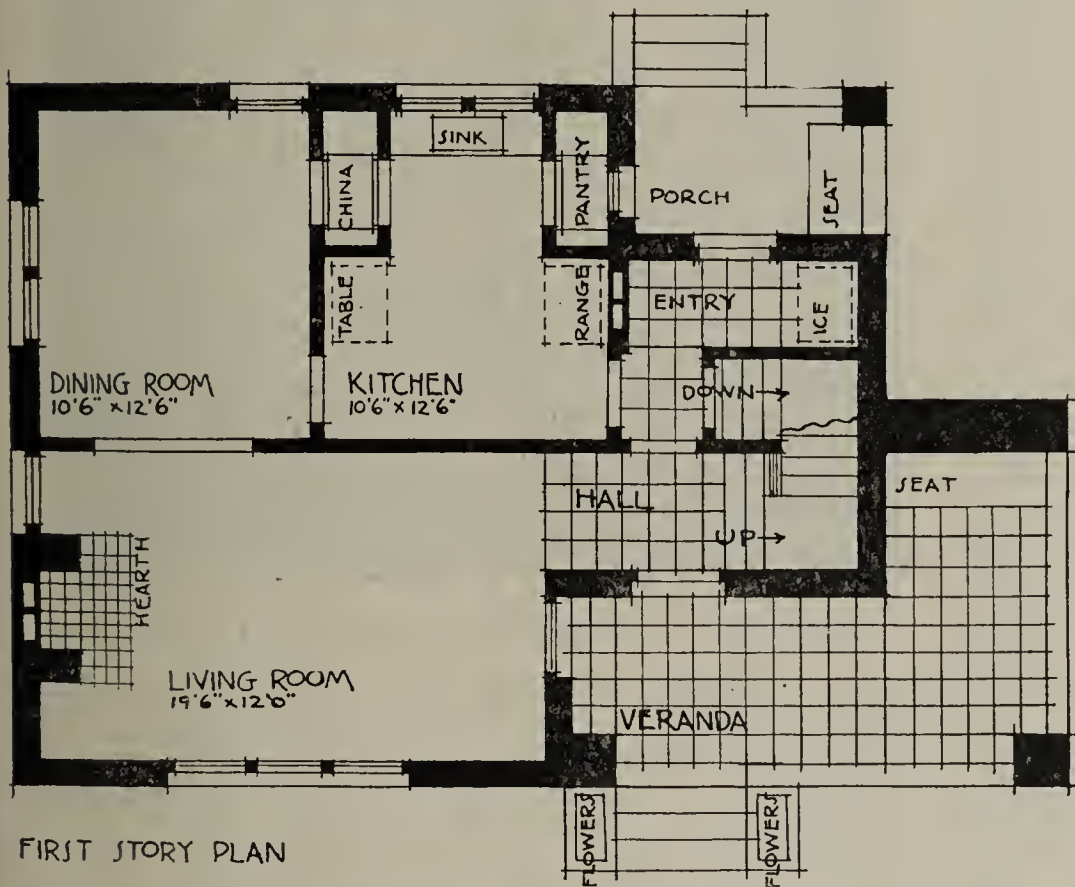
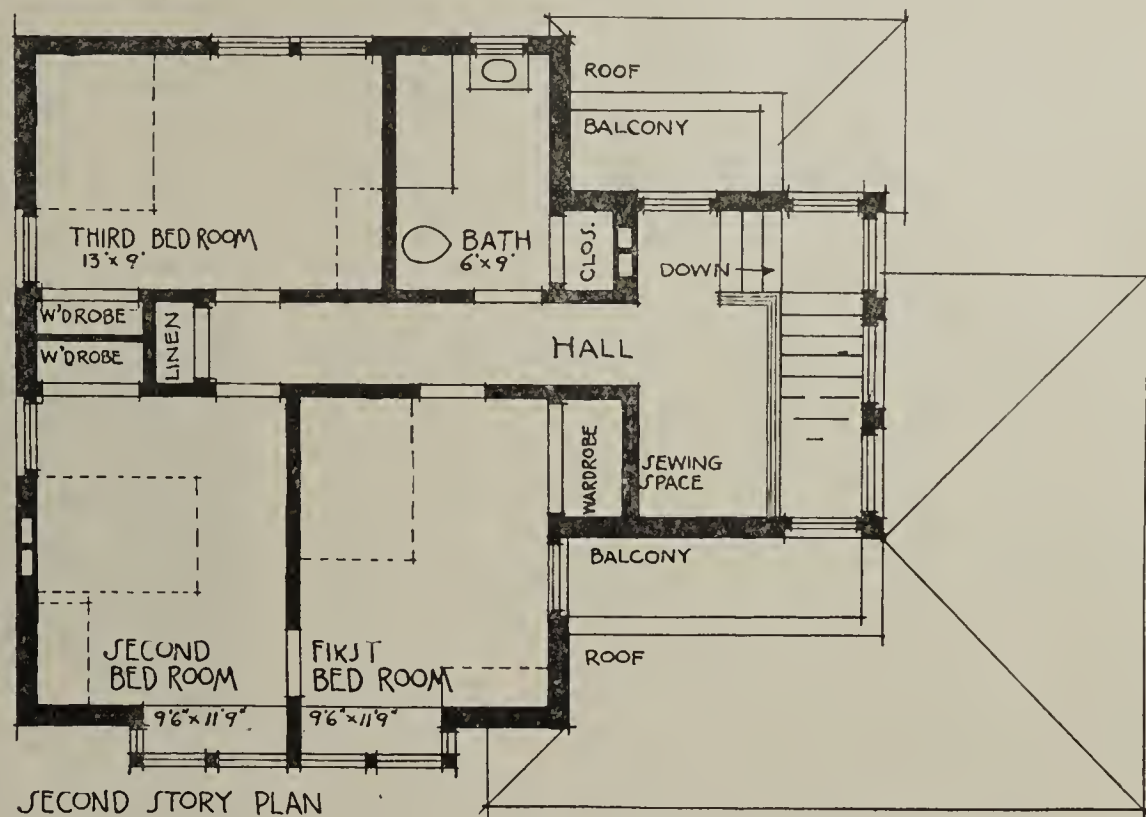
Elements of Plan.

In a house design, the rooms should be so placed that they will successfully perform the ends to which they are put, with no space left over for waste. Within the past few years, house planning has come to be a science as well as an art. Many of the useless fads and fancies of bygone ages have become obsolete. Houses are designed first of all to *live in* and any matter about the plan that is not necessary in the every day life of the householder should be discarded at once. The most perfect machine is that which is the least complicated. So it is with the dwelling. In both cases simplicity means, however, greater study upon the part of the designer, for simplicity is the result of elimination, and elimination is not possible except by serious study.

The modern kitchen is very much more scientific than its predecessors. It should be just as small as can possibly be, and contain sufficient apparatus for household use. The days of the large "butler pantry" have gone by. Modern housewives demand, as they should, small areas conveniently arranged. Such an arrangement saves unnecessary steps. In fact, the saving of labor is the keynote of modern house planning. It is truly wonderful how much may be accomplished in a small space, if the space is well arranged. The old fashioned closet idea has been very generally replaced by the more scientific wardrobe, in which the garments are

sand nine hundred to four thousand dollars. The use of wood floor joists instead of masonry floors, would reduce the cost about five hundred dollars. In some sections of the country this design could probably be executed for a less amount.

In conclusion, it may be well to say that the majority of hollow tile house designs today, provide for tile covered upon the exterior with cement plaster. Strictly speaking, this is not the correct way to use the material, since the completed structure does not frankly indicate the substance of which it is composed. It might be, for instance, brick covered with plaster, or even wood frame covered with plaster, so far as its completed appearance goes. In the design illustrated



hung on hangers, under the shelf. With two doors to open, the contents are very accessible, and no standing room is required. The old idea was for closets of greater area, but of less capacity, since the bulk of the space was used by the householder merely for standing room, from which to reach the garments.

Cost.

The design, as indicated by the illustrations herewith, can be produced in the vicinity of Chicago for from three thou-

in this article, the glazed tile frieze and "trimmings" directly indicate tile. In glancing at such a building we instantly feel that it is built of hollow tile, without further explanation. A scheme still more logical, would be to build the entire house of glazed hollow tile, without any cement covering whatsoever, and we may reasonably expect that the hollow tile houses of the future will be so built. As the manufacturers, step by step, exploit the hollow tiles glazed in soft tasteful colors, we may expect the architectural profession to welcome this most desirable addition to the building family.

CHARLES E. WHITE, JR.

SAUCE FOR THE GOOSE.

After the financial brain storm gets to be ancient enough in history that we can be free and natural, even when talking about it, it will be interesting to cross-question a few bankers as to whether or not they would submit as meekly to the same dictatorial methods from the public as they have made use of when dealing with the public under the influence of this self-same financial brain storm.

One trouble with the present hitch in the financial industrial world, the thing that makes it string out longer than there is any need or logic for, is that too many people are expending too much time and energy in urging the other fellow to go ahead and get busy. It wouldn't be a bad idea to quit talking about it awhile, and, instead of urging the other fellows to go ahead and resume operations, to go ahead ourselves.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



THE ANNUAL REPORT of the superintendent of buildings does not make a very good showing for this city, as compared with 1906. At the same time there was a permit issued in December of 1906 for the Commerce building, at a cost of \$1,000,000, which was built last year, and none of the big permits issued last year will drag over very far into this year; in fact there has been no big permits issued since July, and these buildings are now well under way to completion. Other permits would probably have been issued before the close of the year, but the financial flurry made investors hold up for a while, and this allows 1908 to start out with most of the work well cleaned up, so the permits issued this year will cover the work done in the year.

The superintendent of buildings estimates that there was a decrease in values of buildings for which permits were issued, as compared with 1906, of \$1,153,558, a decrease of fifty in the number of permits issued for the year, and a decrease of 6,671 front feet in amount of property thus improved.

Kansas City, Kans., has been able to make a better showing, however, as their permits made an increase in the past year of almost half a million of dollars over the previous year, and an increase of 379 in the number of permits issued.

The report shows 944 buildings erected in 1907 against 565 in 1906. The cost of the buildings in 1907 was \$1,472,279, and in 1906 \$1,003,690.

"My report covers only the building done in Kansas City proper," Larkin Norman, building inspector, said. "A number of additions have been platted west and north of the city, especially in Quindaro and Chelsea place. The cost of building there in the last year alone is thousands of dollars."

Just at the present time there is almost no demand for brick, and there is little expected before work opens up in the spring. Some brick manufacturers are inclined to expect a light business throughout the year, because of the setback already experienced, and the fact that this is "presidential year." Others expect a good year. The indications are that the latter are right, for already it is stated in building circles that money is being offered with which to make loans on new houses. This is the first step that makes much new building possible, and the fact that money is already being offered, indicates that there will be plenty of it in sight before spring, when building operations naturally begin. The fact that so many people in the East have sold stocks, and have not yet invested their money, is also taken to indicate that they are afraid to again take chances on stock investments, and will want to loan it on either farm mortgages or on mortgages on good city property—something they can see and feel, and know exists.

The fact that money is loosening up in the West before it does in the East, is a good indication, and shows that the West no longer can be entirely swayed by Wall Street, in spite of the fact that the operations on "the street" became so rank that it was not hard to scare the West, along with the balance of the country. It is believed by many out this way that the next time Wall Street cries "wolf" there will not be nearly so much attention paid to it.

Brick men are being asked when the cost of brick is to be reduced. The builders seem to have already forgotten that brick was one building material which did not advance in price during the past year, and, consequently, that there should be no drop in price coming.

Most of the brick plants in the surrounding country and

in this city are now closed down, the Lyle Brick Company being the only one reported in operation here just now.

Claude Fuller, formerly with the Hydraulic Pressed Brick Company, but more recently with the Standard Brick Company, of Coffeyville, Kans., has handed in his resignation to that company, and accepted the superintendency of the plant of the Buffalo Brick Company, Buffalo, Kans.

The Eadie Building Supply Company reports having had a very successful year in 1907, their deliveries of all kinds of brick amounting to 21,000,000, an increase over 1906 of about 1,500,000, and double their business for 1905, which was the first year the company was in business.

The Pittsburg Brick Company will close down its plant in Pittsburg, Kans., within a few days, and it will probably remain idle about three weeks, while new machinery is being placed in position. They will put in the largest sized Freese



The Only Brickyard on the Isthmus of Panama. Here Brick Have Been Made for More than 100 Years.



Wild Indians of the Interior of Panama.

machine, and also other machinery, and will soon begin building a number of new kilns. They are also putting in a new machine at the plant in Sycamore, Kans., and will be able to greatly increase their output. The Pittsburg plant is badly in need of this increased production, as the output is well contracted ahead at the present time.

Henry R. Nesch, who has been local manager of the Pittsburg plant of the Pittsburg Brick Company for a number of years, has handed in his resignation, and, after taking a good rest, will engage in business for himself, in the paving and sewer contracting line. He has been succeeded by Theo. C. Jacoby, who has had years of experience in the management of brick plants, having been with the Hydraulic Pressed Brick Company, at St. Louis, Menominee, and Kansas City for years, and is looked upon as one of the best men in this section of the country.

K. A. W.

Written for THE CLAY-WORKER.

SOME FACTS ABOUT PANAMA.

A Zone of Luxurious Tropical Growth and Venomous Insect Life—The Pacific Coast Farther East than the Atlantic
—With a Brickyard a Century Old, Panama Imports Millions of Brick from the United States.



ANY RELATION OF events connected with the building of the Panama canal would naturally be incomplete did it not presuppose a knowledge of the history of the Panama country, a study of its people and climate, and the geographical and commercial reasons for undertaking the construction of its stupendous waterway,

destined to be the most colossal engineering event of the twentieth century.

To begin with, Panama is not so far away as many may



Ruins of San Domingo Church, Destroyed in 1735. The Flat Arch in this Building has Withstood the Earthquake Shocks of Two Centuries. It was the Strongest Argument in Favor of a Lock Canal.

imagine. Situated 2,000 miles due south of Philadelphia, its northern province of Colon, connected by three lines of steamboats running every five days, is only "six days from old Broadway." Its southern or western end, at which is located the ancient city of Panama, is peculiar from the geographical fact that it is further east than Colon. Thus those who cross the isthmus are further east when they reach the Pacific than when they leave the Atlantic side.

Between these two cities lies that narrow and as yet unconquered strip of land known to the Spainards and buccaners of old as the "Straits of Darien." It is only thirty-eight miles wide in its narrowest place, but has been the seat of more than one comedy of errors. Likewise it is a comedy of antitheses. Though a land of perennial beauty, whose tropical foliage could be no more lovely anywhere in the world, it has a climate, than which none, except the Congo, could be more deadly. From low-lying hills of red clay at Culebra, the highest point on the line of the canal zone,

stretch interminable forests in either direction towards the purple mountains, whose majestic peaks rise to a height of over 10,000 feet. These forests, denser than those of the Amazon, are filled with rubber and mahogany, logwood, bamboo, or the cocoanut palm. Game of every description, bears, tigers, deer and monkeys, abound in them, and yet the hunter dare not pierce this tropical jungle. Should he do so, he might become the involuntary host at a banquet composed of scorpions, boas, and tarantulas, or the thousand noxious insects which spread disease and misery on every hand. Strange as it may seem, the birds which inhabit the forest never sing, and the very flowers themselves have neither fragrance nor odor.

On the other hand, Panama is a country old in story, rich in history and romance. Across this narrow strip of land from the time of the cruel Spaniard of old, has passed the treasure trove of every nation in America. From the time of Balboa and the settlement of western South America, and even parts of our own continent, and only ending with the construction of our own transcontinental railroads, a constant stream of gold has rolled across the isthmus. It has consequently been the seat of attack from a host of adventurers. Beginning with Morgan, the boldest of buccaneers, and who, in 1671, rolled into old Panama his victorious legions and burned and sacked this most populous city of the new world, and led its captive inhabitants to slaughter on Ancon Hill—until the last revolution, in November, 1903, and which was incited by the United States Government, Panama, due to its geographical situation, has been the scene of conflict and tragedies innumerable: of wars and revolutions incessantly.

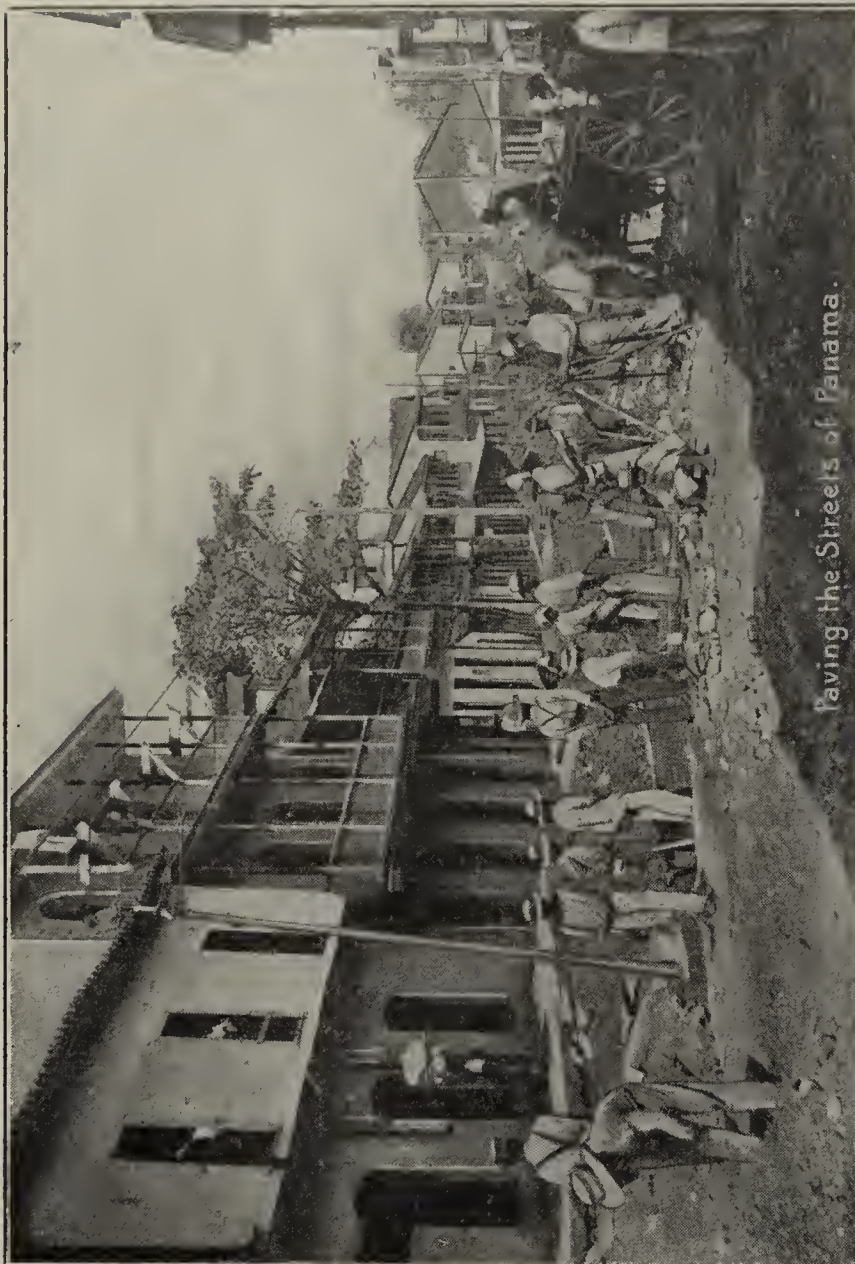
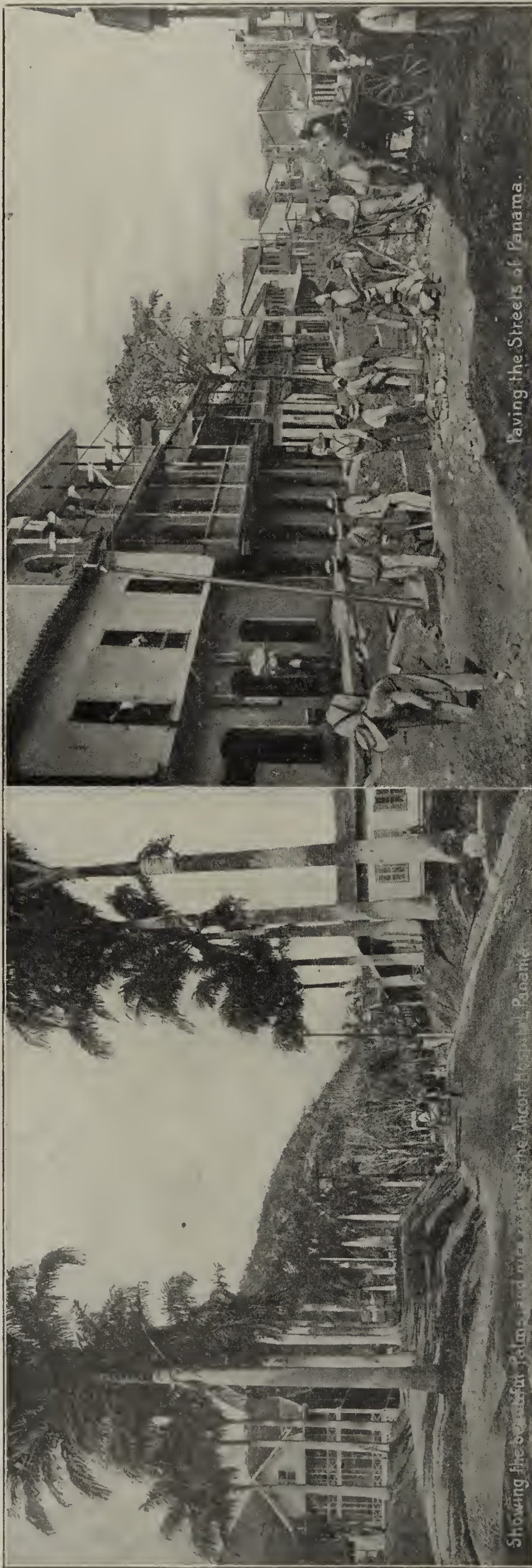
At the time of Morgan's raid the old city had several thousand people, eight monasteries, a cathedral and five churches, a fine hospital, 5,000 homes, a chamber of commerce and 200 warehouses. Of these there remains today but one brick tower, a crumbling ruin. The ancient city, which was the key to the Pacific and the gate to the universe, is silent and overgrown by a tropical forest 200 years old. Out of all that vast city, there remains the ruin of but one brick church.

No wonder Morgan thought its treasures worth the arduous task of capture, and attempted to accomplish its destruction. The brick walls of this famous old city are said to have cost over \$11,000,000, at a time when labor was the cheapest in the world. It is said that the King of Spain one day shielded his eye and looked over toward the west. "What are you looking for," said his counselor. "I am looking for the walls of Panama, for they have cost enough to be seen from here," was his mournful answer.

What would he have said could he have known the climax of brazen graft that was to have been developed in the same vicinity two centuries later? We may think 400 years a rather long time, so much so, in fact, that we can scarcely realize that the French Canal Company spent in the years from 1881 to 1892 what was equivalent for one dollar for every minute from the time Balboa first set foot on Panamanian territory until the French turned the first spadeful of earth. And yet this graft would have been as nothing compared with that of the Americans, had not Roosevelt stepped in and dissolved his first commission.

The idea of a ship canal across the isthmus is not a new one. As early as 1520 plans for its construction were entertained by a Dutch company. The Germans, Swedes, and English all studied it. The Scotch made numerous surveys of proposed routes, and we all know in later times of the French and Americans. The construction of the railroad across the isthmus in 1855 was an important factor in determining the French to undertake the construction of a canal, as by its agency and aid, work could be begun in many quarters at one and the same time. This railroad, built through the almost impenetrable tropical jungle, cost the lives of over 6,000 workmen, and gave rise to that oft repeated statement that the Panama railroad cost the life of one workman for every tie laid in its construction.

The old French Canal Company began its work in 1881.



SCENES IN AND ABOUT PANAMA.

- (1) Road Near Acon Hospital. (2) Paving the Streets of Panama. Brick Having Been Imported for this Purpose from Galesburg, Canton and Other Points in the U. S. A. (3) The Old Sea Wall of Panama Built of Solid Masonry. (4) Loading Bananas on the Cars of the Panama Railroad.

CLAY WORKER



SCENES IN AND ABOUT PANAMA.

- (1) The Cathedral Plaza, During the Drawing of the Lottery, Which is a State Institution. (2) Palm Avenue in Cristobal Colon, at the Atlantic End of the Canal. (3) The Famous Culebra Cut Composed of Red Clay. (4) One of the Monster Steam Shovels Which Loads an Ordinary Flat Car in Five Dipper Fulls.

An engineer named Wyce had charge of the work. Unfortunately his name was not all that it indicated, and even De Lesseps, fresh from conquests at Suez, made his estimates all too low. Then came the great financial debauch, involving the robbing of the poor and the corruption of the rich and those in high station. Exposure came in 1892 and bankruptcy followed. A receiver was appointed by the court to wind up affairs. Up to that date over \$260,000,000 had been spent and only one quarter of the work was finished.

The receiver having secured from the Columbian Government an extension until 1910 for the completion of the work, was able to reorganize a new company. This company had a capital of \$13,000,000, and continued work in a desultory sort of way until the American Government took hold of the proposition, fomented the Panamanian Government into revolt against Colombia, bribed the Colombian army stationed at Panama to lay down its arms and then recognized the independence of Panama.

The last stage in the history of the canal began with the authorization by Congress, in June, 1902, for purchase of the old canal company rights and possessions for \$40,000,000 gold. This offer was accepted by the French in 1903. Since that time treaty rights have been signed with the new Panama Government, by which the United States has leased to it in perpetuity a strip of land five miles wide on either side of the canal, and technically known as the canal zone. On this stretch of territory the United States has absolute jurisdiction, with the single exception of the cities of Panama and Colon, and in these two cities they retain the right of police and sanitary supervision. In all respects, though not absolutely owning this territory, the United States has all necessary territorial rights.

At the present time work is well under way on the Panama canal. An enormous equipment has been provided for the Panama railroad to handle dirt trains, which are removing the red clay from Culebra cut; the construction of new docks at Colon has facilitated the moving of freight and cargo at that point. The railroad has been double-tracked for a large portion of the distance between the two oceans. New cities have been built in the jungle, much like the mushroom growth of towns on western prairies, only much more substantially. Thirty thousand laborers have been engaged from the West Indies and Europe, and the expectancy is that within two years 50,000 men will be employed on the isthmus. Permanent hospitals have been erected at Colon and Panama, capable of accommodating 1,500 sick at one time. The streets of Panama have all been paved with brick and a permanent water supply has been provided for both terminal cities. Everything is done on an enormous scale, and, while progress seems necessarily slow, it must be remembered that the conquest of any new country, and especially the tropics, is proverbially slow.

Out at the big cut at Culebra the red clay is being removed at a rate of 650,000 cubic yards a month. While even at this rate, it would take thirteen years longer to build a lock canal, there is no doubt but that this amount will be rapidly increased in the near future.

The greatest problem of all, however, is not the removal of earth at Culebra, but the construction of the great locks. It is estimated that working night and day it will take over six years to make the cement foundation of the great locks at Gatun, and which will be about a mile long.

A few words now about the brick industry at Panama. The brick industry reminds one of the story of the host who excused himself for not supplying fish to his guests at dinner by the statement that in the first place the fish were bad, and, in the second place, that there were no fish. So it is with brick in Panama. In the first place, the brick made in Panama are very poor; in the second place, they don't know how to make brick, and in the third place, as a result, they haven't any brick—they use stone instead.

Most of the brick used in Panama are imported. The large flat brick used in the construction of the famous flat

arch in San Domingo church, and which has stood the earthquake shocks of two centuries, were all imported. All the brick used in paving the new streets of Panama have been imported. Most of the tiles used on the roofs of houses in Panama have been imported. Yet, with all this enormous demand for brick created by the American occupation of the isthmus, and with the finest clay in the world at its disposal, Panama still continues to import brick. There is enough red clay to be removed from the big cut at Culebra, if it were made into brick, to supply the demand of Central America for 100 years. And yet this natural wealth is all wasted simply because the natives do not know how to make brick.

The main reason for failure in the past has been inability to dry the brick before burning. With the advent of oil for fuel, there should be no difficulty with either process in the future. Brick have always been made after a fashion in Panama during the dry season, but they have been of very poor quality. With the advent of American machinery to facilitate drying, there ought to be no trouble in making brick in Panama.

Brick sell in Panama today for fourteen dollars (gold) a thousand, and that with labor costing only one dollar (gold) a day to make them. There is at the present time but one brick manufactory on the entire isthmus, and it only works in dry weather and in a half-hearted fashion.

It is up to the Americans to say how long this condition shall continue. Meanwhile, the Isthmus of Panama offers a most excellent opportunity for a well-paying investment.

N. B.

Written for THE CLAY-WORKER.

CLEVELAND BRICK AND BUILDING NEWS.



JANUARY FINDS THE brick industry in Cleveland and northern Ohio in a much better condition than was hoped for several months ago. A few of the common brick plants are closed down, but that is always the case for this season of the year. Almost all of the paving, building, and sewer brick plants are in operation, rolling up stock for what is expected to be another year of activity and profit.

A review of 1907 indicates that it was the most successful year in building and from the supply man's point of view that the country ever experienced, despite the lull in the two closing months. This, however, did not affect the brick interests, for deliveries had all been completed before the money stringency was felt.

Building records for the year were ruthlessly shattered. Reports show that over \$3,000,000 more building was done during 1907 than in 1906. Last year the total value of over 8,000 permits reached \$15,660,516, while for the year before, 7,533 permits only reached \$12,972,975, which was, in itself, the best record ever made.

That Cleveland is becoming a fireproof city is indicated in the annual report of the building inspector, who says that, while the increase in buildings erected was nearly \$3,000,000, the decrease in frame structures was \$254,663. In a large majority of cases brick has been the material used for fireproof buildings.

Brick salesmen in Cleveland are hot on the trail of several big projects, which have loomed into sight within the past two weeks. An announcement has been made that the old church at Euclid avenue and East 14th street, opposite the Hotel Euclid, is to be razed by February 1, to make way for a new \$800,000 business and office block. Cleveland and New York capital is behind the deal. It will be of brick, and up-to-date in every particular.

Another big improvement planned for early spring is the building of an eight-story office and store building on Superior avenue, opposite the new Federal building. This spot is destined to face directly upon the Mall of the new group plan. A fine structure will also be erected by W. H. Price,

who owns the Superior building adjoining, which will also be raised from six to eight or ten stories. A mortgage for \$300,000 was filed late in December to cover a portion of the improvements.

There has been an exceedingly interesting development in the row being waged in the county buildings commission, which has been warring over the question as to whether sandstone or limestone shall be used for the inner courts of the magnificent new \$4,000,000 court house, now under construction. At a recent meeting a special committee, appointed to investigate the value of materials, reported that neither kinds of stone should be used, but that light colored brick was the only thing for the purpose.

As this contract for material will run into many thousands of dollars, brick men here have wakened up and started to take notice. It is estimated that brick will be cheaper than stone by about \$5,000 or \$6,000. Some 17,000,000 Kittanning pressed brick are being used in the court house, exclusive of the project for court purposes.

A building project, in which brick and terra cotta will be used almost exclusively, which is to be started early this spring, at a cost of \$80,000, and for which no trouble will be experienced, so far as money is concerned, is the West Side library branch, which has been donated to the city by Andrew Carnegie. It is planned along classical lines, is triangular, with sides about 174 feet long. It will have a large auditorium, seating about 1,000 people in the basement. A large city block, triangular in shape, has had all buildings razed from it, and will be converted into a park to surround the new structure.

A Good Roads Association for Ohio was launched on January 4, in Cleveland, having for its purpose the advancement of good roads through the State. It is aimed to have branches of the organization in all of the towns and cities of Ohio. Asa Goddard, of Cleveland, will be secretary of the organization. Sympathy of the Ohio Granges, with a membership of over 5,000 farmers, has been enlisted with considerable success, for the officers aver that they are ready to assist the movement in any way possible.

Inquiry about the plants of some of the large brick producers throughout Cleveland and adjoining territory indicates that most of them are turning out brick for spring stock, or are busy making improvements and enlargements to their respective plants. At the office of the Brookside Brick Company it was stated that business was good, and that prospects for spring were excellent. Two new kilns are being built, preparatory to being opened early in the spring, and other necessary repairs are being executed.

At the Farr Brick Company's plant, workmen are busy doubling the capacity of the plant, which had a similar experience three years ago. So rapid has been the growth of this concern, and so successful has been its business, that every two or three years it doubles its capacity. H. J. Farr says that business is fair, and that he expects things to pick up considerably in the spring. A new Martin dryer, and two Penfield stock brick mud machines will be added, with other new equipment. The company now digs its clay with a steam shovel, which is operated by natural gas. The Farr Company made an experiment a short time ago, in making sand-cement brick. A layer of twenty feet of fine sand under its clay bank was found to be adaptable to sand-cement brick. It was found, however, that it could not be made to compete profitably with clay brick. Where clay brick sell for \$7 in Cleveland, it was found that \$10 or \$11 would have to be charged for sand-cement brick to make an equal profit. It was decided, therefore, to discontinue making sand brick for the present.

At the Forest City Brick Company's plant, it was said that business was first-class, and that the plant was still as busy as could be. This concern devotes its time to making shale sewer and building brick. The outlook for spring building, according to officers of the concern, is good.

George H. Gynn's common brick plant shut down the

first of the year, and will not likely reopen much before April 1. Mr. Gynn reports that he has some 2,000,000 brick on hand, which will probably be enough to fill all winter orders coming his way. Repairs and improvements are being made in the plant.

The plant of the Newburg Brick and Clay Company has been shut down for the past few days, owing to an unfortunate accident. A fire, which broke out in the boiler room of the plant, did considerable damage, and put the plant out of business. The loss has been adjusted with the insurance companies, and work on rebuilding will be resumed at once. The company expects a good line of orders this coming spring.

The Lakewood Brick Company shut its plant down on January 1 for a period of about one month, to overhaul machinery and increase its capacity about twenty-five per cent. Business is reported as good, but, as the concern had a fair amount of stock on hand, it was considered a good time to make repairs.

John Kline's brick plant, at Wycliffe, has been busy throughout the winter turning out building and paving brick. Mr. Kline proposes to increase the capacity of the plant about thirty per cent. before active spring operations are resumed. He reports building brick selling at about \$10, paving brick from \$16 to \$21, and sewer brick at \$8.

Between Christmas and New Year's a number of paving gangs were working on downtown streets, so fine was the weather here. Sections where new street car loops have been constructed were repaved with as much ease as if the season were in June.

Cuyahoga county, of which Cleveland is the county seat, is preparing to do a large amount of paving this season. Some five or six miles of country roads will be converted from stretches of mud into beautiful thoroughfares within the next nine months.

The people of Cleveland are to be given an opportunity to decide whether they will spend \$950,000 on new pavements and sewers during the coming year, according to action taken by the City Council during the past month. A resolution has been passed calling for a special election on March 3. This money will be raised by the sale of bonds, and will be spent on paving 206 streets and completing a section of the big brick intercepting sewer, as well as providing for a number of smaller sewers.

The Cleveland Builders' Supply Company is busy delivering brick on its order for 700,000 Bessemer shale and Sparta pressed brick for the new \$400,000 Technical high school, which is to be one of the finest trades schools ever constructed. It will be ready for use some time next fall. The same concern is delivering 80,000 shale brick for the construction of the new permanent zoo building in Brookside park. The same kind of brick will be used in other structures, to be built later on.

The Masons' Supply Company has about finished its deliveries on 200,000 hydraulic pressed brick for the new building of the White Auto Company. This is another instance where, despite the fact that the structure is of concrete, good, old reliable brick are being used to give it a finished appearance, and but emphasizes the fact that brick will never be replaced by other materials.

BUCKEYE.

FOREVER AND FOREVER.

Andrew Carnegie, with his unlimited wealth, is building lasting fame with posterity; but there is to-day a man—a plodder among the lowly though he may be for meagre wage—who even now has wider fame than Carnegie, and whose name will be a household word through the generations to come, when the name of Carnegie may have crumbled away from the costly monuments he erected to perpetuate it and is lost to the memory of the ages.

Who is he, this one of the undying name? John Smith.—Judge.

CHINESE IMPERIAL TILES.

Sad Fate of a Native Manufacturer Who Took and Filled a Contract to Roof a "Temple of the Foreign Devils."

Written for THE CLAY-WORKER.



FRENCH CATHOLIC CATHEDRAL, in Peking, China, was ten years in course of erection. Its lofty, massive walls and towering twin spires drew natives from far and near to witness the wonderful "Temple of the Foreign Devils."

The foundations of the cathedral were laid in the early eighties, and as the mammoth structure neared completion, negotiations were consummated with the Chinese manager of the Imperial Tile Factory, located near Peking, to furnish the priest in charge of the cathedral with Imperial yellow porcelain tiles to cover the entire roof. This tile factory was established and maintained by the Chinese government for the express purpose of producing the peculiar shade of lemon color glazed tile, known as "Imperial Yellow." There are many porcelain tile factories in China which manufacture other colored tile, the popular colors being light and dark green, and dark blue.

The manager was taking serious risks in permitting the tiles to be used by others than royalty or for Buddhist temples, as following occurrences proved. No doubt the reason the priest wished to have Imperial yellow tile on the building was because of the effect—the sight of such tiles used only upon government property or temples—would have upon the Chinese people, many of whom would infer that the government approved of the cathedral and the teachings of the French Catholic religion.

The tiles were drawn several miles in native carts from the factory to the cathedral, but, fearing trouble, they were first given a coat of lime whitewash, which remained on the tile until the first rain washed it off. Then the cathedral's roof shown, glistening in the sun, a mountain of gold.

A short time after, the matter came to the ears of the Emperor, who immediately commanded that the manager of the tile factory be put to death by decapitation, a method of punishment which has, within the past year, been abolished, together with all the methods of torturing prisoners.

The Chinese government, though greatly displeased, did not demand that the tiles be removed from the cathedral, but during the "Boxer" outbreak, in 1900, the building was completely demolished.

Within the "Forbidden City," or Emperor's Palace, at Peking, all of the buildings are roofed entirely by these yellow enameled tile. When the sun is shining on the roofs, they may be seen from the tops of mountains twenty miles away, glistening in the distance.

Chinese Brick and Tile.

Most of the ordinary brick and tile of North China are of a light gray or slate color, used in building without enamel, and have extraordinary durability. In size the brick are the same as ordinary American building brick. At Amoy, China, a very fine light (nearly white) brick is produced. I believe there is now only one brick factory in China equipped with imported machinery. All others are still using the crudest methods, making by hand in wooden molds.

Chinese private residences in cities are, without exception, built of brick walls and tile roofs, the roofs being sup-

ported by heavy wooden pillars and rafters. The accompanying photograph is of a two-story house, facing one of the many court yards of a high Chinese official's palace in Peking. The grounds and buildings of this palace were used as the home of the Imperial University, under the direction of Dr. W. A. P. Martin, an American, who first went to China in 1850. Dr. Martin was president of the Imperial University for twenty-five years, and until the palace was completely destroyed by the "Boxers" in 1900. The space dividing the upper and lower stories extending across the front of the



One of the Buildings of the Peking Imperial University, the Courtyard is Paved with Tile Eighteen Inches Square and Two Inches Thick.

building is of carved brick. These brick are eighteen inches square and two inches thick, and are used very generally without carving for paving court yards. When used for ornamental purposes the ends of the brick are so neatly dressed by rubbing with a coarse stone, that the joints are almost indiscernible.

The windows of all Chinese residences are of wooden lattice work, with a very strong, translucent Korean paper pasted over the inside of the lattice, and an occasional piece of glass to see through, except for houses belonging to wealthier classes, when a larger proportion of glass is used, and in some instances, in Central and South China, sea shells are used.

Chinese Bricklayers' Union.

Chinese brickmasons have a well organized union and work ten hours a day, for which they receive thirty-five cents. Hod carriers get ten cents a day, and carpenters receive

thirty-five cents a day. The day wages, thirty-five cents, in China will go as far as three and one-half dollars per day in America, food and clothing of Chinese laborers being most simple.

In North China and Manchuria skilled laborers live on wheat flour, corn meal, millet, rice, cabbage, onions, garlic, turnips, and radishes, and can support a family on twenty cents a day, including house rent at forty cents a month, their clothing consisting of a cheap grade of cotton cloth, which is wadded with cotton in the quite severe winter months, extending from December to February. Their shoes are of the same material, and no hats are worn during the spring and summer months.

All laborers on a building in North China are supplied with hot tea twice a day; the tea is brought from the nearest tea house in great wooden tubs, at 11 in the morning and 3 in the afternoon, only two meals being taken during the day, consisting of breakfast and supper. Chinese people rarely drink cold water.

Wherever modern machinery has been installed in China,



A Street Performance of Chinese Women Acrobats at Shanghai. A Mat of Sea Grass is their Only Stage.

the price of labor in connection with its use has increased, such as flour and cotton mills and cigarette factories.

Within a very few years China will require all her skilled and unskilled labor at home, for the building of railways and operation of machinery of every description.

Shanghai has a native population of about one million, and a mixed foreign population of ten thousand, who live in a district near the native walled city. This district is known as the Shanghai Foreign Concessions, made to the British, French, and American governments. There are six hundred thousand natives living within the concessions. Photograph No 2 is of a street in the British concession, called Nanking road. The street is unusually wide, and on both sides the buildings are occupied entirely by native shop keepers. Your attention is called to the white space of wall, at the extreme left of the picture; this is a brick wall plastered, also the entrance, which is carved brick and plain tiled gables. Wood of all kinds is so scarce in China that brick and stone are used entirely for building walls, and gray tiles for roofs.

A school for children of European residents of China was established in 1880, at Chefoo, North China. The school has an average attendance of one hundred students, most of which come from Hongkong, fifteen hundred miles south, by steamer, and from Shanghai, five hundred miles south. The building, which is a substantial one, is entirely of native brick and tile, and was built by Chinese workmen.

A Brick, Tile Roofed Gate.

In the picture of the missionaries' home, at Chefoo, you will note that the gate leading into the grounds is of brick, roofed with tile. The chimneys at the top of the house are of brick, and the top and corners of the stone wall are also brick. Chefoo is located in a mountainous district, hence the use of stone instead of brick in the wall. The writer was carried in a Sedan chair from the hotel, a distance of five miles, up a steep grade to the missionaries' residence, by two Chinese chair bearers, and back to the hotel, a total distance of twelve miles, for which he paid the usual charge of twenty-five cents to each bearer. It is a most comfortable means of traveling, the chair poles being of well seasoned wood, and flexible, so that in motion it has a slight springing movement.

One of the striking sights of Peking is a monumental arch, erected by the Chinese government in 1903, in memory of the late German Ambassador, Von Kettler, who was killed by the Chinese in that city during the trouble in 1900. The arch is of native marble, with the exception of the tile on top of the gables, which are "Imperial Yellow." By looking closely one can see the English and Chinese inscriptions. When the picture was taken, the arch was not quite completed, and the fence of matting blocking the street had not been removed. The arch spans one of the busy thoroughfares of the city, and thousands of people are obliged to pass under it daily, who are warned by the wording of the native inscription, not to repeat the act. There is little reason for anticipating a repetition of the "Boxer" outbreak, as the causes of that occurrence have been effectually and permanently removed, while the sentiment now throughout the greater part of China is very much more pro-foreign, beginning with the Empress Dowager and her closest advisors.

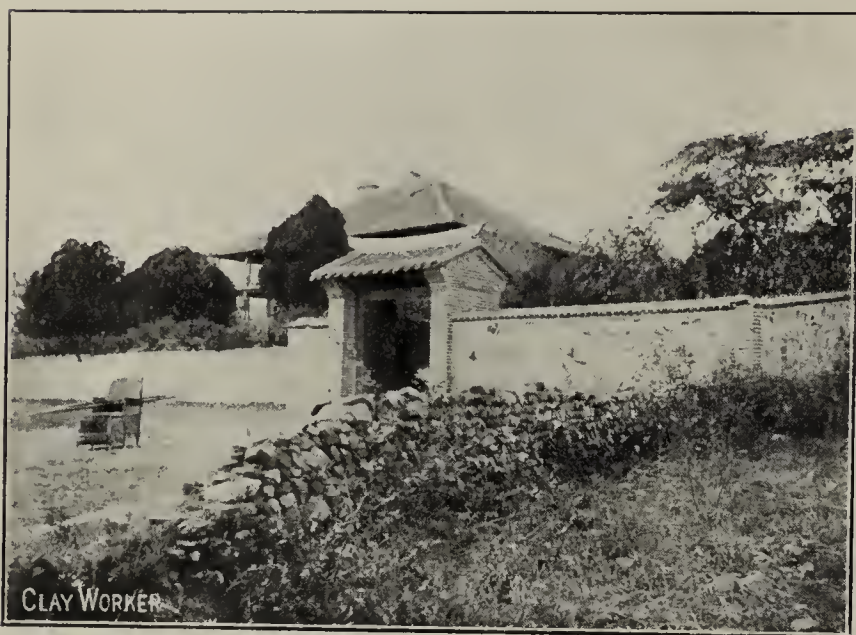
Remarkable Relics of Ancient Origin.

The picture of camels, two standing and two reclining, shows the approach to the "Ming Tombs." It is one of the mysteries of China how these immense stone animals were placed in their present positions from the nearest quarries, several miles away. From the top of the standing camel's head, to its feet, is more than twice the height of an average man. The "Ming Tombs" are about thirty miles north of Peking, where the thirteen Emperors of the Ming dynasty are buried.

One of the most interesting sights of Japan, at Nagasaki, is of men and women loading two or three thousand tons of coal onto a huge ocean going steamship, by passing baskets containing about ten pounds of coal. The moment the great steamer is anchored to its buoy, it is surrounded by barges loaded with coal and coal passers coming in boats, as shown in the picture, who hurriedly construct a tier of board platforms held in place by ropes, reaching from the barges to the ship's cargo port; then the platforms are manned and "womaned," and a continuous chain of baskets pass from hand to hand for the next twenty or thirty hours, until the ship's coal bunkers are filled. Before commencing the work, each woman ties a clean white piece of coarse cloth over her hair, which is characteristic of the Japanese. The scene is a most animated one, and its participants keep up a continual laughing and jabbering.

The principal places of interest in Japan are well supplied with modern European hotels, as the accompanying photo-

Scenes of Interest Along the Coast of China and Japan.



Home of Missionary at Chefoo; Sedan Chair in Foreground.



Nanking Road, British Concession of Shanghai.



Von Kettler Memorial Monument, Peking.



Massive Stone Animals Lining Approach to Ming Tombs.



Natives Passing Coal from Barges to Sixteen-Ton Ship in Nagasaki Harbor, Japan.



Japanese Women and Children, who Pass Coal by Hand in Small Baskets from Barges to Steamships.

graph of the Oriental Hotel, at Kobe, Japan, indicates. The roof of this building is of native terra cotta tile, of which a very fine grade is produced. The walls of brick are plastered with cement.

Jin-riki-shas are a very common means of getting about oriental cities. They are small, one-seated buggies, as shown in the picture, drawn by a man at the small cost to the rider of ten cents per hour. The writer is seen in picture below, deserted upon the beach of the Hongkong harbor by his "rick-sha" coolie, who ran away when the camera was pointed in his direction. The lower classes of Chinese are very superstitious about being photographed, believing they will lose their eyesight, or die within a year after the picture is taken.

J. P. McCoy.

THE PARCEL POST AGAIN.

We have been favored with a copy of the speech made by Postmaster General G. A. Meyer at the banquet of the New England Postmasters' Association, at Boston, in which he takes up, among other things, the subject of the parcel post, which has been before the country, and has been given quite a lot of argument pro and con.

Postmaster General Meyer in his speech points out that the idea of a parcel post is opposed by express companies and by retail merchants throughout the country, and he proposes a parcel post regulation, which he thinks should meet with the approval of retail dealers, and expresses the opinion that it should relieve the fear that it would give the mail order houses a chance to cut into their trade seriously. His idea is to have such a parcel post regulation that it will cost the mail order houses twelve cents a pound to rural delivery patrons from any city postoffice, while delivery from the district office of the rural route the charge would be five



The Author, on Beach of Hong Kong Harbor, Deserted by a Native Coolie when Attempt was Made to Photograph Him.

cents for the first pound and two cents for every additional pound up to eleven pounds, or twenty-five cents for a package or parcel weighing eleven pounds. This would certainly put the parcel post matter into a more acceptable shape for country merchants and it gets to be more a question of whether or not the mail carriers could handle the matter or whether it would cost more to put on additional carriers and facilities to care for this increase on the part of the parcel post business than it would bring in revenues. These are questions, however, which the postoffice department is better qualified to deal with than any one else, and we are willing to leave it to them to figure out.

Worry may kill a cat or two, but it won't do much toward getting a man along in this world except that it takes the form of arousing him to action.

Written for THE CLAY-WORKER.

NORTHWESTERN OHIO BRICK AND BUILDING NEWS.



WHILE THE CONSUMPTION of building brick in this section fell somewhat below that of the year previous, the matter of paving brick is a different story. The year just closed has been one of unparalleled activity, so far as street work is concerned. All the yards in this section were kept busy to supply the demand which came from every quarter for paving brick. And the season ahead gives every promise of outdoing the one just closed. It would seem that there never was a time when there was more preliminary legislation under way than there is at the present in the municipalities of this section. Extensive sewer systems are also in state of incubation, which, when de-



Oriental Hotel, at Kobe, Japan, and the Jinrikishas (the Cabs of Japan), which are Drawn by Men.

veloped, will create an immense demand for vitrified sewer and drain tile. In addition to all this, there is every reason for hoping for a record-smashing era next summer in the matter of large business buildings. This is especially true in Toledo, where a number of important contracts are already signed up, and only await the coming of spring. These things are lending an optimistic atmosphere to the clayworking plants in this section, and dealers, contractors, and manufacturers are confidently looking forward to an unusually prosperous year in the clayworking field.

The city of Fostoria will, in all probability, have a new brick plant in the spring. The Fostoria Stave and Barrel Company owns forty acres of good clay land, and is now having a test made of the clay, with a view to determining its value as a brick material. Should the test prove favorable a large plant will be put in by the company. As brick were formerly manufactured from the same material years ago, by a different concern, it is thought there is no question as to the quality of the clay.

Adam Schantz, of Dayton, has had plans prepared for a new ten-story business block, to be erected in that city next summer. It will be constructed of brick, and will cost the owner about \$150,000.

The Hanover Pressed Brick Company, which recently opened its main offices in Newark, Ohio, has opened a selling agency at Columbus, under the charge of S. G. Davis. The plant is located in Licking County. The newly elected officers are: President, C. H. Forry; vice president, W. H. Smith; secretary and treasurer, C. C. Forry. Directors: C. C. Forry, G. W. Havens, Harry Swisher, W. H. Smith, P. S. Philips, and S. B. Haines.

The American Clay Machinery Company, at Bucyrus, Ohio, has reduced its force temporarily, and cut their time to eight

hours a day. The plant begins work at 7:30 in the morning, in order to secure the advantage of daylight work. While the company has plenty of orders on its books, many of them are being held up by the threatening money stringency, and it is thought that the curtailing will be but temporary.

Plans are under way for the new three-story building to be erected in the spring for the Toledo Newsboys' Association. The structure will be 75x175 feet, constructed of press brick, with buff stone trimmings. The interior will be of marble and mosaic, ornamental iron and brass. It will be one of the handsomest buildings in the city, and the contract is well worth striving for.

Preliminary papers for the organization of the Curtice Tile and Brick Company have been prepared. Present plans contemplate the incorporation of the concern with a \$10,000 capital stock, and eventually taking over the plant held by Herman Bunte, at Curtice. If this is done new buildings will be erected, and other extended improvements made. The enterprise is being promoted by Captain D. H. James, which bespeaks its ultimate success.

The city of Newark, Ohio, is preparing and passing legislation for the building of approximately three miles of street paving at the present time, the work to be finished the coming summer. Newark is fast coming to the front in the matter of street paving.

The firm of Faragher & Randall, of Lorain, were recently awarded a handsome contract in that city. The work calls for the construction of a brick storm water sewer in Penfield avenue, the contract price being fixed at about \$14,000.

The city of Columbus recently received bids for the paving of twenty-three streets in that city. It is estimated that to finish all of the work it will require at least 2,500,000 brick, a very fair crumb for the paving brick manufacturers of that section.

Articles of incorporation have been issued to the Schmitt Brick Company, of Columbus, with an authorized capital stock of \$48,000. The incorporators are: Philip Schmitt, Erwin Schmitt, Lawrence Schmitt, William M. Parsons, of Detroit, and J. A. Holtermann. The company will take over the Schmitt brick plant in that city. New machinery will be installed and other improvements made.

Levi W. Geddes, formerly general manager of the Hanover Brick Company, has opened an agency in the Brunson building, at Columbus. He is well known among brick men of this section, having formerly come from Mansfield. He has had a number of years' experience in the brick business, and understands it thoroughly.

Charles R. Wilson, agent for the Logan Clay Product Company, of Logan, Ohio, has opened offices in Columbus, in the Brunson building. He formerly had offices in the Board of Trade building, and later was stationed at the plant in Logan.

T. O. D.

WE ARE GOOD AT THE BOTTOM.

When all is said about our shortcomings, about our fallings from grace, about our reckless plunges, the fact remains that the rank and file of American people are really good at the bottom. We may for a time lack perception, may wobble a little and may not know what course to take or just what ails us, but as soon as the public clearly perceives and sees its way to planning for correction in shortcomings and evil, there is quick and decided action. We may get moon-eyed at times, at other times feel that something ails us and not be able to diagnose it thoroughly; we may get hysterical, go off half-cocked now and then, but way down at the bottom the great heart of the real people of this glorious nation beats strongly for and in harmony with what is right and good for

all. Agitation and public clamor may take objectionable forms at times, and some absurd laws may be made, but when the mist of confusion clears away and the general public gets its bearings right, errors of this kind are promptly righted; and though we may go on indefinitely, making more or less blunders, so long as we remain good at the bottom the right will ultimately and always prevail in the end; and troublous times which come upon us now and then, instead of weakening us and leading to national decay will simply serve as eye-openers to call our attention to the weak spots, so that the whole may be stronger in the end. In other words, humanity as a whole is, and always has been, steadily improving and has the inherent ability to meet the exigencies of all and any contingencies which may arise.

PYROMETERS FOR MEASURING KILN TEMPERATURE.

THE IMPORTANCE OF being able to accurately gauge the temperature in dryers and kilns, has come to be recognized much more clearly in the past few years.

Several years ago, the kiln burner was forced to rely on seger cones, tests, or his eye, to determine the temperature of a kiln, whereas now pyrometers have become a necessity at progressive brick and clay works.

For measuring the temperature of kilns, the eye has at best been a very inaccurate gauge of heat, as the results depend too largely on the surrounding light and conditions. Seger cones have been, and are, very useful, but unless a whole set of cones is used, the temperature can be gauged only at certain points, and the lower temperature must be omitted altogether. Cones are, in fact, used in kilns to show that certain results have occurred, rather than to indicate temperature, as the length of the burn or fast or slow firing will affect the temperature at which the cone falls. It is also a well known fact that where a certain cone falls at say 2,100 degrees Fahrenheit after forty hours burning, this same cone might not fall until 2,150 is reached if burned for eighty hours.

Pyrometers can be supplied now for indicating the temperature of the dryers on a dial, or for continuously recording the temperature on a chart for the whole twenty-four hours. Also for use in the kilns during the water smoking period, and until the finish of the burn is reached, pyrometers can be supplied to indicate or record the temperature at the kiln, or in the office several hundred feet distant. A portable pyrometer also can be supplied, which can be carried about from kiln to kiln, and the temperature measured when desired.

For use in dryer flues or ducts, pyrometers graduated to 50 degrees Fahrenheit are used. For kilns, during the water smoking period, a pyrometer graduated to 1,200 degrees Fahrenheit is desirable, and instruments for use up to the finish of the burn are graduated to 3,000 degrees Fahrenheit, or 1,600 degrees Centigrade. At a few very high grade fire brick works, the temperature at the finish of the burn is somewhat above 3,000 degrees Fahrenheit, and a radiation pyrometer, graduated to 4,000 degrees Fahrenheit, is used.

Edward Brown and Son, 311 Walnut street, Philadelphia, Pa., manufacture these various types of pyrometers, and, as they have made a study of the effect of temperature in kiln burning, they are in a position to supply pyrometers designed for practical and every day use around brick and clay works. Their catalog illustrates these pyrometers and contains considerable information of value, and they are always pleased to mail a copy upon request.

The man who says there are no chances in the world to-day, will not likely amount to much till he changes his ideas and gets that other think that is coming to him.

THE BUCKEYE is Thought by Many to Bring Good Luck—Carried as a Pocket Piece it is Supposed to Ward Off Rheumatism and Other Ills.



Substitute for Tin in Enamel Glazes.—According to a patent which was granted the Chemical Factory, Gustrow, the use of tin for enamels will soon be disregarded. The new material which will take the place of tin is the oxide of zirconium. The quantity necessary to give the same amount of opacity in glazes is used. The price of the zirconium is about one-third cheaper than tin oxide, and therefore the glazes so compounded are much cheaper.—Deut. Topf. & Z. Z. No. 86, 1907.

The Lead Question in Germany.—Some time ago the manufacturers in Velten were arrested and fined for using lead in their glazes. The matter was fought through the different courts, and the Supreme Court, on the first of October last, decided that the manufacturers did not work against the law in regard to the use of lead. The commission of experts, which practically decided the question, were unanimously in favor of acquitting the manufacturers.—Tonind. Z. No. 119, 1907.

Special Modeling Clays.—A modeling clay will often dry out before the piece is finished for modeling. In order to get a body which retains its plasticity and stay soft any length of time the following mixture will be all right: Fifty parts of fine sand mixed with 100 parts of powdered plastic clay. Add to this 20 parts of chloride of magnesium, and 20 parts of magnesite. When the whole is in a very plastic body add 5 parts of borax, which will prevent the body from becoming hard.

Another modeling body can be made by using 40 per cent. chalk, 55 per cent. of burnt plaster and 5 per cent. of oxide of zinc, to which is added enough glue water to make the body plastic.—Tonind, Z, No. 104, 1907.

Brown Slip Glaze for Roofing Tiles.—Under the ordinary brown slip glaze, which is used quite often for roofing tiles, we find many clays which will answer this purpose. Usually it is mixture of silica and iron oxide, with the addition of some fluxing materials, which will give the desired results. The clay is usually ground in a glaze mill in order to get a uniform body. The temperature at which it melts ranges from cone 4 to 6. When the roofing tiles mature at a lower temperature, the addition of lead will be necessary to give a sufficient soft glaze, which will melt at a temperature between cone 05 and 010. The lower temperature will also add materially in getting a darker glaze than at higher heat.—Deut. Topf & Z. Z. No. 84, 1907.

The Quality of Building Mortar.—The front of a building in Friedenau, near Berlin, collapsed recently. The mortar used for building material was at once subjected to chemical analysis, in order to lay the blame more on the mortar than on the sand-lime brick which were used in this front. It was found that the mortar carried only 7 per cent. lime. Consequently the mortar was considered very poor, and was blamed for the collapse of the building. Since this happened, however, the fact has been established that when the old Dome church in Berlin was torn down the mortar

in that building was also subjected to analysis, and, according to the analysis made by the Tonindustrie Zeitung, this mortar, which was over 200 years old, carried also 7 per cent. of lime. Considering these facts, it can now be stated that the old and new lime were made exactly in this same proportion, and the blame of the collapse could be better traced to the sand-lime bricks than to the lime.—Deut. Topf. & Z. Z., No. 64, 1907.

Crushing Strength of Refractories.—In a paper read before the German Association of Refractory Clayware Manufacturers, Mr. E. Cramer gives the results of crushing tests which he has made on different refractory materials. The test pieces for these experiments were furnished by the Freienwalder Schamotte fabrik Henneberg & Co., and were made of six different mixtures, which had the following composition:

- Body 26—Broken saggars, 30; quartz sand, 20; Halle clay, 25, and kaolin, 25 parts.
- Body 60—Swedish shale fire clay, 60; Groedener clay, 40 parts.
- Body 63—Rakonitz fire clay, 60; Schwepnitz clay, 15; parts.
- Body 72—Broken saggars, 60; Schwepnitz clay, 15; kaolin, 25 parts.
- Body 96—Westerwald clay grog, 60; Westerwald clay, 40 parts.
- Body 103—Kaolin, 100 parts.

The test pieces were made of $4\frac{3}{4} \times 4\frac{3}{4} \times 2\frac{1}{2}$ inches in size. One part was burnt once, another part burnt twice, still another part burnt three times, while the last part was burnt four times. The temperature at which the pieces were burnt was between cones 10 and 12. Every body mixture was formed in four different ways: The first was formed in the stiff mud state and repressed; the second was formed by the dry press process; the third was formed by the soft mud process, and the fourth was cast in plaster molds. The following table gives the results of the tests:

Crushing Tests of Refractory Test Pieces in Pounds per Square Inch.

Bodies.	Manufacturing Process.	Number of Burns.			
		Once.	Twice.	Third.	Fourth.
26	Soft mud (a)	1,602	1,749	1,485	1,550
	Dry press (b)	1,216	852	1,189	918
	Soft mud (c)	1,200	1,244	1,163	1,139
	Casting (d)	1,253	1,772	1,521	1,564
60	(a)	2,337	2,507	2,468	2,476
	(b)	775	678	782	768
	(c)	1,076	1,260	1,007	1,175
	(d)	2,043	2,064	2,369	2,827
63	(a)	1,629	1,768	1,578	1,928
	(b)	1,073	878	938	792
	(c)	680	720	796	780
	(d)	1,231	876	803	990
72	(a)	1,235	1,214	1,229	1,194
	(b)	662	1,114	970	878
	(c)	700	955	714	814
	(d)	1,685	1,955	1,912	1,762
96	(a)	1,171	1,442	1,426	1,384
	(b)	1,179	1,137	1,137	1,314
	(c)	898	880	934	1,202
	(d)	1,465	1,414	1,430	1,557
103	(a)	2,088	2,332	2,262	2,338
	(b)	2,502	2,573	2,426	2,301
	(c)	2,813	2,948	2,844	3,081
	(d)	2,771	4,245	4,075	3,900

The results show that the different pieces under the same class have different strength. While there is a great difference in the different pieces which are burnt repeatedly, the

CLAYWORKERS, Even Though Skeptical, Will Surely Have Better Luck Throughout the Ensuing Year if They Attend the N. B. M. A. Convention at the Buckeye Capital, February 3 to 8.



Method of Applying the Fischer Veneer Wall Tile.

method of manufacturing is more important. The refractories made by the casting process all show more resistance than the other methods. Pure kaolin also shows good results. It also shows that each clay or body mixture should be tested in order to exactly determine which of the manufacturing processes will be best adapted to give the best results.—Tonind. Z. No. 102, 1907.

Green Chromium Glaze.—A good green glaze, which will mature by cones 08 and 09, is made as follows:

Feldspar	600 parts
Whiting	105 parts
Oxide of zinc.....	80 parts
Red lead	475 parts
Boracic acid	260 parts
Flint	510 parts
Oxide of chromium.....	50-110 parts

This mixture is mixed well, and fritted. After fritting, it is ground very fine, and is then ready for use. Another good glaze will be obtained by making first a green frit, which is composed of the following materials:

Salpetre	50 parts
Whiting	25 parts
Carbonate of barytes.....	49 parts
Borax	95 parts
Boracic acid	86 parts
Flint	250 parts
Oxide of chromium.....	80 parts

The materials are mixed and fritted, and ground fine, and, according to the depth of color desired, mixed with one part of color to 10 to 20 parts of colorless glaze. The glaze is made of a frit containing

Salpetre	100 parts
Whiting	50 parts
Carbonate of barytes.....	98 parts
Borax	200 parts
Boracic acid	300 parts
Flint	300 parts

The frit is also mixed thoroughly and fritted, ground fine, and then in every 1,000 parts of frit, 100 parts of ball clay or kaolin are used. A glaze of this composition will mature at cone 08.—Sprechsaal No. 37, 1907.

Dry Press Brick.—The editorial in regard to the Austrian opinion of American dry press brick, and also the article in September number of THE CLAY-WORKER have evidently stirred up our Austrian trade exchange, "Baukeramik." In No. 43 of the issue of the paper we find our articles translated in full, and the following editorial note: "The damaging remarks made regarding American dry press brick were made by a German machine man, and did

not represent the Austrian sentiment. Dry press brick are made in Austria, which have stood a high test. In the debate over dry pressed brick at the last annual meeting of the Austrian Clayworkers' Association, the question of backing up brick was more agitated than the face brick proposition. American brick were condemned on account that they were not burnt hard enough, and this in itself was a mistake. The writer in THE CLAY-WORKER is right when he states that the manufacturing of dry pressed brick is not alone a matter of press, but also of the general handling of the whole manufacturing process, and especially in the preparing of the clay and the proper burning."

Crushing Tests of Different Kinds of Brick.—According to tests made by the Royal Technical Testing Station, in Charlottenburg, under direction of Dr. Eugen Michel, building



The 40,000 a Day Tile Machine.

inspector of Kiel, the crushing tests on brick varied very much. Ordinary backing up brick stood from 924 to 6,528 pounds per square inch; clinker brick from 2,950 to 7,225 pounds per square inch; dry pressed brick from 1,593 to 10,021 pounds per square inch, and paving brick from 2,816 to 10,866 pounds per square inch. Taking in account the regularity which is observed in these tests in regard to the same class of brick, the average test for a good paving brick is from 7,000 to 8,500 pounds per square inch, for hard building brick from 5,000 to 7,000 pounds per square inch, while ordinary klinker brick will stand from 3,500 to 5,000 pounds per square inch. Dry pressed brick will stand on an average from 4,250 to 5,700 pounds, while the regular backing up brick will stand from 1,500 to 4,250 pounds per square inch in order to give an average product.

The average comparison tests of these four classes of brick are as follows:

Backing up brick.....	2,886 pounds per square inch
Clinker brick	4,825 pounds per square inch
Dry pressed brick.....	5,830 pounds per square inch
Paving brick	6,115 pounds per square inch

Tests made by the Tonindustrie Zeitung gave the average tests on sand-lime brick of Troisdorf as 3,156 pounds, while another test shows only 2,274 pounds per square inch. According to some other official date, the average test of sand-lime brick is about 2,516 pounds, which, in itself, is lower than the average test of common backing up brick.—Deut. Topf. & Z. Z. No. 82, 1907.

The receiver finds the famous Zion City something over \$3,000,000 to the bad, which makes it look like the Zionists must have tried to do a little gold brick paving.

Written for THE CLAY-WORKER.

A NEW CLAY PRODUCT OF MANY POSSIBILITIES.



HERE HAS BEEN in operation for the last three months a new and interesting plant at Zanesville, Ohio, owned by the Fischer Veneer Tile and Manufacturing Company.

They manufacture tile for veneering both inside and outside walls and decorative tile work, such as wainscoting, etc. These tile will be a boon to house builders and house owners, as they possess many advantages over brick used for veneering, and the old tile used on the inside of houses.

First—The application. They are very easily put on.

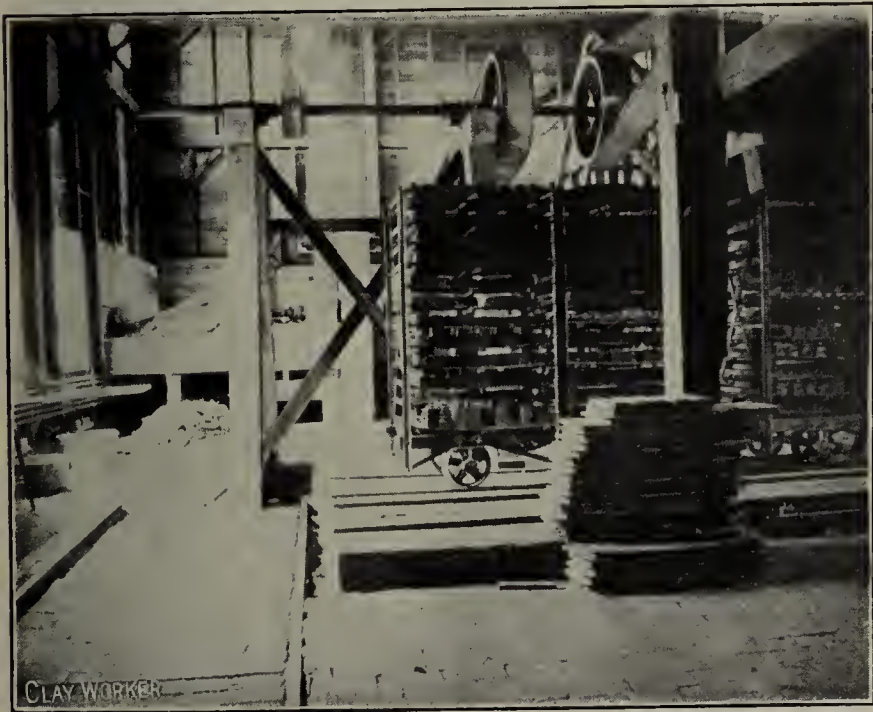
Second—The weight. They are much lighter than brick.

Third—They can be put on an old or new building with very little trouble or preparation.

In case of an old building, it is simply a matter of taking off the old weatherboarding and putting on the tile; it does not need any foundation as in the case of brick veneer. The same thing applies to the inside tile; you simply nail on the strips and hang on the tile.

The tile are made with an undercut on the back, the upper portion of which is nearly twice the thickness of the lower half, allowing space for a metal or wooden lath on which the tile is to hang. See illustration on preceding page.

The outside tile are hard, impervious, of a beautiful red color, and can be made in any shade desired. They are made the same size on the face as a pressed brick. They are laid in mortar, and, when finished, present the same appearance as a pressed brick building. A frame house can be



Dryer Car Loaded with Tile.

made fireproof and damp proof. It lessens the cost of insurance, and saves the cost of painting every two or three years.

The inside tile are made in the same shape as the outside, only they are made thinner, and the face sizes are made to conform to the general size of tile for inside work. They are made in many beautiful colors in full glaze and velvet finish. Both the outside and inside tile can be used on modern concrete buildings by setting the same in cement.

The company owns a rich clay field, and have all the transportation facilities necessary. Their machinery is of the most substantial character, and the plant is well arranged.

The company was organized last June, at which time they purchased the site of the old property of the Faience Pottery Company, at Zanesville, and a large strip of clay land two blocks from the plant. The old pottery building

was converted into slip, grinding, storage and drying rooms for the new plant, while an entirely new and large building was erected for the preparation and drying of the biscuit ware.

The clay for the body is taken from a hill two blocks away, and carted to the plant. The clay field consists of 12 feet of shale (used for their red burning ware), overlaying a buff burning clay running on the average of 3½ feet in depth. There is about a foot of stripping above the shale. The shale is hard and must necessarily be blasted, while the buff clay is soft and easily handled. Both raw materials are sent down an incline from the clay hill by means of specific gravity, in bottom dump cars, and is dumped into wagons and carted to the plant.

The red burning clay or shale is stored on one side of the plant in a shed back of the dry pan, while the buff burning clay goes to the other side.

The shale is ground in a seven-foot American Clay Machinery Company's dry pan and elevated to piano wire screens, is then dropped to a large bin over the pug mill, moistened, and pushed through an auger slot machine to the tile press and automatic cutting table, and then to the automatic repress, all made by the American Clay Machinery Company.

The cutter cuts six tile at a time, and easily handles the stream of clay from the tile machine, which makes 40,000 tile a day. The tile machine is a small, easily managed one, and has been doing excellent service. From the repress machine the tiles are put on dry cars which hold twelve hundred. The cars are pushed into a three-tunnel dryer of a 36-car capacity. The tile are dried in one day and burned in three. Four twenty-foot round down-draft kilns are employed with center draft. Gas is used as fuel and is most satisfactory in burning, giving the ware a rich red color not obtainable with coal.

The kiln capacity at the present time is not sufficient, and several new kilns will be erected in a short time. A number of hand-power tile presses are used for the ornamental and unusual shaped tile. The inside tile are made on two dry presses. Represses will be installed at an early date.

The glaze department is very complete, the old pottery's ball mills, plungers and other machinery being used for this work. The power of the plant consists of an 80 h. p. engine with 100 h. p. boiler.

The company has built a very comfortable office, in one part of which is an exhibit of their inside tile, showing the way the tile are placed on the wall. An accompanying



Stock Pile, Gas-Fired Kiln in Background.

illustration of this exhibit or panel conveys to the mind the ease with which these tile may be set.

The manager of the plant is Mr. Peter J. Fischer, a man of much experience in the pottery business, and is thoroughly versed in the subject of glazing, a very important part in the manufacture of this plant's products.

The patent tile manufactured, which is a substitute for enameled brick, pure and simple, will undoubtedly prove quite attractive to the architects and builders, as it can be made at almost half the price of enameled brick, and much better effects produced, as the tiles are of little thickness, can be easily set in the kilns, burned and transported, and will take glazes which the thicker ware could not hold. The fact that the tile can be set in the wall, both outside and inside, without the use of cement, is quite an important feature to this patented product.

The samples of this company's ware are beautiful. The matt greens and cherry red glazes, not to mention the whites and varied colored ones, are the finest the writer has ever seen. This plant has a field of vast possibilities, and will prove a money-making venture. The railroads pass within a block of the plant, while an interurban line passes the door of the office.

Mr. Henry Hemseth is president, Mr. John Hartman, vice president, and Mr. Vincent H. Beckman is secretary and treasurer. The Hoke Brothers Building Company, Box 57, Builders' Exchange, Cincinnati, Ohio, are the sales agents.

DO WE NEED RELIGION.

IT MIGHT seem strange in the midst of a financial and business shakeup, in which it looks like it is time for everybody to roll up their sleeves and buckle to it to help straighten out the errors of too much business sail, to suggest a remedy for the troubles by asking if we need more religion. Yet there is an editorial going around, originating in the Wall Street Journal, which is being made use of by preachers in their pulpits, and contains some splendid gleams of thought. "What America needs more than railway extension, and western irrigation, and a low tariff, and a bigger wheat crop, and a merchant marine and a new navy, is a revival of piety, the kind that mother and father used to have; piety that counted it good business to stop for daily family prayers before breakfast, right in the middle of the harvest; that quit work a half hour earlier Thursday night, so as to get the chores done and go to prayer meeting; that borrowed money to pay the preacher's salary, and prayed fervently in secret for the salvation of the rich man who looked with scorn on such unbusiness-like behavior. That's what we need now to clean this country of the filth of graft, and of greed, petty and big; of worship of fine houses and big lands and high office and grand social functions. What is this thing which we are worshipping but a vain repetition of what decayed nations fell down and worshipped just before their light went out? Read the history of Rome in decay and you'll find luxury there that could lay a big dollar over our little doughnut that looks so big to us. Great wealth never made a nation substantial nor honorable. There is nothing on earth that looks good that is so dangerous for a man or a nation to handle as quick, easy, big money. If you do resist its deadly influence the chances are that it will get your son."

There are things in this editorial to set one thinking, and to wondering seriously if it is not a fact that with all our churches and all our sermons and more or less perfunctory forms of worship, if what we really need more than anything else, is not more of that genuine, good, upright feeling that made our forefathers so straight laced in their ideas of right and wrong. Maybe we don't need any more churches, nor any more, or possibly even not as much, orthodox or doctrinal teachings or followings, but we do need more of the spirit of good, of the broad gauged or far seeing kind, that makes men think not merely of their own temporary pleasures and profit, but of the welfare of their fellowmen and the world in general, both now and in the generations to come. If we had more of that, we would probably find that we don't need

a more elastic currency, that we don't require so many new restrictions and regulations to keep the people from doing wrong, to protect the sheep from the wolves and the wolves from devouring each other.

Written for THE CLAY-WORKER.

A VISIT TO AN UP-TO-DATE YARD.

Some Interesting Features of the Hanover Brick Company's Equipment at Morristown, N. J.

NOT MUCH OVER a year ago, it seemed as though there was little opportunity for the further reduction of the cost of making brick. The introduction of the steam shovel at the clay pit, clay cars driven by electric motors, or other mechanical devices, automatic machinery for accuracy and thoroughly mixing the clay, the great improvement which has been made in the construction of brick machinery, whereby the capacity has been increased away beyond what was thought possible with a single machine a few years ago, the utilization of waste heat from the cooling kilns to dry



The Chambers Brick Cutter.

the brick in the dryer, the improvements made in the construction and economy of the kilns, all these and many more, have, one after another, gradually eliminated the labor and expense required, until the cost of production has been brought down to a figure never anticipated at the beginning of the last decade.

The dryer, however, has never improved as much as some of the other features, and many are the unsuccessful schemes which have been tried to reduce the labor required to operate it. It needs a great many men on a large yard to pack the brick on the cars, place them in the drying tunnels, remove the cars of dry brick, push the other cars down, shunt the dry cars to the kilns, toss the brick from the cars to the setters, and shunt the empty cars back to the brick machine, to say nothing of the expense of keeping several hundred of such cars in repair.

Because of the failure of every plan to make the drying operation automatic, or if not a complete failure, the initial cost being so high that few could afford it, or else the cost of maintenance being so much that every advantage other-

wise gained was offset by it, those capable of judging felt that present methods were about the most practical, and that little could be expected in the way of improvement in this branch of brickmaking.

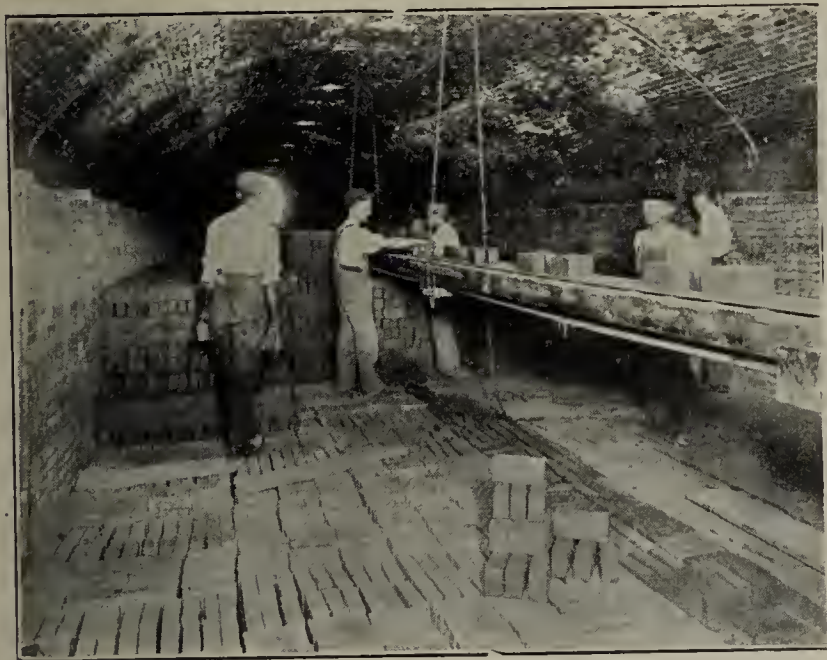
But, as is usually the case, when one gives up in despair, and settles himself in complacency, along comes something which completely upsets his calculations.

This time it is a departure from the old methods, so radical as to almost make one doubt its practicability. Instead of wasting further efforts on the construction of an automatic dryer, this invention wipes the dryer out of existence entirely, and dries the brick in the kiln. It naturally seems like a daring proposition, fraught with all sorts of imaginary dangers.

There has been more or less published about this system,



The Blower with which Waste Heat is Drawn from Cooling Kiln.



The Cross Conveyor Suspended from Overhead.

and it has aroused considerable curiosity and discussion among brickmakers. Several plants are now in operation, and all are very well satisfied with it who have adopted it; but some of those who have inspected the system in operation have not been able to satisfy themselves that there is not lurking, somewhere unseen, some great defect which time alone may divulge, or that, owing to their inability to measure the value of the difference in the conditions at the plant where it is in use and their own, that this difference may, in a large measure, account for the surprising economies claimed.

To settle this point a visit was recently made to the plant of the Hanover Brick Company, at Morristown, N. J. For the last four years this company has been making 35,000 stiff mud brick per day, with a Chambers side-cut machine, a

waste heat tunnel dryer, and burning them in rectangular, down-draft kilns. Something over a year ago they decided to double their output, and concluded to try this new system of drying their brick in kilns. The result is a most exceptional opportunity to observe the two systems, working side by side, making brick from the same clay, both machines having the same daily capacity. Here it is possible to get a measure on the relative economy, quality of output, amount of labor employed, etc., and so far the results are such as to encourage the most enthusiastic endorsement of the system in every respect.

At the old plant the brick are taken from the off-bearing belt by six men and hacked up on double-deck cars, which afterward enter a waste heat dryer consisting of twenty tunnels 110 feet long. They have 320 of these cars, requiring five men to handle them. When the brick are dry, which is about thirty-six hours later, the cars are pulled out of the dryer and removed to the kilns for setting in the usual fashion, there being eight setters and tossers employed. After the brick are cooled and burned a gang of fourteen men remove them on wheelbarrows to the cars.

At the new yard the machine stands in line with the ends of the kilns, so that the extended off-bearing belt passes



Transferring Brick from Offbearing Belt to Cross Conveyor.

in front of the entire row of kilns. There is a cross belt for each kiln, which runs at right angles to the main belt. This latter extends clear through the kilns and out over the railroad cars at the opposite end, for the purpose of loading the cars after the kiln is burned. These cross conveyors are suspended from overhead, and can be easily and quickly raised or lowered as may be necessary.

The brick thus pass direct from the cutting table out to the kilns, and are set eight or ten courses high over the entire floor area of the kiln. When a tier of brick has been set, waste heat is drawn by a blower from some adjoining kiln which is cooling, and is blown into the bottom of the other kiln to dry the brick. This operation is repeated, tier after tier, until the kiln is filled, when the conveyors are removed, and the brick are burned in the usual manner.

After burning and cooling, the belt conveyors are again placed in position, and a gang of three men in the kiln place the brick on belts, and three more take them off at the outer end and hack them up on the cars for shipment.

The simplicity of this system is very striking and makes a lasting impression. There is the machine making the brick; the conveyor belts take them to the kilns, where they are set, dried and burned; that is all there is to it.

At the old plant they have 52 men employed; at the new plant 36 men. The wages aggregate \$107.48 and \$71.04, re-

spectively, representing a difference of 43 cents per thousand brick.

The superintendent of the plant states that in addition they save over 10 tons of coal at \$3.50 per ton in the burning of a kiln holding 325,000 brick, or about 11 cents per thousand more. Further, the time required to burn a kiln is reduced a day and a half, which cuts down the labor for burning about five cents per thousand. This is sixteen cents per thousand, which, added to the 43 cents saved on labor, makes a total of 59 cents per thousand, or over \$12,000 a year.

The fuel saved in burning is due to two causes: One is, the brick are much dryer than it is possible to get them with the ordinary dryer; the other is, that the whole kiln is hot when the fires are started, thus the fuel regularly consumed for water smoking is reduced about one half, as the time required never exceeds one and one-half days.

Next is the question of depreciation. On the old yard they have 320 cars, which cost them \$18.00 each, or \$5,760. These, they claim, do not last them over three years, or, at any rate, they spend about one-third of their original cost every year in keeping them up. Thus there must be charged up \$1,920, or 9½ cents per thousand more.

On the new yard the only thing likely to give out is the

the two systems is most exceptional, both being owned by one concern, located side by side, operated under the same management, making brick from the same clay bank, and both being the best of their respective types.

The results attained are, therefore, beyond question or dispute, and it is needless to say that the revenue derived from this new system is most pleasing to the Hanover Brick Company, who are so well satisfied with it that they are now contemplating changing over their old yard.

The equipment is what is known as the Scott system, and was installed by the American Blower Company, of Detroit, Mich., being similar to several others they have installed in various parts of the country.

WINTER WORK SUGGESTIONS.

DURING THE winter months, brick manufacturers and other clayworkers have more leisure and put in more time at planning for the future than during the busy working season. This is when one should look over the field and study where and how the use of clay products can be extended. One channel through which a lot of brick and other clay products has been reaching the buyer, and in which there is room for continued enlargement, is that which



General View of the Factory of the Maryland Terra Cotta Company, Baltimore, Md.

belt, which will easily last five years, as some similar belts conveying coal and sand have lasted ten to fifteen years. But, charging it off in three years, it amounts to only \$230, or about one per cent per thousand.

From the above it will be seen there is easily a net saving of over 67 cents per thousand, or over \$13,000 a year, on a basis of 240 working days, or an annual output of 20,000,000 brick. They contemplate making 25,000,000, in which case the saving will be nearly \$17,000 a year.

The next point of interest is the respective qualities of the products from the two plants. Here the results are, if anything, more astonishing than elsewhere. They have never been able to completely overcome the effects of white washing at their old plant, and the product was never more than good common salmon-colored brick.

This new system completely eliminates every trace of white washing, and the product is a deep rich red, very hard and perfect in shape.

There is less loss by abrasion, bats, etc., by from three to five per cent. In fact, there is not a point wherein this new system does not excel the best results obtainable with the old method.

As stated before, the opportunity for the comparison of

goes by way of the retail dealer in building material. Take the dealers in lumber throughout the country, and the majority of them carry along with their lumber yard stocks a certain amount of building brick, roofing tile, drain tile, fire brick, and other fireplace material, flue linings, etc., and to some extent flooring tile. There is hardly one of these lines but what may generally be considerably enlarged, if the manufacturers of the product will devote enough time to what might be termed mission work, and the natural time to do this is the winter, when too many other things do not occupy the mind. There is no need to elaborate on the opportunities for steadily increasing the consumption of common and face brick, through arousing to more active form the interest of the dealers in the different communities, for the trade has had this kept pretty thoroughly before them during the past two years. In addition to this, however, there is room to give more attention to pushing what might be termed the side lines.

Take the fireplace material for example, and there is a decided leaning of sentiment all over the country toward big open brick fireplaces, with a flavor of old times, but made of

modern material. It is a good sentiment, too, and by proper nourishment should be developed into more active buying form, that will bring a large volume of demand for material out of which to construct these big open fireplaces. Then there is roofing tile, in which there is more room to push now than ever before, because with the scarcity of wood and the general turning to other roofing material there is a natural chance to enlarge the trade in clay tiling. The mantel tile is getting the attention it deserves in some channels, especially through regular dealers in mantels, but it looks like there might be an opportunity to extend the trade in this work by interesting some of the dealers in general building material, who, instead of carrying such stock as a mere incident, might be induced to make something of a feature of it. There are other things, too, which will suggest them-

Written for THE CLAY-WORKER.

THE MARYLAND TERRA COTTA COMPANY.

MARYLAND, NOTED for its terrapin, oysters and good living, should also be classed with the best clay States, not so much on account of the quantity of clay, but on account of its quality. The clays range from the ordinary red clay used in the manufacture of common brick to the most high-grade clays used in pottery manufacture. White clays from Maryland are used in making white and light colored face brick; shale is used in making paving brick, and some of the best fire brick are made from the Mount Savage clay of Maryland.

The Maryland Terra Cotta Company, located at Baltimore, is making ornamental terra cotta that is excelled by no other



Grinding and Tempering the Raw Clay.



The "Pugged" Clay, Ready for the Modelers.



Assembling the Finished Ware.



The Molding Room.

selves to one who gives thought on the subject in connection with whatever particular line of product he manufactures. and, while it is impossible to outline them all here, it is desired to in a general way call attention to the possibilities of development, and to offer as a suggestion for winter work that a fair measure of attention be given to enlisting the co-operation of dealers in building supplies in pushing clay products.

It is generally easier to condemn a new idea on improved methods of doing business than to understand it, but if we all followed this practice persistently, there would not be much progress made, for it is the new ideas that move the wheels of progress.

company in the country, and it is the only company of this character between Philadelphia and Atlanta, and from Philadelphia to Florida it is furnishing more ornamental terra cotta than any other company. It is a southern enterprise and makes a specialty of work through the south.

The plant was built some fifteen years ago, and in September, 1905, was transferred to the present owners, and the change from the old plant to the new plant was almost a revelation. New machinery was erected throughout the plant, new kilns, new sheds, and a new office building were built and today this factory is the most modern in the country, and although not the largest is, with a few exceptions, as large as most of its northern competitors, and is the largest in the south. It is equipped so as to handle as large a con-

tract as any other company, and the colors made by this company cover a wide range, from the most delicate green to the best imitations of all stones, their granite being specially commended by the architects.

The company is booked today with large orders, and so far, has been running full capacity, and will do so throughout the winter. A trip through the factory convinced the writer that this company has spared no expense or pains to equip this plant with the most modern appliances, and the amount of work in process of manufacture and already finished convinced me that surely the recent financial panic had not struck this part of Baltimore.

The modeling of the work was most artistic, equal to any I have ever seen, the delicate points of the draftsman being brought out in the terra cotta to the smallest degree. I was especially struck with some of the pieces for the new Y. M. C. A. building, Baltimore, Mr. J. E. Sperry, architect, made of a most perfect match to granite, and the workmanship on the ornamentation being as fine as any sculptor could have carved from stone. The terra cotta contract for the Y. M. C. A. building, Baltimore, which this company is fulfilling, is one of the largest given in Baltimore for some time, and the building, when completed, will be one of the finest in the country.

The officers and directors of the company are all men



A Corner of the Stock Room.

closely associated with the building business of the south, and they employ about one hundred men, of which about 75 per cent. are skilled laborers. The following are a few of the large contracts furnished by this company:

Y. M. C. A. building, Baltimore, Md.; Y. M. C. A. building, Charlotte, N. C.; Central Y. M. C. A. building, Philadelphia, Pa.; The Garage, Philadelphia, Pa.; Government Hospital buildings, Allentown, Pa.; fifteen-story building, Chestnut street, Philadelphia, Pa.; Fish Market, Baltimore, Md.; Produce Market, Baltimore, Md.; engine and truck houses, Baltimore, Md.; city school buildings, Baltimore, Md.; St. Joseph House of Industry, Baltimore, Md.; Bliss residence, Washington, D. C.; Hooe residence, Washington, D. C.; Convenience Station, Washington, D. C.; Reeside residence, Washington, D. C.; Fairfax Hotel, Norfolk, Va.; Paul Gale Greenwood building, Norfolk, Va.; Elk's Hall, New Berne, N. C.; Masonic Temple, Winston Salem, N. C.; City Hall, Bishopville, S. C.; City Hall, Abbeville, S. C.; U. S. Government Postoffice, Abbeville, S. C.; Chatham Academy, Savannah, Ga.; and Sumpter County Court House, Sumpter, Ga.

There is both a distinction and a difference, evidently between socialism and anarchy, but both seem to have designs on the rich.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



HEAVY RAINS THE PAST few weeks have interfered somewhat with building operations in San Francisco, and this fact taken with the Christmas holidays has caused a further slowing up in construction. Generally speaking, however, the demand for brick keeps up very well. Prices are about the same, common red brick selling at about \$8.50 a thousand delivered on the job, while pressed brick is bringing \$42.50.

The financial disturbances of a month ago have subsided, and, while some of the construction work which was stopped thereby has not yet resumed, the amount of building still under way is very large. The large number of important buildings now nearing completion has led to an urgent demand for enameled and fancy brick, which seem to be particularly scarce at present. It is probable that this scarcity will materially affect prices, and several new plants have begun the manufacture of this kind of brick.

New business is somewhat limited at present, though quite a few jobs are being figured on with every probability that building operations will be renewed by February. Architects are getting out old plans, and brick interests in San Francisco are looking for an early improvement.

The California Brick and Clay Manufacturing Company,



The Factory Office.

whose plant is at Antioch, Cal., is displaying activity in interstate business. The company is making shipments into Nevada, and is filling orders that Salt Lake and eastern potteries have been unable to cope with.

The Carnegie Brick and Pottery Company is completing contracts made some time ago, and M. A. Murphy, manager of the company, says the plant will continue operations on this work for another month or more. At present the works are shut down for an overhauling.

The Sante Fe Railroad Company has authorized R. H. Countiss, agent of the transcontinental freight bureau, to publish on one day's notice to the Interstate Commerce Commission a rate of 52½ cents per 100 pounds of brick in carloads of a minimum weight of 50,000 pounds, from Brazil, Ind., to California terminals. It is understood that brick works in Brazil have arranged for the disposal of a large quantity of brick in San Francisco.

Workmen have been busy at the California Pressed Brick Company's plant at Niles, Cal., during the past two weeks, getting machinery in place for active operations. C. S. Burch, of Oakland, has just completed the laying of 40,000 brick for the encasing and support of the two large boilers which are to furnish the steam for the plant. These boilers are tubular, 18 feet in length by 5½ feet in diameter, and weigh 13,600 pounds, 300 h. p. capacity. With the installation of the Bates-Corliss engine, final arrangements will be completed.

and the company hopes to be turning out the finished product early in February.

The demand for enameled and fancy brick has increased in such proportions that the management of the Stockton Fire and Enameled Brick Company, of Stockton, Cal., has commenced operating its unfinished plant. It is practically impossible to secure fire and enameled brick in sufficient quantities on the Coast to meet with building demands, and, though it was not the intention of the company to start fires in the new kilns before the first of the year, large orders have made the commencement of operations imperative. A big force of men is now engaged in completing the \$100,000 plant, while another crew is employed molding brick and working the three completed 30-foot kilns.

A. Bartz, of Tacoma, Wash., who is interested in the brickyard at Centralia, Wash., is making arrangements for future work. It is planned to install modern machinery, and develop the properties on up-to-date lines. Arthur Brookwell, manager of the Centralia brickyard, says the clay found in that district is admirably adapted for the manufacture of both brick and tile. Mr. Bartz has already signed contracts for the machinery, which will be furnished by the American Clay Machinery Company, of Bucyrus, Ohio. Brick will probably be turned out at the plant early next summer. The demand for brick in the north is large, and will continue large for the next few years, judging by the number of brick buildings that have been arranged for, and new products are expected to find a ready market.

The Douglass Clay Manufacturing Company, of Los Angeles, Cal., has filed articles of incorporation, with a capital stock of \$250,000. The directors include Archibald Douglass, Ben Douglass, C. R. Manbert, N. A. Barlie, and Benjamin Kirby. The company will manufacture all kinds of products made from clay, including sewer pipe, fire brick, pottery, glazed brick and terra cotta.

The F. H. Goss Company's new brick plant on the water front at Tacoma, Wash., will be completed early in January. All the buildings are now practically finished except the large continuous brick kiln, which is well under way. The company is capitalized at \$50,000, all of which is paid in. W. R. Rust is president, F. H. Goss is vice president and manager, and Llewellyn Jones is secretary and treasurer. The company's plant will have a daily output of 50,000 common brick, and it is the intention to install machinery later for the manufacture of pressed, vitrified and ornamental brick. The draught of the brick kiln, which will have 22 chambers, will be regulated by a central flue connected with a stack 125 feet high. The kiln will be 60 feet wide and 160 feet long. Coal will be used for heating it. The company has just installed three boilers of 60 h. p. each.

Chas. H. Frost, president of the Los Angeles Pressed Brick Company, of Los Angeles, Cal., has returned from a three months' trip to the east and middle west. The company has a plant at Santa Monica, Cal., for which new machinery has just been installed, which will enable the company to turn out 3¼ inch paving brick in place of the 2½ inch size as heretofore.

J. B. Lindon, who has been looking for a site for a sandstone-lime brick plant on the shores of San Francisco bay, is understood to have secured a suitable location at West Berkeley.

The Simons Brick Company, of Los Angeles, is now adding two new machines to its plant near Rivera.

L. C. Balch, of the American Sand-Lime Brick Company, of San Antonio, Tex., states that his company is now considering plans for the establishing of a plant in Mexico. Mr. Balch is now in Mexico City, looking over the ground.

The brick situation in Los Angeles, as far as common brick is concerned, is not very encouraging from a manufacturer's point of view. Common brick are now selling in Los Angeles at \$4.50 a thousand, and it is asserted that contractors are getting concessions even from this low figure. For example, it is claimed that at least one large contract has been closed at \$4.50 per thousand, the brick to be delivered on the job, which necessitates a wagon haul of about 5 miles. A few months ago, common brick sold in Los Angeles at \$7 and \$7.50 a thousand. The drop is partly due to the recent

passage of the anti-trust law in this state, partly to the increase in manufacturing facilities, and partly to the drop in building. The market for pressed brick and vitrified brick is, however, good, and prices for these are firmly held.

San Francisco, January 4, 1908.

SUNSET.

Written for THE CLAY-WORKER.

PAVING BRICK MANUFACTURERS FILE COMPLAINT AGAINST RAILROADS.

DURING THE PAST month action was taken by attorneys for the National Paving Brick Association, representing 90 per cent. of the paving brick plants of the country, tending to start a bitter fight against the advancing of railroad rates east of Chicago.

Attorney J. S. Campbell, of Pittsburg, has filed formal complaint with the Interstate Commerce Committee concerning the advancing of east bound rates on brick, which went into effect January 1. In conjunction with this fight, another has been inaugurated to check a contemplated raise in rates in the Central Freight Association territory, which is scheduled to go into effect March 16.

It is charged that the east bound rate is altogether unreasonable. The fight revolves about evidence supplied by John F. Lent, Pittsburg, traffic manager of the National Association. There are nearly seventy brick companies in this association, formed for mutual protection against just such things as being attacked in this instance.

The present trouble was precipitated by the Stowe-Fuller Brick Company, of Cleveland, some months ago, when it filed a petition with the Interstate Commerce Commission, protesting against the rate on fire brick. The company maintained that the charge for fire brick should be no higher than paving or building brick. The railroads promptly took the cue, and boosted the rates on all classes of brick to equal that of fire brick.

The paving brick manufacturers have come to the conclusion that they are being discriminated against, and will quote figures and rates to show that an exorbitant figure for freight rates is being charged, especially on points east of Chicago.

Up to last September the railroads charged on a basis of 20 cents per hundred, Chicago to New York, for paving brick. When the decision won by the Stowe-Fuller Company went into effect, the railroads boosted paving brick to fire brick rates, or 25 cents per hundred. The protest was so keen that the railroads agreed to drop the charge to 22½ cents.

Then followed the suit in Pennsylvania, forcing the railroads to wait until January 1 before putting the new rate into effect. This was done to give manufacturers a chance to fill out contracts under the old price. Had they been refused this, the paving brick manufacturers would have been out upward of \$40,000 by the putting into effect of the rate.

Contracts for the most part have been cleared up since that date. Now comes the news that the Central Freight Association is planning a boost in brick rates. The railroads do not file tariffs until February 15, but as soon as it is possible to determine whether the rates are exorbitant or not, some action will be taken by the National Association. As an example of what the rates promise to be, it is said that the rate from Cleveland to Detroit will jump from \$1.20 to \$1.30 a ton. The Central Freight Association covers a territory from Chicago to Buffalo, and about as far south as Pittsburg.

The action of the National Association was taken at Pittsburg, where papers were filed. A commissioner will be appointed by the Interstate Commerce Commission to take evidence in the matter in that city. Later, in Washington, the whole question will be threshed out. Brickmakers are not sure as yet whether the new rates in the Central Freight Association will be stayed until the commission decides the case or not.

It is estimated that brick is one of the best sources of profit the railroads have. Last year they carried 1,500,000 tons of paving brick, on which they realized in freight rates upward of \$2,500,000.

A. BUCKEYE.



SOME REASONS WHY FARMERS DON'T DO BETTER WORK.

SOME FARMERS CONCLUDE that a few tile drain will do the work of underdraining their farms. They don't know how the work ought to be done. They entertain the opinion that they inherited more than average common sense, and are able to see straight through everything they come to. They think that all there is to be gained by draining their land is to get rid of the water when there is a heavy rainfall. They reason that the nearer the drain is to

rainfall without damage to the crop, than will a shallow drain, and that deep drains will give a better circulation of air through the soil and subsoil. They do not know that deep drains increase the depth of the available soil fertility.

But what's the difference if a fellow don't know that air or light or heat are necessary to plant growth. All in all, better work involves a better information in regard to the benefits of drainage.

TRACTION ENGINE USED FOR HAULING DRAIN TILE.

Wm. Hammerschmidt, of Lombard, Ill., Harnesses Steam to His Drain Tile Wagons.

THE TREASURER OF the Illinois Clayworkers' Association is one of the largest, if not the largest, drain tile manufacturers in Illinois. He stands considerably over six feet in height, must tip the beam at close to 300, and every inch of his massive makeup radiates good nature and tireless energy. As a consequence, he has made a success of his brick and drain tile business, at the same time carry-



A Glimpse of Wm. Hammerschmidt's Tile Factory, Lombard, Ill.

the surface the sooner the water will get to it and pass off; besides it is easier to dig a shallow drain than a deep one.

They think the drains ought to be laid in the low places, and follow the meanderings of the water flow on the surface. They judge that a ditch when covered acts very much on the principle of a siphon—if the outlet is lower than the head of the drain, the water will be drawn out.

They conclude that no extra care is necessary to make the drain more efficient; that to dig a trench and lay the tile in it is all; that any one can do it if he has the muscle. They hire a cheap man and give him a few general directions and "hike" off to the nearest store, and later pay the man when he says the work is done.

Sometimes a ray of light may strike them, and they wake up to see things, but with many the work of underdrainage stops when they have had a few lines of drain tile imperfectly laid in the low places. They fail to learn that the deeper the drains the greater the width that is drained on the sides of the drain; that the deep drains will carry off a heavier

ing on a large stone business, makes a considerable quantity of cement block, and is influential in local political affairs, from all of which it may be inferred that he is wide awake and progressive. He is all of that, and we submit documentary evidence, as it were, in the form of the accompanying photographs, showing his traction engine, with which he hauls drain tile from the factory to the railway station, a distance of about three miles.

As the illustrations show, the tile are loaded onto wide-tired, flat-topped wagons, and are hauled in trains of three wagons, which, together, carry enough each trip to fill a 15-ton freight car. The engine does the work of three to four teams. The engine is only used when the roads are in fairly good condition. No hauling is done when the roads are muddy or slippery. Coal is hauled from the railroad siding to the plant on the return trip. The engine makes, under normal conditions, about five miles an hour.

The tile business continues good in Mr. Hammerschmidt's territory. The past season has been quite satisfactory, the



Traction Engine on Return Trip with Load of Coal.

demand being such as to keep his plant going to full capacity. Mr. Hammerschmidt has been operating this plant since 1878. He has 100 acres of clay, which averages six to nine feet in depth, and he figures that the supply will last a hundred years. We hope it will, and that Mr. Hammerschmidt will stay right on the job until he runs out of clay.

He makes standard size brick and drain tile, ranging from three to fifteen inches in diameter, H. Brewer & Company's machinery being used. Both brick and tile are dried on steam heated floors, the process taking about 60 hours. The ware is burned in round, down-draft kilns, the brick being set on top of the tile; the latter are set 11 high. The kilns, which are 22 feet in diameter, are water smoked for 22 hours, and the burn completed in from two and one-half to three days. Soft coal is used, about ten tons to the kiln, which costs \$2.65, f. o. b. Lombard. The plant is about three miles from this thriving town, which may be reached by both steam cars and trolley, in an hour's or two ride from Chicago, to which the city of Lombard has not yet been annexed, though it is only twenty miles away. Clay-workers desiring to visit Mr. Hammerschmidt's plant can reach Lombard via the famous third rail Aurora & Elgin



Traction Engine Taking a Load of Tile to Railway Station.

trolley line, on which the limited cars are said to average a mile a minute. It is a pleasant trip, and a warm welcome awaits clayworkers at the Lombard end.

MISTAKES IN DRAINAGE.

If we get the best results from underdrainage it must be done well. In every case of failure to get the most satisfactory results by tile drainage it can be traced to some error in the plan of constructing the drains. The proper construction of a tile drain in order to secure the greatest efficiency requires accuracy. Every deviation from a straight line detracts from the carrying capacity of the drain, so every deviation, up or down, from the true grade line is more or less fatal to the efficiency of the drain.

The most efficient "eye levelers" will make mistakes in not keeping true to grade. Again and again work of this kind has been tested by running a level over the bottom of the ditch after it was supposed to be ready to lay the tile; and variations from a true grade line have been found sufficient to detract greatly from the value of the drain in its water carrying capacity. It is probably true that at best, 80 per



Wm. Hammerschmidt, "The Boss" of the Lombard Brick and Tile Company.

cent. of the work done by this class of professional ditchers is more or less a failure in securing maximum results. There are miles of drains in operation not running one-half or one-fourth the amount of water that they would carry if well constructed, which means that they have cost too much in proportion to the benefits received. Tile should be laid in such a way as to utilize their full capacity.

Drains constructed so imperfectly that when laid with four-inch tile they do not have the capacity, or more capacity than a drain well constructed and laid with three-inch tile, are a waste of money in the purchase of the larger size of tile by so much as may be the difference in the cost of the tile, and much more in a very faulty construction of the drain for the larger tile. Yet, this kind of work is more frequently done than one may suppose. In fact, it is often done for men who are satisfied with the work done for the reason that they do not know when a drain is well constructed.

Ordinarily, drainage pays to some extent when drains are poorly constructed, but why not secure the best construction and reap the maximum benefits.

A blunder in drainage, like the blunder of a physician, may be soon concealed by the grass that grows over it, but the blunder remains the same. But why not take pains to secure the best work and in turn reap the largest profits.

Written for THE CLAY-WORKER.

TO BEAUTIFY GREATER CLEVELAND.

Wm. H. Hunt Returns from European Trip—Suggestions for the Betterment of Civic Conditions in America.

AFTER SPENDING TWO months in Europe, in which he visited 21 of the most important continental cities, William H. Hunt, ex-president of the National Brick-makers' Association, returned to his home in Cleveland on January 16, loaded to the brim with new ideas regarding civic improvement. Mr. Hunt's prime object in visiting Europe was to gather data and pictures concerning the great schemes for civic betterment in the large cities.



W. H. Hunt.

In Cleveland, an agitation is underway for the creation of a civic art commission, which is to pass on all changes of importance contemplated in the general scheme of the city. Mr. Hunt suggested the idea of an art commission several years ago, when he was president of the Builders' Exchange, and the present Ohio legislature will

pass on a bill to empower cities to create such commissions.

"Much is being done in Europe towards encouraging the beautiful in the cities there," said Mr. Hunt to representatives of THE CLAY-WORKER, immediately upon his return. "There is much to be learned by the cities of this land. After a period of great prosperity, in which great wealth has been accumulated, it seems fitting that the minds of our citizens should turn to more esthetic channels. This condition has existed for many years in the cities on the continent, and a result has been that great improvements have been wrought in continental cities. For instance, in Berlin, where the seven gates of the old city were fast degenerating into congested districts, much money and work has been expended in turning them into places of beauty.

"In Buda Pest, the highest form of civic beauty is to be found. The river is directed by neat embankments, with parks and driveways abounding everywhere. The buildings are restricted to a uniform height, and everywhere the artistic sense predominates. In many of the capitals of Europe the same striving for the beautiful is to be found. Of course, there are advantages there which American cities do not possess. Monarchs for generations have been rivals to create the most beautiful cities. They have given crown lands and money unstinted to make these places attractive. We can learn much, however, and, with our energy and wealth, we can, in time, possess just as attractive centers as those of the old land.

"For instance, in the elimination of grade crossings in Cleveland, there is no reason in the world why great monstrosities should be allowed, when graceful neat structures can be provided at no greater cost. It means that almost every railroad track entering the city must be disturbed, and the rearrangement of shipping facilities in many factories. There is no reason why it can not be done, with a view to the final artistic effect it will have on our streets. We certainly should safeguard against monstrosities.

"If we build a new high level bridge across the Cuyahoga River, a fine monumental span should be constructed, with a proper converging of streets at each approach. It will cost little more than a big, plain, ugly structure.

"More effort should be made to restrain our citizens from erecting building monstrosities. There should be some relation between the mass of buildings on public thoroughfares, instead of the skyline looking like a picket fence. In Europe,

Buda Pest property owners on Liberty Square were exempted from taxation for five, ten, twenty, and even thirty years, in return for having reconstructed their buildings in a manner which harmonized throughout. I don't know that we could do that here, but some plan should be evolved to interest private interests in the furthering of civic betterment.

"It is maintained that this evenness of mass will cause monotony. I do not believe it. In this county our architecture is distinguished from that of Europe by the fact that there is more color and variety of materials used.

"When the time comes, Cleveland should build a subway in preference to an elevated railroad. In Buda Pest, there is an almost ideal subway. While it is much smaller than those of some other cities of Europe, it is perfectly ventilated, the stations are as clean as a gentleman's library, and the cars are miniature Pullmans.

"Why do thousands of people go to these European cities? Simply to see the beautiful things they have there. Is it not high time that some of our American cities proceeded to develop some beauties of their own.

"I understand an effort is to be made by the three architects forming the group plan commission to block the movement for a civic art commission of Cleveland. Architect Brunner has been frank enough to say that he can see no reason why Cleveland needs an art commission when the group plan commission exists. The beautiful cities of Europe are not mere accidents, nor will Cleveland become one unless it is through the unselfish work of men who are willing to take up the task of studying questions of importance. Such a body of men, possessed of courage, originality, and willing to make some sacrifice will evolve from the chaos of present events some logical plan for civic improvement.

"We have the nucleus of a great park system, the possibilities of which compares favorably with any of the great cities of Europe. It will take time to work out a completed plan, but it will be done. I am sure, however, that if a civic art commission had been in existence such a structure as the Gordon Park bathhouse would never have marred such a beautiful spot, when a really attractive building could have been erected for a little more money.

"The despots and Czars of Europe have done much for the continental cities, for they have gone ahead and planned beauties, regardless of the small-minded individuals who always protest thereat. In a republic it is more difficult to get all the people to agree to definite plans for improvements. I feel confident, however, that below the general indifference, a civic sense for the esthetic is being awakened, and that the future has much in store for Cleveland."

THE PORTSMOUTH CLAY SCREEN.

We are pleased to introduce to the readers of THE CLAY-WORKER, through their ad on page 129 of this issue, the Portsmouth Machine and Casting Co., Portsmouth, Ohio, an old firm under a new name. The new firm was organized in 1907 by the consolidation of the Simpson Machine and Foundry business with the plant of the old Portsmouth Foundry and Machine Co. The Portsmouth Machine and Casting Company is now manufacturing all the lines of dry and wet pans, hand presses, Simpson dies, wheelbarrows, clay screens, etc., that each of the old firms produced. They are now prepared to furnish clay plants with extra heavy machinery and supplies of all kinds of the sort that appeal to the practical brickmaker. Their new piano wire screen is claimed to be the best new thing in the clay business. They will be pleased to send every reader of THE CLAY-WORKER desiring same their new catalog, containing a full description of this device, with illustrations of their full line of supplies. In writing for same, please mention THE CLAY-WORKER.

Messrs. Fell & Roberts, of Trenton, New Jersey, have placed contracts with the Henry Martin Brick Machine Manufacturing Company, at Lancaster, Pa., for the installation of a complete Martin improved style A steam power brick machine, in combination with horizontal pug mill, mold sander, compound crusher, etc.

Written for THE CLAY-WORKER.

BRICK NEWS OF NEW YORK AND VICINITY.



BUILDING OPERATIONS are somewhat curtailed about New York owing to the weather, though so far this winter there have been very few freezing days. For the most part the temperature has been mild and navigation by lake and river is still open.

However, the time of the descent of cold waves is so uncertain at this season that no one will begin any important constructive undertaking. The operations of 1907 were on such a colossal scale that a temporary reduction creates comparatively little uneasiness. It enables those who supply building material to catch their breath and make preparations for the rush to come.

It has not yet been said what 1908 has in store in the way of developments in the construction department. Perhaps operations will be slightly curtailed, though the talk one hears now does not indicate that. In fact, the late so-called panic is no longer considered a factor in the business situation, excepting as regards those financial institutions which were compelled to close their doors because of its stress. Optimism rules and those who plan the great business developments of the city and vicinity are already discussing further development along very liberal lines.

The subway to Brooklyn, under the East River, is open and trains are running regularly as far as the Brooklyn Borough hall. The McAdoo tunnel, under North River, connecting New York with New Jersey is open, and trains will be in operation regularly within a short time. These two tunnels will be important influences in the brick business this year.

First, they will stimulate building operations in the territories they serve. The Brooklyn section of New York will grow faster than ever before, and wood buildings are not allowed within the city limits. The use of brick will, therefore, be somewhat increased in Brooklyn because building development there will be heavy, without question.

The construction of several new subways will begin, and several large buildings are projected, though none of them will compare with those like the Singer building and the new terminal buildings, which are now being finished. It looks, however, as though the brickmaker need not fear any lack of demand this season.

Application has been made by Eastern manufacturers of architectural terra cotta to transcontinental lines for a reduction of present rates, which are 80 cents per 100 pounds from territory east of Chicago, and 75 cents from territory west. Since the fire, contracts have been made with San Francisco for some 20,000 tons or more, and the claim is made that this is only a small part of the quantity that will be purchased in the next few years. The application states that if the rates are reduced to a reasonable figure, enormous quantities will go from the various sections of the East to San Francisco. While nothing has been said officially, it is understood that the railroads are disposed to grant applications for reduced rates on building material to be used in the reconstruction of San Francisco.

Up the Hudson River, the brick industry is in its winter state of hibernation. Navigation is still open, allowing schooners and barges to come down with greater or less facility, and occasionally some brick are landed in New York. But, as a whole, the traffic is over until spring. Makers have not yet given out their figures of the quantity left at the close of business October 15, but there is an apparently well-grounded suspicion that it was considerable. But that is not considered an especial detriment, since demand promises to be sufficiently active to absorb everything available this season.

The paving situation in New York arouses the ire of those

who are compelled to transport goods by truck. The expansion of wood paving in the downtown business streets the past few years has been sufficient to create much disturbance, and to make conditions exceptionally hard for horse and truck transportation. Petition after petition has been sent to the city officials, signed by the business men affected, but without avail. The laying of wood pavements, which are slippery after every rain and dangerous after every snow, goes right on. The convenience, or even the business necessities of New York's leading merchants are unheeded. Some politician probably owns stock in the wood paving company, and its use goes on unchecked, even though protests by the score are filed whenever a street is designated for improvement (?).

Perhaps wood blocks are better than asphalt. At least they require less repair; but they are not suitable for heavy city traffic. They deserve relegation to the tall timber, along with all these new fangled and theoretical processes, which are constantly being foisted upon an unsuspecting public as a cure all for their paving ills.

Concrete, reinforced or otherwise, is not in especial favor in New York. Only a few buildings were erected of this material in 1907, and, with the exception of cheap structures, it will be used less extensively this year than it was last. The buildings made of it are more or less unsightly, and no variety of paint seems strong enough to prevent this unsightliness showing. The stuff discolors, and there are other features which do not commend it to builders. For stables on back streets, in which cheapness is an important consideration, concrete and cement are more or less useful; but for work where decent appearance, at least, must be combined with utility, neither cement nor concrete have any claims for consideration. Unless its warmest advocates discover some effective means for wiping out its objectionable, and, in many instances, dangerous features, it will soon run its course, and be heard of no more.

It may be pointed out, that the cement block will not seriously injure the brick market, when price is a consideration. It costs as much to haul stone to the mill, grind it, mix the product with cement, also hauled to the mill, and transport it to the point of use, as it does to purchase brick for the same purpose, and the blocks are not more satisfactory after all, excepting in the minds of occasional cranks, who can see no good in either brick or terra cotta. However, those who have followed the situation carefully feel assured that the only competition worth considering is coming from that direction.

BURTON.

THE RAYMOND COMPANY MAKE CHANGE IN DISTRICT OFFICE.

The C. W. Raymond Company has made a considerable change in their southern district office for this year. Mr. C. H. Wilson, who was well known as their efficient representative, resigned to engage with the Cincinnati Sewer Pipe Company, in which he is heavily invested.

The Raymond Company moved their headquarters to Atlanta, Ga., 415-416 Peters building, and placed Mr. K. D. Smith in charge of the work.

Mr. Smith is a young man, energetic and capable, and there is no question but that he will make good in his new position. He has been associated with the Raymonds for a number of years, first in their office, and later as an assistant in the Kansas City district office, and in both positions met with enviable success, due to his perseverance.

The C. W. Raymond Company introduce Mr. Smith to their Southern friends with the assurance that he will serve their wants in the most careful manner.

If you are looking for cheap machinery, scan THE CLAY-WORKER "For Sale" ads.

THE ILLINOIS CLAYWORKERS ASSOCIATION'S ANNUAL CONVENTION

Written for THE CLAY-WORKER.

REVIEW OF THE THIRTIETH ANNUAL CONVENTION OF THE ILLINOIS CLAY MANUFACTURERS' ASSOCIATION.

Held at Peoria, Illinois, January 14th, 15th and 16th, 1908.

For the thirtieth consecutive year, the Illinois Clay Manufacturers' Association met in annual convention; this time at Peoria, where nearly 90 members enjoyed three days of crowded enthusiastic meetings and sight-seeing trips about Peoria. The program consisted of a number of interesting papers, chief among which were those by Prof. A. V. Bleining, the head of the Illinois Ceramic School, on the subject of "Controlling, Drying and Burning Operations," and an excellent paper by F. W. Fitzpatrick, of Washington, D. C., on "Clay Versus Cement Fireproofing."

The discussions which followed the papers were entered into by the majority of those present, and many beneficial points were brought out and thoroughly discussed.

The machinery men were much in evidence, and their calendars and display cards were to be seen on every hand. The C. W. Raymond Company presented the members with the beautiful "Affinity Calendars." The J. D. Fate Company was well represented by Mr. Votaw, who tagged the hotel lobbies and corridors and convention hall with the unusual white cloth paper filled shipping tag, on one side of which was printed in bold type, "Ask Votaw Who." Over twenty machinery men were present, representing such well known firms as the American Clay Machinery Company, H. Brewer & Co., Madden & Co., E. M. Freese & Co., Chambers Bros. Co., Henry Martin Brick Machinery Company, C. & A. Potts & Co., Dunlap Manufacturing Company, The Drymore System, L. E. Rogers Engineering Company, Main Belting Company, Luce Engineering Company, Horton Manufacturing Company, Frost Manufacturing Company, and the Thew Automatic Shovel Company. So the readers of THE CLAY-WORKER may know that there was considerable button-holing going on between sessions.

There were a number of exhibits in the convention hall. The Dunlap Manufacturing Company had two samples of their screens, while the Luce Engineering Company presented working drawings of plants and machinery on a stand of revolving screens. Many beautiful catalogs were given out by the machinery representatives, and the trade papers were always before the eyes of the visitors.

The banquet Wednesday evening was a most enjoyable affair, with Mr. Wm. P. Blair as toastmaster, while the trip Thursday afternoon about Peoria, under the courteous guidance of Mr. Burdick, was one of the features of the convention.

Tuesday Sessions.

Tuesday morning the association members and visitors spent their time in and about the lobbies of the hotel renewing the friendship of their old acquaintances, and making new friends of those who came as strangers. By noon there was a goodly number of visitors registered, so that when the president, Mr. Walter D. Pratt, of Earlville, called the con-

vention to order at 2:30 Tuesday afternoon, the convention hall was comfortably filled.

The Hon. Thos. O'Connor was introduced, and, as mayor of the city of Peoria, extended a hearty welcome to the visiting clayworkers. He emphasized the fact in his short, interesting speech, that this was an age of organization, that it was necessary to organize for protection of business, and to teach the faithful adherence to duty. He pointed out some of the great things that organization has done for this country, mentioning that all branches of honest toil are organized. But he declared that we must not make the mistake of confining our business interests to narrow circles; we should attend the conventions of our trade associations and mingle with other men, thus making our business more far reaching, and benefiting by the papers and discussions of the meeting. He ended by speaking of Peoria's reputation for its hospitality, and extended to the association in behalf of the 80,000 people a hearty welcome. President Pratt responded as follows:

Response to Address of Welcome.

We have just been welcomed to the city of Peoria, the second metropolis of the State. I am very sure that we highly appreciate the many privileges just extended to us so kindly and generously by the Hon. Mr. O'Connor, and assure him that the members of our association join in a hearty and cordial response to the city's call and greeting. We will be careful not to carry away anything smaller than a street car or business block. We thank you. (Applause.)

President's Address.

Members of the Illinois Clayworkers' Association Here Assembled, Ladies and Gentlemen:

Another year has passed, and we have met together again today to hold this, the thirtieth annual convention of this association.

It affords me much pleasure to be among you and see so many familiar faces, and to greet the ones who are meeting with us for the first time. We sincerely hope that it will be time well spent, both socially and intellectually.

Now that we are here, it behooves each one to make himself at home, and to try and make his stay here as helpful as possible to himself and others, and he should not hesitate to call on anyone to help him out of any difficulty that he may be experiencing. It is altogether probable that from our program he may get many thoughts of value that were not before thought of as bearing on his case.

1907 as a whole has been, I think, a very satisfactory year for the use of all clay products. It may be that the financial situation, which showed itself early in the fall, may have cut short some minor improvements, both commercial and municipal. We may experience a more backward tendency for the coming spring contracts, but it is hoped not. It is very gratifying to know that our clay products are coming more and more to be recognized as the standard material for street paving and sewer building. Skyscrapers are calling for building materials which are durable and ornamental, fire and frost proof.

Again I feel that the farm drainage proposition will never be successfully accomplished, only by the use of burned clay ware, such as are in use at present with a steadily improving quality.

Some there are who will wonder if the speaker is keeping in touch with the inroads that our cement advocates and manufacturers are making nowadays, to which I will say, yes, and as for my proof I look to the attempted construction

and failure in many instances of buildings and consequent loss of life; of where they have built massive smoke stacks in many cities and are now tearing them down, and where the workmen hustled to points of safety before they fell; of where they have constructed abutments to support the bridges of our great railroad systems, which are now being rejected for future use because they have not made good; and of where we see large and small drainage contracts supplied with their products, only to find in future days that something is wrong somewhere, and will have to be relaid by the reliable clay products.

Just a word, if you please, as to our cement brothers. They are constantly conducting experiments to solve the cause of failure in their products, and will, no doubt, overcome many of them. Likewise the clay manufacturer must keep studying in order to keep abreast of the times and demands being placed upon his products, so that they may not be found wanting.

The manner in which we are to accomplish this is the next question. Allow me to suggest a few avenues through which some of this may be done. Adhere to the practice of trying to solve many little things pertaining to the handling of your machinery yourself, for thereby you become more familiar with

Plant." The author stated that more attention should be paid to the power plant, as it was the main part of the plant. He recommended the use of the open feed water heater, and a good oil separator and filter. The cost of running the plant can be greatly reduced by careful, scientific attention, he declared, and suggested the use of producer gas as an economical means of power.

Following the paper there was a lively discussion on the use of the gas producer, the general conclusion being that the coals of Illinois were not suitable for the manufacture of producer gas.

"How Can You Increase Your Profits and Lessen Your Labor Troubles By Incorporating," was the title of the paper of Mr. W. W. Phillips, of Bowling Green, Ky., which was followed by a paper written by Mr. Anton Vogt, of Ada, Okla., on the "Fuel Consumption in Burning Brick and Tile." The latter was the source of much discussion, the chief part of which was on the economical difference between the up and down-draft kiln. It was the general opinion that one can



Delegates Attending Thirtieth Annual Convention of the Illinois Clayworkers' Association, Peoria, January 14, 1908.

the details of your plant and its operations, and then you will be more capable of appreciating points brought to us by the trade journals, and as the problems resolve themselves into more of a scientific nature, such as the behavior of your clays during the drying and burning, maybe they crack and scum, fuse and bloat, or discolor; and then, coming to the economical operation of your kilns, you find you do not get a proportionate amount of fuel consumption to the amount of clay burned, and just then apply to our school of ceramics at our university at Champaign, and there we find a corps of instructors who can and will make your pathway, if possible, much more easily trod, and tell you in a way that he who reads and listens may easily understand. Gentlemen, I speak from experience.

As we have a lengthy program to follow and many valuable papers, I do not deem it wise to deliberate further. I trust that you all may have a very profitable time. Attend all sessions if possible, for the good of yourself and others. If I can be of any service to you, just push the button. I thank you. (Applause.)

The first paper of the convention was that of Mr. Wm. Simpson, of Chicago, on the "Value of an Economical Power

save fuel and labor and get a better grade of brick by burning in the down-draft kiln.

The last paper on the Tuesday program was by J. M. Mamer, of Campus, Ill., on the subject "How to Increase the Use of Drain Tile." He advocated the purchase of a tract of land by each manufacturer for the purpose of demonstration work for the benefit of tile drainage. Tuesday evening a large number of the members enjoyed a theater party at a vaudeville performance.

Wednesday's Session.

At 10 o'clock the second day, the meeting was called to order with the introduction of Mr. E. Hardy, of Momence, who read a paper on "The Manufacture of Enameled Brick," which was enthusiastically received. He described the work in an interesting way, pointing out the fact that the failures in this work were caused for the most part by the lack of practical experience. Formulas do no good in the long run, if they are not backed up by experience. Like any other

branch of the clayworking business, it has its ups and downs. Upon the kind of clay used depends, to a great extent, the enamel to be employed. He gave a list of the different enameling processes, declaring himself in favor of the high fire process. The only advantage the low-fired process has, is its saving in fuel. The red burning clay is not suitable for good glaze work, and is the only one that can be used for low-firing. He discussed the feasibility of burning in one or two burns, and the use of dry press over the others, showing that the dry press was much the better process, having less moisture content, and that the method of enameling on biscuit ware is the better, so far as good quality results are concerned.

After a long discussion of this paper, Mr. Marion Blair, of the Luce Engineering Company, read his paper on "The Qualifications of a Factory Superintendent." He declared that the successful operation of a modern sized plant involves a general knowledge of many engineering subjects, as well as ability to organize and systematize a working force, and a certain experience in general business. The superintendent must be able to handle steam, air and electricity, and to direct and control chemical changes. "There is no business," said Mr. Blair, "requiring such a variety of general scientific knowledge and which is so dependent for success on little things of a scientific nature, in which this knowledge is so little valued and appreciated as in the clay industries." In conclusion, he said that the superintendent should be preferably an organizer, and leave the handling of men to the foremen of the different departments. He urged that in order to be progressive the manufacturers should send their superintendents to the conventions, for, while he may help some competitor by his information, he will benefit himself and promote the interests of the business at large, and so add to the general welfare and comfort.

Mr. E. T. Lines, of Urbana, read a paper entitled, "Some Work of the State Geological Survey on Fire Clays." In this he spoke mostly of the work on fire clays in western Illinois, in the district between Rock Island and St. Louis. He gave the geological history of the clays, stating that the clays were deposited by water beneath the lowest coal measure. He spoke on the possibility of these clays, pointing out the fact that a number of the plants did not realize the value of these clays, but were buying their raw materials at far distant points in the country. These fire clays have a high value in stoneware and sewer pipe manufactories.

Following the paper, there was a lengthy discussion of the question of freight rates. Mr. Purington declared that he thought the freight rates should be governed according to the weight and bulk of the material shipped, while Mr. Blair took the position that they should be rated according to their commercial value, and that the lower grade ware should be shipped at a lower rate than high-grade ware. He stated that it was his opinion that brick should be classified into four groups, namely, paving brick, face brick shipped packed, building brick unpacked and fire brick. This question was not settled, but laid on the table for next meeting.

At this point the meeting adjourned for dinner. At 2:30 p. m. the convention was called to order, and the most interesting program of the convention began.

Following a short paper by Mr. Fawcett Plumb, of Streator, on the subject of accident insurance, in which he made the point that accident insurance is a good investment, and it is best to diffuse the risk by placing accident insurance with companies employed for that purpose, Mr. Walter H. Kirk, attorney and counsellor of Peoria, read at length a thorough paper on "Personal Injury Claims Against Clay Companies." In the reading of his paper he gave a number of newspaper clippings containing reports of accidents on clay plants and results of suits which followed. He advised the members to procure employers liability insurance.

Prof. A. V. Bleininger, who is now at the head of the Cer-

amic Department at Illinois University, then read one of the best papers of the convention. The subject treated was "Controlling, Drying and Burning Operations." This was a most thorough paper, taking up in turn the subjects of drying and burning, and treating them in an exhaustive manner. He divided the drying operation into three stages—steaming, heating and evaporating. He declared the body of the green ware contained tubes or cells of water between the clay parts, and that the capillary flow of the water to the surface of the ware depends on the temperature to which it is subjected. The ware must not be heated up too rapidly. We must give the inside ware time to heat up evenly with the outside, else the surface will shrink faster than the inside, and cause a strain which weakens the product. It is thus necessary to heat the brick at first in steam to prevent evaporation on the surface, and then the brick are gradually subjected to a dryer, hotter air. The more open the structure of the ware, the faster it can be dried. He suggested the use of the wet and dry thermometer in this work, for obtaining a knowledge as to the humidity of the air, etc. He spoke at length on the burning operations from watersmoking through vitrification, and described the different instruments for obtaining the temperature, such as the thermometer, cones, pyrometers, and instruments for getting the settle of the kiln.

He emphasized the importance of draft in the early stages of the burn. There was an interesting discussion on this subject, after which another valuable paper was read, that of Mr. F. W. Fitzpatrick, of Washington, D. C., on the subject of "Clay Versus Cement Fireproofing." This paper was more on the clay versus concrete than the cement. He declared both materials to be fine in their respective fields, and said there was no better material for massive foundation work than concrete, but, at best, it was only an artificial stone and was as fireproof as its chief ingredient, standing less heat than good, old, well-tried burnt clay goods. Concrete, he said, ought to be as much protected as other building materials, other than burnt clay. Burnt clay is the most fireproof of all building materials, and has been proven best by years of severe trials and tests. Whatever has been the cause of deterioration in brick buildings, it is not due to the clay, but the binding material. It is utter nonsense to call concrete fireproof. So many things in the setting and building of concrete structures spell failure to its use. The question of careless construction confronts every city. Mr. Fitzpatrick pointed to the fact that the highest official in the United States Testing Bureau and also a cement dealer made the statement to the effect that cement and concrete users are too careless in the construction of buildings, etc. The New York building code, he declares, will not permit of the building of cement walls over 85 feet from the ground, while clay structures can be built over 200 feet. The Chicago code is even more strict. "However," he said in conclusion, "the concrete friends have an activity clay men do not possess in advertising their ware. The clay men are too complacent, too satisfied. Years ago only a hundred barrels of cement material were used, while today it reaches into hundreds of millions, due almost entirely to advertising. You clay men must advertise your ware and go into a campaign of education on the broadest lines, and in a general way, and at the same time present your claim in the most attractive form to the individual who intends to build."

After the reading of this paper, Mr. Wm. P. Blair brought up the discussion of "Are We Awake as to Advertising Our Clay Goods?" He urged the necessity of pushing forward and keeping awake as to all sides of our business. After the appointment of the resolution and nomination committees, the convention adjourned for the day.

The Banquet.

At 7:30 p. m. the 70 odd banqueters took their seats at the festive board at the National Hotel. The tables were beautifully decorated with carnations and ferns, and the feast was made most pleasant by the music of an orchestra. Mr. Wm. P. Blair, of Terre Haute, was toastmaster.

Most prominent among the many speakers were: Mr. P.

G. Rennick, Mr. E. F. Baldwin, Mr. Charles Burdick and Mr. Walter H. Kirk, of Peoria; Mr. F. Plumb, of Streator; Mr. D. D. Deeds, of Lorain, Ohio; President W. M. Pratt, of Earlville, and Prof. A. V. Bleininger, of Illinois University.

Thursday's Session.

The last session was called to order at 10 o'clock Thursday. The meeting was opened with the reading of Prof. C. W. Rolfe's paper on the "Ceramic Department of the University of Illinois, and what it is Trying to Do." This was an interesting paper on what the school had accomplished the last year, and the gratifying manner in which the State of Illinois and the association were supporting this movement.

Mr. R. T. Stull, of Urbana, in his paper on "Brick and Tile Machinery," declared that more injury than good was done in repressing. He gave as his reason that the brick could not be improved by repressing if the clay was thoroughly pugged before leaving the die, as the clay would have the highest possible density for the work, and be as smooth and perfect as needed. The cost of repressing, he declared, was a needless expenditure, except for the stamping of the name on the ware. He went into detail as to the construction of die plates, etc., and illustrated his talk with fine, well-drawn charts of different dies, etc.

Mr. H. B. Fox, of Monmouth, then read a paper on the "Manufacture of Hollow Building Block," which was listened to by the audience very attentively. The report of the Resolution Committee was then read, which contained resolutions of thanks for the manner in which the Peoria people had entertained the association, especially the Promotion Club, which had been so active in the entertainment. Special votes of thanks were tendered Prof. A. V. Bleininger, Urbana; Walter H. Kirk, Peoria, and Mr. F. W. Fitzpatrick, Washington, D. C., for their very valuable papers and manifest interest in the welfare of the association. A resolution was passed, for the appointment by the president of a committee on publicity, for evolving a definite plan whereby greater publicity can be given to the value and adaptability of all clay products to natural needs, and that the secretary be instructed to communicate with the State and National Associations, requesting them to appoint similar committees, with the ultimate object of the creation of a general bureau of publicity for all clay product representation.

The report of the Nomination Committee was accepted as read, and the following officers were declared elected for the ensuing year: President, William Hammerschmidt, Lombard, Ill.; vice president, F. R. Carter, Peoria, Ill.; secretary, Geo. H. Hartwell, Chicago, Ill.; treasurer, J. M. Mamer, Campus, Ill. Following speeches of the newly elected officers, the convention adjourned sine die.

Thursday's Pleasure Trip.

Thursday afternoon nearly 50 delegates remained over to visit the distillery and the insane asylum. Under the good humored guidance of Mr. Burdick, president of the Promotion Club of Peoria, the crowd boarded a special car at 2 o'clock and were taken to Clark Bros. Distillery, the largest straight whiskey distillery in the world. Here they were received with open arms by the Clark Brothers, who led them first of all to the sample room. The hour's stay here, at this plant, was most thoroughly enjoyed, the sample room getting perhaps the closest attention. Hundreds of cattle were seen in the stables fattening on the malt. It is a wonderful institution, with its automatic system of machinery. We traced the corn through the factory and ended, of course, at the sample room.

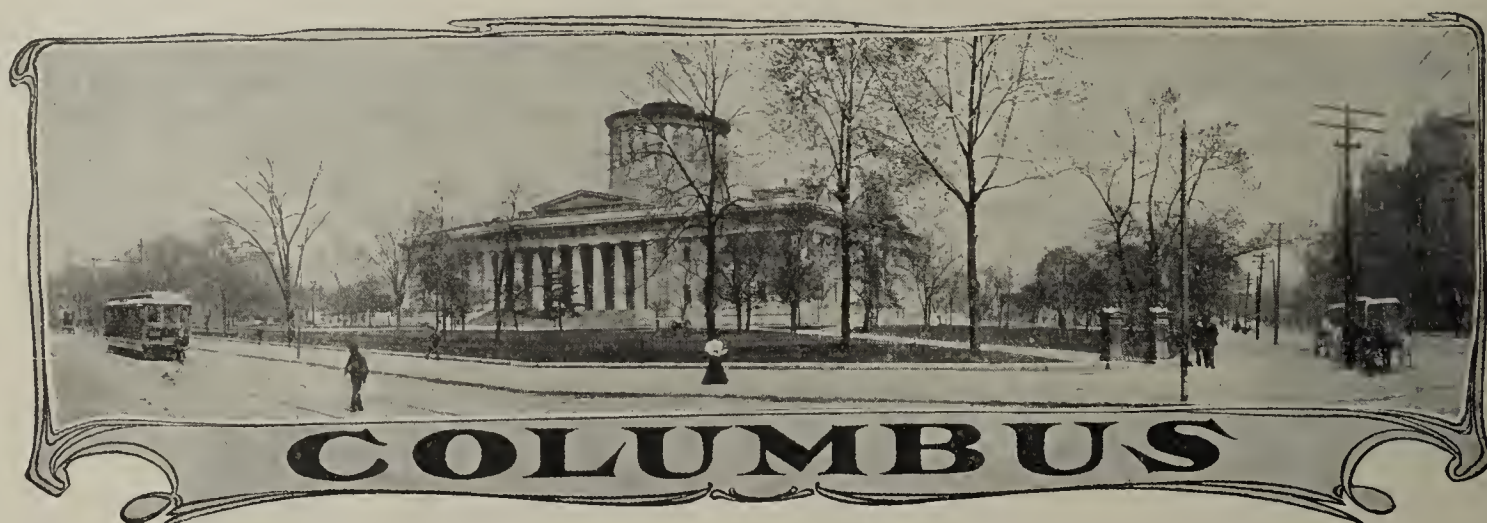
We were then escorted to the Illinois Asylum for Incurable Insane, where Dr. Zeller is doing such wonderful work. Not a single bar is to be seen at any window, and the patients seemingly are well behaved, though for the most part desperate characters. One building alone contains 125

violent insane patients, attended only by three young girls, who control them fearlessly without club or weapons of protection.

The tent colony was a point of most interest. Here they are treating the victims of consumption. It was nearly dusk when the crowd left for the hotel, so interesting and strange a sight was this great institution, where the violent insane are treated with gentleness. Some of the delegates remained over Friday, but the majority left on the evening trains.

Register of Those Present.

G. M. Bowden, Abington, Ill.
W. R. Guyer, Abington, Ill.
Matt Horts, Alsey, Ill.
L. Solfsburg, Aurora, Ill.
H. F. Townsend, Avon, Ill.
A. Randall, Bartonville, Ill.
L. H. Lambert, Beaverville, Ill.
H. E. Search, Bloomington, Ill.
John Hull, Cambridge, Ill.
J. M. Mamer, Campus, Ill.
N. L. Mamer, Campus, Ill.
John M. Heckard, Canton, Ill.
Geo. B. Roller, Canton, Ill.
A. V. Bleininger, Champaign, Ill.
John W. Stipes, Champaign, Ill.
Geo. J. Walter, Chatsworth, Ill.
H. DeJoannis, Chicago, Ill.
Geo. L. Dieterick, Chicago, Ill.
E. R. Frazier, Chicago, Ill.
E. M. George, Chicago, Ill.
Geo. H. Hartwell, Chicago, Ill.
L. E. Rodgers, Chicago, Ill.
A. G. Hays, Drake, Ill.
C. T. Hicks, Drake, Ill.
D. C. Haeger, Dundee, Ill.
C. L. Martin, Dwight, Ill.
L. H. Martin, Dwight, Ill.
Walter Pratt, Earlville, Ill.
S. E. Milam, Elmwood, Ill.
F. G. Matteson, Galesburg, Ill.
W. S. Purington, Galesburg, Ill.
J. M. Trainor, Gilberts, Ill.
W. W. Wild, Gilman, Ill.
J. B. Ford, Harrisburg, Ill.
C. Steinmeyer, LaSalle, Ill.
Wm. Hammerschmidt, Lombard, Ill.
A. Peck, Macomb, Ill.
D. H. Tiernan, Macomb, Ill.
J. H. Wilson, Macomb, Ill.
F. D. Judy, Mackman, Ill.
E. Hardy, Momence, Ill.
H. B. Fox, Monmouth, Ill.
A. W. Gates, Monmouth, Ill.
H. B. McMillan, Monmouth, Ill.
E. R. Sturtevant, Monmouth, Ill.
E. A. Swift, Ottawa, Ill.
D. H. Jensen, Pekin, Ill.
J. D. Jensen, Pekin, Ill.
E. F. Lampitt, Pekin, Ill.
Chas. Zoeller, Pekin, Ill.
B. C. Carter, Peoria, Ill.
F. R. Carter, Peoria, Ill.
Jas. Dalton, Peoria, Ill.
A. E. Giles, Peoria, Ill.
F. J. Kanne, Peoria, Ill.
Geo. C. Kanne, Peoria, Ill.
Robt. Unzicker, Peru, Ill.
Thos. Salveson, Petersburg, Ill.
A. S. Curry, Reddick, Ill.
Hans Paulsen, Rock Island, Ill.
W. Paulsen, Rock Island, Ill.
Fred Tittington, Rock Island, Ill.
J. E. Ryan, Rushville, Ill.
L. E. Snodgrass, Springfield, Ill.
C. C. Barr, Streator, Ill.
Frank Plumb, Streator, Ill.
Oliver Tillbury, Tonawanda, Ill.
E. F. Lines, Urbana, Ill.
D. F. Stevens, Cayuga, Ind.
J. W. Robb, Clinton, Ind.
Albert Potts, Indianapolis, Ind.
Jas. E. Randall, Indianapolis, Ind.
J. W. Arbuckle, Rushville, Ind.
Wm. P. Blair, Terre Haute, Ind.
Ollie Wilson, Barnes City, Ia.
A. J. Wheat, Emmettsburg, Ia.
F. E. Martin, New Sharon, Ia.
C. W. Stewardson, Strasburg, Ia.
G. C. Stoll, Bucyrus, Ohio.
D. H. Downey, Dayton, Ohio.
Chas. W. Raymond, Jr., Dayton, Ohio.
J. J. Gledhill, Gallon, Ohio.
D. D. Deeds, Lorain, Ohio.
D. H. Proper, Painesville, Ohio.
H. J. Votaw, Plymouth, Ohio.
Chas. Burridge, Tecumseh, Mich.
Marion W. Blair, St. Louis, Mo.
E. L. Hess, St. Louis, Mo.
Frank McMillan, Lancaster, Pa.



THE CAPITOL BUILDING

Where the Legislators Will be "At Home" Convention Week.

ANNOUNCEMENT AND PROGRAM OF THE TENTH ANNUAL MEETING OF THE AMERICAN CERAMIC SOCIETY.

Announcement.

The Board of Trustees of the American Ceramic Society takes great pleasure in announcing that the Tenth Annual Meeting of the Society will be held in Columbus, Ohio, beginning Monday, February 3d, at 10 a. m., and closing Wednesday, February 5th, at noon.

Hotel Headquarters.

In deference to its expressed wish, the Trustees have arranged for the Society to meet separate from the N. B. M. A., in order to avoid the confusion and overcrowding incident to the assembling of the larger body. The Trustees have selected as headquarters the Hotel Hartman, located on the corner of Main and Fourth streets, only two blocks from the Great Southern Hotel, at which the N. B. M. A. are to gather. The Hartman is a hotel of modern size, but it is second to none in Ohio in the elegance of its appointments, the perfection of its service, and the delicacy of its cuisine. It is managed exclusively on the European plan. Single rooms, without bath, occupied by two people, will be assigned at \$1.25 per day. Single rooms, without bath, occupied alone, \$1.50. Rooms with bath, occupied by two, at \$2.00. Rooms with bath, occupied by one, \$2.50 and up. Every room has its own toilet, and there are two bath rooms on each floor, available without extra charge.

The table is modern in price. Club breakfasts are served, and parties of three or four can dine handsomely at very moderate expense.

As this hotel is very popular with members of the Legislature, now in session, it will be necessary to make arrangements for rooms in advance. **Do not neglect this**, if you want to be well placed. The secretary will make no reservations unless specially requested.

The hotel will furnish an ideal convention hall, and committee rooms, in a perfectly quiet location, and with every facility for the holding of meetings.

Reduced Railroad Rates.

Secretary Randall, of the N. B. M. A., has, after much negotiation, secured from the Central Passenger Association excursion rates on a basis of two cents per mile, the same rate relatively that has been granted in former years. The certificate plan has been abolished and in lieu of same, dele-

gates will purchase round trip tickets. The date of sale is limited to February 2, 3 and 4. Tickets will be good returning until February 10. Up to date, the concession has been granted by the Central Passenger Association only. If the other Passenger Associations do not concur, delegates should use their local mileage to Central Passenger Association territory, and then repurchase. In that way, the same rate as heretofore will be obtained.

Columbus.

Columbus is peculiarly situated with reference to the clay industries. It has few plants of importance in its limits or near neighborhood, but it is the financial and administrative center and market point for a large number of large and important plants located in a belt 50 to 75 miles from Columbus, and extending across several counties, in a roughly north and south line. Some of these plants were visited on the occasion of the Zanesville summer meeting.

There will be a lecture, illustrated by lantern slides, on Wednesday evening, February 5th, at the Great Southern, showing the special features of a number of these plants, which is designed to take the place of a trip around the district.

Columbus has perhaps some additional interest to members of the Society, as the scene of its formal organization and the location of its office and headquarters. The Ceramic Department of the Ohio State University, the Pyrometric Cone factory and Clay Testing Station of Prof. Orton, the Ceramic Engineering Bureau of the Richardson-Lovejoy Co., may also be of interest to many. All of the local members of the Society desire to maintain open house to all visiting brethren.

SUNDAY, FEBRUARY 2, 1908.

A meeting of the Board of Trustees will be held in the parlors of the Hartman Hotel at 8:00 p. m. to transact accumulated business.

FIRST SESSION—MONDAY, FEBRUARY 3, 1908.

To be Held in the Parlors of the Hartman Hotel.

1. Call to Order at 10:00 a. m.
2. Address of the Retiring President—Stanley G. Burt, Cincinnati, Ohio.
3. Appointment of Scrutineers of Election.
4. Reading of the Minutes of the Meetings of 1907.
5. Reports of Officers.
6. Announcement of Results of Election.
7. Installation of New Officers.
8. Reports of Committees.
9. Old Business.
10. New Business.
11. Recess.

SECOND SESSION—MONDAY AFTERNOON, FEBRUARY 3, 1908.

12. Call to Order at 2:00 p. m.
13. "The Function of Boron in the Glaze Formula," by Charles F. Binns, Alfred, N. Y.
14. "The Compounding of Frits," by Homer H. Staley, Union town, Pa.
15. "The Action of Different Compounds of Calcium as Fluxes for Porcelain Manufacture," by Arthur S. Watts, Victor, N. Y.
16. "The Melting Interval of Some Silicates," by Albert V. Bleininger, Champaign, Ill.
17. "The Influence of Zinc Oxide on the Colors Produced by Chromium Oxide in Matt Glazes," by M. F. Bryan, Columbus, Ohio.
18. Topic for Discussion—"The Recommendations of the Society's Committee on Co-operation, Especially their Recommendations to the State Geologists," Proposed by Henrich Ries.

THIRD SESSION—MONDAY EVENING, FEBRUARY 3, 1908.

19. Call to Order at 8:00 p. m.
20. Note on Specific Gravity vs. Porosity Changes, with Increasing Heat Treatment in Flint Fire Clays, by Ross C. Purdy, Columbus, Ohio.
21. Note on Pottery Plaster, by Harrison E. Ashley, Newell, W. Va.
22. Note on Drying of Clays, by Edward F. Lines, Champaign, Ill.
23. Note on the Viscosity of Clay Slips, Measured by the Coulomb Method, by Albert V. Bleininger, Champaign, Ill.

FOURTH SESSION—TUESDAY MORNING, FEBRUARY 4, 1908.
To be Held at the Hartman House or at the Ohio State University.

The sessions may be held at either place at the option of the Society. The meeting place for Tuesday's sessions will be decided at the first session, on Monday. The University desires to extend an invitation to the Society to meet there and will provide an informal luncheon if the invitation is accepted, in order to save the necessity of returning to the city at the noon recess. The rooms of the Ceramic Department are equipped for lantern work, plenty of blackboards, and all conveniences for the Society's needs.

24. Call to Order at 10:00 a. m.
25. "The Use of Cornwall Stone vs. Feldspar as a Flux for Porcelain," by Arthur S. Watts, Victor, N. Y.
26. "Notes on a Type of Matt Glaze, Maturing at Cone 2-5," by Edward Orton, Jr., Columbus, Ohio.
27. "Glass Versus Ceramic Wall Tiling," by Karl Langenbeck, Washington, D. C.
28. "On the Influence of the Fluxes and Non-Fluxes Upon the Changes in the Specific Gravity of Some Clays," by Albert V. Bleininger and Joseph K. Moore.

FIFTH SESSION—TUESDAY AFTERNOON, FEBRUARY 4, 1908.

29. Call to Order at 2:00 p. m.
30. "Tests on Assay Crucibles, with Notes on Their Proper Composition," by Edward Orton, Jr., and H. B. Henderson.
31. "American vs. Continental Pottery Conditions."
An extemporaneous talk by Dr. W. H. Zimmer, Limoges, France. Dr. Zimmer may present in place of this talk a paper by Dr. Koerner, of Coburg, Germany, on the "Coloring Action of Certain Rare Oxides."
32. "The New Pottery and Art Terra Cotta Plant of the Van Briggie Art Pottery Company, at Colorado Springs, Colo.," by Frank H. Riddle, Colorado Springs. (Illustrated with Slides.)
33. "The Arrangement of Manufacturing and Selling Costs," by Ellis D. Gates, Seattle, Wash. (To be read by W. A. Hull.)

TUESDAY EVENING, FEBRUARY 4, 1908.

34. Nothing has been scheduled for this time, in order to make it possible for the Society to have some sort of a social occasion to signalize the Tenth Anniversary of its founding. It is not proposed to make the occasion a formal one, and hence the date is merely left open, and plans for the use of the time will be made on Monday the 3d. An informal dinner, with a few talks and reminiscences by the charter members, has been suggested. Such an occasion, if it occurs at the regular dinner hour of the hotel, can be managed with very little trouble or delay, and will still serve to mark the passing of our first decade of existence.

SIXTH SESSION—WEDNESDAY MORNING, FEBRUARY 5, 1908.

35. Call to Order at 9:00 a. m.
36. "Some Memoranda on the Crushing Strength of Terra Cotta," by R. F. Grady, St. Louis, Mo.
37. "A Study of the Heat Distribution in Four Industrial Kilns," by Albert V. Bleininger, Champaign, Ill.
38. "A Combination Gas and Steam Power Plant," by George N. Jeppson, Worcester, Mass.
39. "Notes on Crude Oil for Kiln Firing," by Carl H. Griffin, Worcester, Mass.
40. "Factory Output," by W. A. Hull, Seattle, Wash.
41. "Enamel Brick Slips at Cone 4-6-8," by R. T. Stull, Champaign, Ill.
42. Adjournment should take place by 1 p. m. in order to not conflict with the opening session of the N. B. M. A. at 2 p. m.

ADDITIONAL TITLES.

Beside the titles listed to be read, there are a number of papers promised, of which the title has not been furnished, or for which the author will not be present to present his paper direct, or for which the author pleads for more time before presenting the data, and therefore requests his paper to be read by title and printed in the Transactions, subject to the consent of the Publication Committee. The following is a partial list of such contributions:

43. Ashley, H. E. "On Linings for Ballmills for Flint and Spar Grinding." (Subject to consent of firm).
44. Stull, R. T. "A Cheap Enamel for Stoneware." (Subject to completion in time).
45. Worcester, W. G. "The Function of Alumina in Promoting or Hindering the Crystallization of Glazes."
46. Williams, I. A. "Influence of Fine Grinding on the Properties of Portland Cement."
47. Coulter, L. B., and Henderson, H. B. "On the Influence of Certain Commonly Occurring Fluxes on the Fusion and Structure of Silicates."
48. Bleininger, A. V. "Melting Intervals of Certain Silicates."
49. Krehbiel, J. F. Paper. Title not furnished.
50. Parmelee, C. W. Paper. Title not furnished.
51. Question—J. B. Millar, Toronto, Canada. "On the Relative Influence of Down-Draft and Continuous Kilns on Calcareous Clays."
52. Question—P. A. Smith. "On the Relative Economy of Using a Fan and a Stack for Drying and Burning."
53. R. R. Hice. "How Far can Field Tests be Used in Determining the Value of Clays?"
54. E. D. Gates. "Can Ceramic Kilns be so Designed that Correct Heat Distribution is Always Attainable?"



THE HEART OF COLUMBUS.

A few of the Great Sky-Scrapers That Have Been Built in the Buckeye Capital Since the Previous Convention.



OFFICIAL ANNOUNCEMENT.

THE TWENTY-SECOND NATIONAL CONVENTION
TO BE HELD AT COLUMBUS, OHIO,
FEBRUARY 3-8, 1908.

American Ceramic Society and National Paving Brick Manufacturers' Ass'n Hold Separate Sessions Feb. 3 and 4.

THE TWENTY-SECOND Annual Convention of the National Brick Manufacturers' Association will be held at Columbus, Ohio, February 3 to 8, 1908. Columbus is so centrally situated, is so easily accessible to a great majority of the clayworkers of the land, that it is anticipated that the attendance will exceed even that of the St. Louis convention.

The brick manufacturers of Columbus and vicinity will demonstrate that the cordial invitation extended by them through Prof. Orton at our last meeting was not a mere form of words, but will individually and collectively extend a welcome so earnestly heartfelt and warm that, regardless of the temperature, the visitors will have no occasion to make a midwinter trip to the tropics, and while the entertainment afforded will be so timed and planned as not to interfere with the deliberative work of the convention, the local committee will strive strenuously to make the week one of many pleasures.

The Social Functions.

The chief entertainments given under the auspices of the Local Committee will occur Thursday. The afternoon of that day there will be a reception for the ladies, with entertainment features not yet divulged.

Thursday evening there will be a theater party, in which all delegates and those accompanying them will participate. This function will be in lieu of the annual banquet, which can not be given, the reason being that the hotel dining-room is not large enough to accommodate the attendance anticipated.

Hotel Headquarters.

The Southern Hotel, which will be headquarters, is located at High and Main streets, and may be reached from the station direct by trolley line. It is a modern brick, fireproof structure, and will afford every modern convenience and comfort. Delegates and those accompanying them will be accommodated on the American plan at a minimum rate of \$3.00 per day for each person, two or more in a room. No higher rate is to be charged except for rooms with bath and parlors, for which the rate will be \$4.00 per day and up, according to location. Those desiring special accommodations are requested to apply to the hotel direct. In ordering reserves the date of intended arrival, the number in the party, and the character of accommodations desired should be mentioned.

Convention Sessions.

As in former years, the week will be divided by the National Association and affiliated bodies as follows: The sessions of the N. B. M. A. will be held in the convention hall, on the top floor of the Southern Hotel, where also arrangements have been made for a commodious exhibition room,

where space will be provided, free to members, for the display of samples of clay wares, specimen brick, trade literature, models of machinery and appliances.

The American Ceramic Society will meet and have headquarters in the Hartman Hotel, two blocks east of the Southern. It may be reached by the same car line as the Southern, and is operated exclusively on the European plan. In event of being unable to procure rooms at the Southern, members of the N. B. M. A. will do well to apply at the Hartman, which is the nearest hotel, and is strictly first-class.

The National Paving Brick Manufacturers' Association will meet Tuesday at 10 a. m., February 4th, in the assembly hall of the Southern Hotel.

The National Association of Manufacturers of Clayworking Appliances will meet Tuesday, February 4th, in Parlor B, Southern Hotel.

Reduced Railroad Rates and How to Get Them.

Reduced railroad rates have been granted by the Central Passenger Association. Round trip tickets will be sold from all points in this territory on the basis of two cents per



mile. Delegates and those accompanying them will simply ask for excursion tickets to Columbus on account of the N. B. M. A. Convention. NO CERTIFICATE NEED BE TAKEN. In fact, the certificate plan has been abolished entirely in the Central Passenger territory, which is bounded as follows: Cairo, Ill., thence Ohio River to Evansville; thence Louisville, Henderson & St. Louis Railway to Louisville; thence Chesapeake & Ohio Railway, Louisville to Kenova; thence Ohio River Division of Baltimore & Ohio R. R., Kenova to Wheeling; thence Baltimore & Ohio R. R. to Washington, Pa.; thence Pittsburgh, Cincinnati Chicago & St. Louis Ry. to Pittsburgh; thence Pennsylvania R. R. to Mosgrove, Pa.; thence Buffalo, Rochester & Pittsburgh Ry. to Dubois; thence Pennsylvania R. R. to Johnsonburg; thence Buffalo, Rochester & Pittsburgh Ry. to Buffalo; thence the Niagara River; that portion of Ontario reached by lines of the Michigan Central, Pere Marquette and Wabash Railroads; the lower peninsula of Michigan; the line of Chicago, Rock Island & Pacific Ry., Chicago to Peoria, Ill.; thence Toledo, Peoria & Western Ry., Peoria to Burlington; thence the Mississippi River to Cairo, Ill.

It is anticipated that the other Passenger Associations

will, as in former years, concur in the action of the Central Passenger Association and grant excursion rates, though, instead of round trip tickets mentioned above, they may again authorize a two-thirds rate on the certificate plan to points in or gateways to the Central Passenger Association, such, for instance, as St. Louis, Cairo, Cincinnati, Pittsburg, Buffalo, Detroit, Chicago, etc.

Should the other Passenger Associations fail to authorize either excursion tickets or the certificate plan, the same two cent rate can be obtained by delegates using mileage books over their local lines, issued by these other associations to the "gateway" points of the Central Passenger Association territory, and there repurchase, thus obtaining the same two cents per mile rate that has prevailed in years past. Indeed, there will be one decided advantage to this latter course, namely, that delegates will have the privilege of stopping at such gateway points should they desire to do so.

The Souvenir Badge and Number Button.

The distribution of number buttons for identification that has proven so popular at previous conventions will be continued, and members are requested to call at the secretary's headquarters on arrival and register on the numerical roster,

All sessions of the convention are open to the public. Those who are interested directly or indirectly in clay work of any character are invited to join the association, and to bring with them their wives, superintendents, or other workmen and friends who are interested, each and all of whom will be entitled to reduced railroad and hotel rates, and to participate in all functions and entertainments. The number button and badge will be the only credential required. Those desiring further information are requested to communicate with the secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,

WM. CONWAY, President.

THEO. A. RANDALL, Secretary.

N. B. M. A. PROGRAM.

First Session—Wednesday, 2:30 P. M.,
February 5, 1908.

Prayer by Rev. George B. Cutten, Columbus, Ohio.

Enrollment of New Members and Roll Call.

Welcome to Columbus, by His Honor, Mayor C. A. Bond.

Response by M. E. Gregory, Corning N. Y.



HIGH STREET, COLUMBUS, OHIO, AT NIGHT.

This Main Thoroughfare is so Well Lighted That the Out-of-Town Delegates May Promenade After Dinner in Perfect Safety.

when they will be presented with a number button and souvenir badge. The latter, a handsome and appropriate souvenir of the occasion, will be the gift of the Local Committee.

The Exhibition Room.

A commodious, well lighted, and thoroughly comfortable exhibition room will be provided on the seventh floor of the Southern Hotel, where ample space, free to members, will be afforded for the display of specimen brick and samples of other clay wares, models of machinery, factory appliances, trade literature, etc., etc.

Those desiring space are requested to communicate with Ellis Lovejoy, 1538 N. High street, Columbus, Ohio, chairman of the Exhibition Committee. Material for exhibits should be shipped the previous week, so as to reach Columbus by Monday, February 3, and should be addressed in care of the N. B. M. A. Exhibition Room, Southern Hotel, Columbus, Ohio.

There will be other entertainments provided for the visitors, especially the ladies, during the convention sessions, of which further announcement will be made at the convention.

President's Annual Address, Wm. Conway, Philadelphia, Pa.
Report of Treasurer, John W. Sibley, Birmingham, Ala.
Election and Installation of Officers, and Members of Standing Committees.

1. "The Outlook," Victor Cushwa, Williamsport, Md.
Discussion led by C. N. Adams, Alexandria, La.

Rules of Procedure.

All formal resolutions shall be presented in writing.

At the close of each essay or address an opportunity will be afforded for the full discussion of the subject under consideration.

No papers or essays not included in the regular program will be heard unless previously submitted to and approved by the Executive Committee.

Wednesday Evening, 7:30.

2. "The Clay Industries of the Central Ohio District." A description of the clayworking plants that may be seen in a trip through this region, copiously illustrated with

stereopticon views. Lecture by Prof. Edward Orton, Jr.,
photographs by James E. Randall.

**Second Session—Thursday, 9:30 A. M.,
February 6, 1908.**

3. "Electricity as a Power for Clayworking Manufactories,"
Lambert Haigh, Catskill, N. Y.

Discussion led by———

4. "The Advantages of Forced Draft Over Natural Draft
in Burning Up-Draft Kilns,"
Joe P. Fulcher, Nashville, Tenn.

Discussion led by———

5. "Setting Brick by Machinery," Illustrated with Stereopticon Views. C. R. Buckles, Coffeyville, Kans.

Discussion led by———

6. "The Balance Sheet of a Down-Draft Kiln,"
Prof. A. V. Bleininger, Champaign, Ill.

QUESTIONS FOR GENERAL DISCUSSION.

7. What is the relative cost of burning building brick in continuous kilns and ordinary up-draft kilns?
8. Does it cost more to fill and empty continuous kilns than either up-draft or down-draft kilns?
9. Is there any economy or advantage in burning brick with coke instead of coal?
10. Has the producer gas system of burning proven a success in this country in the manufacture of brick of any sort?

**Third Session—Thursday, 2:30 P. M.,
February 6, 1908.**

11. "Brick and Terra Cotta in Architecture,"
S. Geijsbeek, Seattle, Wash.

Discussion led by———

12. "The Survival of the Fittest,"
E. C. Kimbell, Chicago, Ill.

Discussion led by———

13. "The Market Side of the Brick Business,"
W. E. Dunwody, Macon, Ga.

Discussion led by———

14. "The Use of Hollow Tile in Dwelling Construction,"
J. E. Mecusker, Warren, Pa.

QUESTIONS FOR GENERAL DISCUSSION.

15. Has sand-lime brick made any perceptible inroads in the brick business?
16. Has the sand-lime brick made sufficient progress to be entitled to consideration as a reliable building material?
17. Will porous cement tile when laid in an acid soil gradually dissolve?
18. Will porous or poorly made cement block withstand freezing and thawing, or will they go to pieces under the effects of frost.

Thursday Evening, February 6, 1908.

There will be a theater party under the auspices and by the courtesy of the Committee on Entertainment, to which all of the delegates, guests and local members of the association are invited. Credentials for same will be distributed by the Assistant Secretary of the N. B. M. A.

**Fourth Session—Friday, 9:30 A. M.,
February 7, 1908.**

This session will be held in the auditorium at the Ohio State University. Delegates will leave on special chartered trolley cars, which will be taken at the entrance to the Southern, and which will leave at 9:30 a. m., arriving at the University at 10:00. At 10:30 the last session of the convention will be called to order.

19. "Our Inland Waterways and their Influence on the Clay Business,"
J. W. Robb, Clinton, Ind.

Discussion led by———

20. "Strength of Brick" (Illustrated and showing the results of tests of brick furnished by the members of the N. B. M. A.)
J. E. Howard, Watertown, Mass.

21. Report of Committee on Technical Investigation,
Prof. Edward Orton, Jr., Columbus, Ohio.

(This is the usual preliminary oral report of the work of the Committee on Technical Investigation for the year past. The final report is printed as a separate book and distributed to the members by mail.)

QUESTIONS FOR GENERAL DISCUSSION.

22. Is it feasible to dry brick with waste heat from cooling kilns on plants burning in up-draft, open-top kilns?
23. Which is best, to draw waste heat from the top or from the bottom of an up-draft, open-top kiln, for drying purposes?

Report of the Committee on Trade Schools.
Report of the Committee on Resolutions.
Miscellaneous Business.

Luncheon at the University.

After the conclusion of this session, an informal luncheon will be served in the School of Mines building by the Ohio State University. Following the luncheon, there will be an inspection of the laboratories of the Department of Clayworking and Ceramics, and also of the Departments of Metallurgy and Mining. Then, a short trip over the grounds, weather permitting, and a visit to a few of the more interesting laboratories, winding up with a visit to the gymnasium, where the classes in physical education will give an exhibition drill. Specially chartered street cars will leave for the city at 4:45 p. m. Regular cars at four-minute intervals.

SOFT MUD MACHINES THAT "CAN NOT BE BEAT."

THE SIMONS BRICK COMPANY, of Los Angeles, Cal., one of the leading brickmaking concerns of the Pacific coast, has had a varied experience, having made brick by all processes, and in large quantities. Their operations have extended over a period of many years. As will be seen by the accompanying letter, they have, during the past season, returned to their first love, and are now making a very large per cent. of their product by the soft clay process. When it is noted that they have made more than 55,000 brick per day on a single machine, it will be plain to the initiated that they do not do things by halves. Messrs. C. & A. Potts & Co. may well be very proud of such a testimonial from a firm of such wide experience and high standing.

SIMONS BRICK COMPANY.

Manufacturers of Common Brick, Pressed Brick, Roofing Tile and Fireproofing—Daily Capacity, 350,000.
Office, 123 West Third Street.

LOS ANGELES, CAL., NOVEMBER 15, 1907.

C. & A. Potts & Co., Indianapolis, Ind.

Gentlemen—Whether it was taking a forward step or a backward step in returning to the soft mud process of making brick, we have convinced ourselves that a cheaper and better brick can be made in our locality with the soft mud process than with any other. We have tried them all, and are, at the present time, operating eight (8) Potts machines and Potts disintegrators, and wish to say that the machines and disintegrators you manufacture, for economy in repairs and efficiency in its work, can not be beat. We have made, on one of your machines, more than 55,000 brick per day. There is practically no limit to its capacity.

Yours very truly,

SIMONS BRICK COMPANY,
(Signed) Per J. SIMONS, President.

WHERE WAS FATHER?

"Go to Father," she said, when I asked her to wed.
And she knew that I knew that her father was dead;
And she knew that I knew what a life he had led;
And she knew that I knew what she meant when she said:
"GO TO FATHER!" —Exchange.

Written for THE CLAY-WORKER.

POTTERY NEWS.



BUSINESS AMONG THE manufacturing potters of the United States has not resumed its normal condition, although this is anticipated within a few weeks. Buyers have not been placing orders as they did a year ago, preferring to wait for a month or so until they see how the retail market stands. Jobbers say their stocks are low, but that the smaller buyers have been making purchases on the "hand to mouth" order. That is to say, dealers have been ordering just what goods they need for the time being.

Over 50 per cent. of the potteries of the eastern Ohio district resumed operations, and, should business continue to improve, all factories will be running soon.

Latest advices from El Reno, Oklahoma, are to the effect that the new pottery buildings erected by the El Reno China Company, have been completed, and the construction of the kilns is progressing favorably. No time is set for this plant to start operations, which is the first pottery to be built in the new State.

It has been reported that the No. 1 plant of the Homer Laughlin China Company, at East Liverpool, Ohio, is to be converted into a sanitary manufacturing shop. Another report is to the effect that the company proposes to manufacture fine China ware. Officials announce that no definite plans have been made for this factory.

There is a shortage of labor in the Toronto, Ohio, brick and sewer pipe district. While this trade is a little quiet at this season, the manufacturers are, however, forming some good stocks.

Buildings for the crusher at the East End plant of the American Sewer Pipe Company, at East Liverpool, Ohio, are being enlarged, the capacity being increased almost 50 per cent. Operations in this part of the factory are suspended while improvements are progressing.

The Warwick China Company, of Wheeling, W. Va., have completely recovered from the effects of a fire, which destroyed several buildings a year ago, and this month started work in all departments.

The annual election of officers of the Western Glass and Pottery Salesmen's Association was held at the Monongahela House, Pittsburg, Pa., January 15. George C. Thompson, president of the C. C. Thompson Pottery Company, East Liverpool, Ohio, was elected president of the Salesmen's Association without opposition.

The annual meeting of the officials of the Mandle-Sant Clay Company, of East Liverpool, Ohio, and St. Louis, Mo., will be held at St. Louis, February 14. I. Mandle, of St. Louis, will likely be elected president, while John Sant, of East Liverpool, will also be elected to a high office.

Business has been suspended for the present at the plant of the Homewood Pottery Company, Mannington, W. Va. Improvements will be made to the entire factory before operations are resumed.

A luncheon was recently given to the foremen and forewomen at the plant of the Buffalo Pottery Company, Buffalo, N. Y., by general manager L. B. Brown and general superintendent W. J. Rice. Turkeys were presented the men, while gloves were given the women.

David T. Grandstaff, glaze mixer for the McCoy Pottery Company, Roseville, Ohio, died recently as a result of getting a particle of glaze on a slight sore on his hand.

William M. Marshall, formerly secretary of the East Trenton (N. J.) Pottery Company, and well known to the trade throughout the country, died recently of paralysis.

With a capital stock of \$20,000, the Dunlop & Lisk Pottery Company has been incorporated under New Jersey laws, with

head offices at Matawan, N. J. Incorporators are: Edward L. Lisk, W. H. K. Dunlop, and Florence Tofts.

At the annual meeting of the stockholders of the Knowles, Taylor & Knowles Pottery Company, East Liverpool, Ohio, the largest plant in the United States, save one, the following officers were elected: President and treasurer, Col. John N. Taylor; vice president and general manager, Joseph G. Lee; assistant general manager, William L. Taylor; secretary, Harold H. Knowles, and assistant secretary, E. D. Moore.

Information has been received in the eastern Ohio sewer pipe and brick district, that an excellent opportunity exists for the establishment of a drain and sewer pipe plant in the Vancouver, B. C., territory. There is but one plant of the kind on the coast in that section, and it is unable to care for all the business offered. An excellent amount of good clay is available, and the market is always steady.

The pottery plant at Keyser, W. Va., has been closed, and no time has been set for resumption. Employees are seeking work elsewhere.

Manufacturing potters in the East Liverpool, Ohio, district may revert to the use of coal for kiln firing instead of gas. The gas companies have offered a contract to the manufacturers which is very unsatisfactory, and few manufacturers have affixed their signatures. OMEGA.

PRICES OF BRICK DOWN.

How much cheaper a building can be erected now than it could have been a year or two years ago can be seen in the saving in cost of brick as told by the Record and Guide.

The course of wholesale quotations for good brick during the year is included in the following list, the minimum quotation being given in each case:

January 5	5.50	July 6	6.25
February 2	5.50	August 3	6.75
March 2	5.50	September 7	5.75
April 6	5.25	October 5	6.00
May 4	5.50	November 2	5.75
June 1	7.00	December 7	5.25

Comparative brick prices on January 1 were as follows;

	All Hard.	Salmon.
1885	\$5.00 @ \$6.25	\$2.50 @ \$3.25
1895	5.25 @ 5.37½	2.00 @ 2.50
1898	5.00 @ 5.12½	3.00 @ 3.25
1903	6.25 @ 6.50	3.00 @ 3.50
1904	7.75 @ 8.00	4.00 @ 4.50
1905	7.50 @ 8.25	5.25 @
1906	10.00 @ 10.50	 @
1907	5.50 @ 6.00	3.00 @ 3.50
1908	5.25 @ 5.74	 @ 4.50

A SCHEME TO UTILIZE WASTE CLAY PRODUCTS.

A man in Lakewood, N. J., by the name of Williams, has discovered and invented a process to utilize waste clay products, such as brick, tile, terra cotta, etc., to manufacture mineral paint for which he has obtained United States patent, and has also filed application for foreign countries. He claims by his invention to be able to manufacture mineral paint, and use the best linseed oil at one-half the price of the cheapest paint that is now being sold all over the world, and still be able to make more profits on his paint than any other paint manufacturer.

The inventor claims to be able to make waste clay that is wasted in the manufacture of brick, etc., pay more profit than the brick itself, and the cost of this waste is only in the handling. In fact, he can use new brick to a great profit as well as the waste. He says he can make one brick weighing four pounds produce twelve pounds of paint, and use the best linseed oil.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

A Handsome Growth.

Editor THE CLAY-WORKER:

Enclosed please find three dollars, to pay for my subscription to THE CLAY-WORKER and for a fountain pen. The reason I did not attend to this sooner is because I have been very busy. I started my plant six years ago, and manufactured 1,000,000 brick that year. Since then I have increased to 1,000,000 brick per month, and sell them as fast as I can make them. I operate my plant with a Chambers machine and disintegrator and a Martin dry pan, and dry them with a Chambers dryer. Wishing you success and a Happy New Year,

FRANK DEBELIUS.

Orangeville, Md., January 1, 1908.

Keystone Clay Product Company Books Big Contract.

Editor THE CLAY-WORKER:

I notice in the last item on page 552 in your Editorial Notes and Clippings a statement made by the Latrobe Brick Company in regard to some contracts that they hold. The latter part of this item reads: "The largest contract that has been awarded to the company during the past month is for 1,500,000 brick that will be used in the St. Joseph's Academy at Greensburg."

I wish to state that the Latrobe Brick Company never had even the slightest chance of securing this contract, and they published the same items in the local papers here. At the same time we had the contract, and the best evidence of our having this contract is the fact that we have delivered so far on the ground 350,000 brick.

I wish to say that things in our line here are busy. We have orders enough to carry us until spring, both in our Conneaut plant of the United Brick Company and our plant here.

Hope to have the pleasure of seeing you in Columbus in February.

KEYSTONE CLAY PRODUCTS COMPANY,

E. P. Lippincott, General Manager.

Greensburg, Pa.

Price of Face Brick in New York City.

My Dear Randall:

I am afraid that your New York correspondent, who signs himself "Burton," needs to get a little better posted in regard to the price of face brick, as I see in your Christmas number that he quotes buff brick at \$32.00, gray brick, shaded and speckled, at \$32.00, and white, No. 1, \$32.00. I only wish it were true that we could obtain such prices as these for face brick in New York, but, unfortunately, these figures are very erroneous, particularly in regard to the buff and gray brick, and I thought that you would be glad of a little friendly criticism.

Most of the buff brick which are sold in this market are made in the Clearfield and Kittanning sections of Pennsylvania, and are sold at \$21.00 to \$25.00 for the No. 1 quality, and \$18.00 to \$20.00 for the No. 2 quality. The average price on the No. 1 buff brick is \$23.00. Occasionally a job may be obtained at a trifle over \$25.00, but this would be very much the exception. I saw, the other day, a quotation made by a well-known Pittsburg refractories company on one of their

quotation blanks for No. 2 quality buff brick, f. o. b. cars at \$16.00.

The plain gray and speckled gray brick sell for from \$28.00 to \$30.00 for No. 1 quality, and about \$2.00 per thousand less for No. 2, although the Harbison-Walker Company are quoting at the present time, to my certain knowledge, as low as \$22.00 for a No. 1 gray. This is, however, a plain gray, and not a speckled. It is possible that the Columbus grays, which are sold here only to a limited extent, are bringing as high as \$32.00, but I hardly think they are being sold for more than \$30.00.

My only object in mentioning these discrepancies between the figures given by your correspondent and the actual condition is, that I believe it is rather bad for the trade to have such awfully high figures published under these trade notes, as it gives the factories a wholly false idea as to the amount of profit which the brick dealers are making, and also encourages people who are not at present making these grades of brick to undertake their manufacture.

I should be glad at any time to confer with your correspondent as to the prices on face brick, so that his letters to you may be a little more accurate.

I received safely the two fountain pens which you recently sent, and wish to thank you very much for them. They are certainly a great improvement over the old fashioned "muzzle loaders."

In closing, I want to wish you and all the Randalls a very happy and prosperous New Year, and may it be full of all the good things of life for you all.

J. PARKER B. FISKE.

New York, January 2, 1908.

"Looking Forward to a Good Business."

Editor THE CLAY-WORKER:

Replying to your circular letter of the 24th, we take pleasure in enclosing subscription for 1908 to THE CLAY-WORKER. We value THE CLAY-WORKER, and read it with much profit and pleasure. As to suggestions for any betterment, we confess inability to add to its columns anything of special interest. We hope and believe Mr. Fitzgerald's prognostications for next year are correct; we are looking forward to a good business. LONG MAY THE CLAY-WORKER WAVE. Wishing you a most happy and prosperous New Year, we are,

FULCHER BRICK COMPANY.

Nashville, Tenn., December 28, 1907.

Purington and Gates Agree, Nearly, and D. V. Presents a "Boquet" to the Clay-Worker and its Junior Editor, and a Sketch of "Sarah," His Latest Acquisition.

MY DEAR RANDALL:

I have been "just going" to write you ever since the receipt of the December CLAY-WORKER, but you, who have been on this bleak coast, know how difficult it is to use a pen. An additional reason was, that "The Great American Buttonholer" was my guest, and those who know us both will not need further explanation why neither of us wrote letters.

What is on my mind is to tell you how much the CLAY-WORKER has improved of late. I mentioned it to Gates, and reminded him that the improvement began when he and I ceased forcing ourselves upon its readers, but he is less modest than I, and says it is entirely due to the new assistant editor. To quote him exactly:

"Why, D. V., Randall is giving his time almost entirely to his mining interests, and Jim and Miss Wallace are practically running the CLAY-WORKER, while Billingsley looks after the business end."

Whatever the reason, there has been a wonderful advance of late in its style and general makeup. It warms up the blood of an oldtimer, whose sands of life are nearing the end, to note the onward march of his successors, and to note further the improvement in the manner of keeping the public record. That you may know just how feeble and worn out

I am, I enclose a photo sent me by my special artist, W. D. G.
It speaks for itself.

I also enclose a sketch of my new boat, of my own drawing. You see, Gates has been down here sketching, and I have caught on to how he does it. I wonder I did not take to pen and ink sketches long, long ago. This off hand sketch, though, really does not do the boat justice. It is a dory, such as I was brought up in when a boy. I ordered it from Amesbury, Mass., October 1st, and expected to find it here when I arrived. It was not shipped until November 1st, and was five weeks getting here. She has been duly and properly christened the Sarah. She has a center board. I ordered a complete outfit, sail and all, but the sail was stolen en tran-

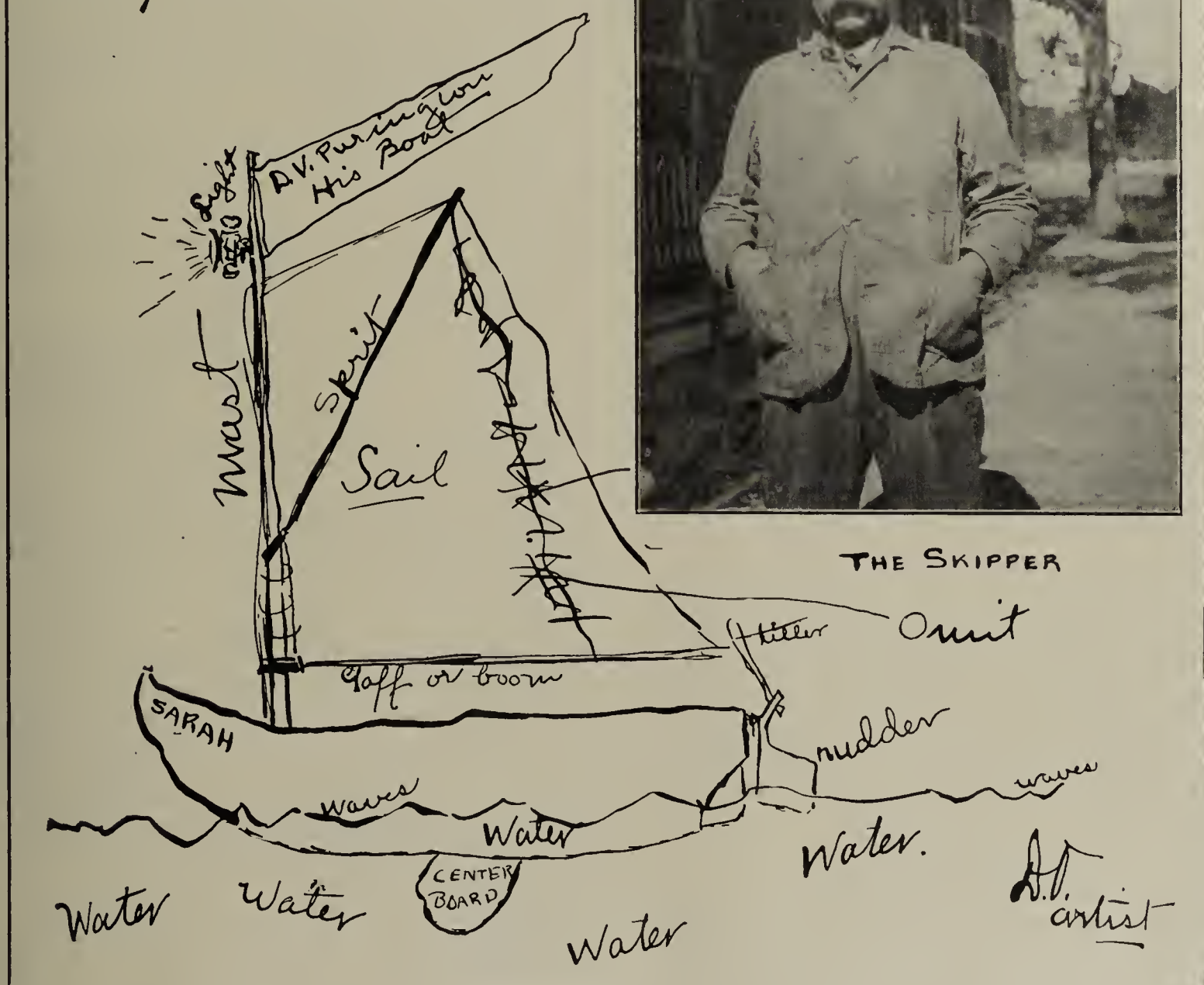
Even Doctor Converse Can't be in Two Places at Once.

Editor THE CLAY-WORKER:

Enclosed find \$2.00 for THE CLAY-WORKER for another year. I do not know when the time expires, but I reckon that you do; if you don't, credit it up to 1910.

As you know by this time, I did not go to Peoria. I did not feel equal to the task, and, inasmuch as I was to act as toastmaster at a bankers' banquet here at the same time, I selected the least of the two evils. I hope you had a jolly good time, and learned a great deal about mud mixing that will crop out through THE CLAY-WORKER from time to time. I noticed the article about Bituminous Pavements; it

The sail will look some-
thing like this.— but not much.



sit. I ordered another shipped by express and before it was delivered, some vandal got away with the mast and spar, so now I am afforded an opportunity of showing my skill as a carpenter, and I am slowly, but surely, transforming a 12-foot timber into a well formed mast, and when I get through with that I shall set to work on boom and sprit. You can see by my sketch what a beautiful boat I am going to have, and when you come down I will take you for a sail over the oyster beds "and far away."

Yours, as of old, D. V. PURINGTON.

Wyndillhurst, Ocean Springs, Miss., Jan. 4, 1908.

P. S.—The suit of clothes, including the hat, cost \$3.10.

was a good one, and I trust will do good. I have been fighting single-handed and alone the various propositions here, and have succeeded fairly well, when the money and promoting that has been done by the asphalt folks is considered.

The asphalt pavements are beginning to speak for themselves here, which is the most potent argument against them.

Our business was good last year, but, on account of having to take a good many municipal bonds, it makes us short on cash.

Most respectfully yours,

Most respectfully yours,

A. L. CONVERSE.

Springfield, Ill., January 16, 1908.

Written for THE CLAY-WORKER.

ILLINOIS CLAYWORKERS' INSTITUTE.

Held at the University of Illinois, January 6, 7, 8 and 9, 1908.

BEGINNING MONDAY, JANUARY 6th, the Department of Ceramics at the University of Illinois held an institute program which lasted four consecutive days. These institute programs are held each year for the purpose of giving the clay manufacturers a chance to avail themselves of some of the benefits the students derive from this ceramic school. They are held for the manufacturer, and not the student, and the lectures given and the experimental work done is with the idea of presenting an opportunity for the investigation of problems which will help the manufacturer in his troubles, and clear the paths that seem to be filled with trying obstacles.

The meeting this year was more successful than the previous one, and an increased attendance gratified the ceramic professors, fully twenty manufacturers being present. The program was made up of lectures and experimental work by the professors in the ceramic department.

Promptly at 9 o'clock on Monday, January 6th, Prof. Bleininger called the institute to order, when he delivered his lecture on the "Preparation of Clays." He treated this at length, telling of the methods necessary in handling the various kinds of clays. Following his lecture, Mr. R. T. Stull, who is instructor in ceramics at the University of Illinois, and a graduate of Ohio State University, delivered two lectures, the first on "Clayworking Machinery," and the second on "Die Construction." These fitted in well with Prof. Bleininger's lecture, and, as the titles suggest, were upon the various kinds of machinery adaptable for the different ceramic branches and the manner of construction.

The afternoon was given over to the demonstration of "Clay Testing Methods." The visitors were treated with experimental work which demonstrated the different ways in which to detect the various ingredients in the clay, such as iron, lime, sulphur, etc. This was very educational, and one of the features of the institute program. The evenings of the four days were given to informal discussions, where all the questions the manufacturers would ask on any ceramic problems were answered in the plainest language possible. Many problems which had been causing the manufacturers trouble for months were cleared up in these short discussions, so they felt well repaid for their trip to the institute.

The Tuesday program contained a third lecture by Mr. Stull, this one being entitled, "The Manufacture of Auger Machine Front Brick Without Repressing." This lecture he illustrated with sectional drawings of auger machines. In this lecture he declared that the repressing was a senseless expenditure of money. Tuesday afternoon the experimental work was continued, as on the first day.

Wednesday morning Prof. Bleininger delivered two lectures, one on the "Drying of Clay Ware," and the other, "The Vitrification of Clays." These were, perhaps, the most interesting of the meeting, both subjects were thoroughly handled and made interesting in Prof. Bleininger's characteristic manner.

Wednesday afternoon the experimental work was made on a different basis, the demonstrations being made of burning tests, showing effect of heat upon the clays. A trip was made, during the early part of the afternoon, to the testing laboratory of the Engineering College, where the largest hydraulic machine in the world tests large 15-foot, 13x13 brick piers. The piers tested on this day averaged much higher, showing much greater strength than the concrete or cement piers. The professors in charge declared that the brick piers stood higher tests than concrete or cement piers, but that the terra cotta proved even stronger.

Tuesday morning Mr. Herford Hope, assistant in ceramics,

who has been connected with the Mayer pottery, at Beaver Falls, Pa., for years, delivered a most interesting lecture on the "Manufacture of White Ware." The final lecture of the institute course was by Prof. Bleininger on the "Controlling of Temperature and Draft of Kilns." This was given as a fore-runner for the afternoon laboratory demonstration in heat and draft measurement. The institute closed after an informal discussion Thursday night.

BUTTONHOLE TALKS.

MY DEAR RANDALL:

Today I took Mission Ridge! I took it with my camera. I stormed its heights on an electric car for a nickel. Just think of the changes of time, one Yankee and one nickel stormed those heights that forty years ago it cost the nation uncountable wealth and blood to take, and cost the South an equal or greater amount to defend and finally lose. On that day, in November, 1863, between the hours of 3 p. m. and midnight, and almost in an hour, there were, all told on both sides, of killed, wounded and missing, in even numbers, twelve thousand men gone.

Have seen no notices in the press reports of my achievement and nobody seems to know of my bold deed in thus storming these heights, and possibly I ought not to brag about it, but, anyway, I may tell you of it in confidence. It certainly is a sensation to wander along the ridge and revert to that day and those men.

I stood before tablets there and read the history of that particular place on that particular day, and stood where men I have since known stood that day and looked down that slope toward men I then knew who were looking and climbing up to the bloody grapples. They, then the bitterest of enemies and yet both my warm friends, and since, happily, friends themselves.

After a full season of reminiscence and an unusually bad sketch—even for me—I, so to speak, unscaled the heights without giving up the nickel, and thus in jumping, slipping and sliding, gained a much better idea of the brawn of the men who went up where I came down.

Placed along the crest are old cannon, in number corresponding to those in the action—possibly the same. Not being from Missouri, I let it go that they were; one thing was evident, however, that cannon could be placed too high. These evidently could not be depressed enough and, therefore, did little execution.

Afterward I went to Orchard Knob and viewed its historic limits and then on to the National Cemetery, with its multitude of little stones, each with a name and regiment, and then to that sadder still wilderness of stones without name, "The Unknown Dead." Thousands, heroes, and now forgotten.

A new conception of what war means came to me as I looked at these stones and tried to picture to myself what all these lives would have meant to this country of ours had they been spared to peaceful pursuit and the full measure of their days.

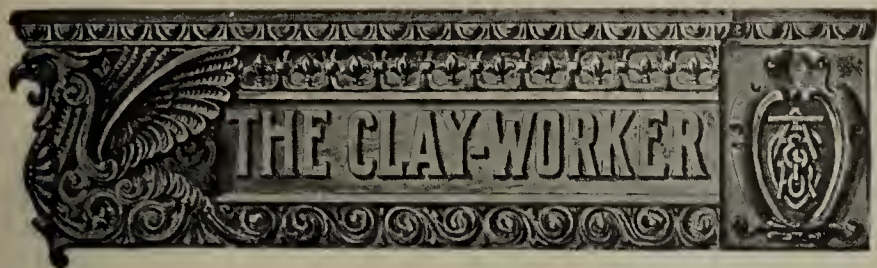
Am writing on the train, as I am off for a little rest in the Sunny South.

GATES.

DEATH OF WELL KNOWN FIRE CLAY PRODUCTS MANUFACTURER.

Announcement is made of the death of Mr. Calvin M. Christy, chairman of the executive committee of the Laclede-Christy Clay Products Company, St. Louis, which occurred suddenly at Daytona, Fla., December 27, 1907.

Prior to the merger of the Laclede and Christy companies, Mr. Christy was president of the Christy Fire Clay Company, which firm, as well as the Laclede Fire Brick Manufacturing Company, was well known among the brick manufacturers.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis

Vol. XLIX. JANUARY, 1908. No. 1.

CURRENT COMMENT.

If you are not going to Columbus, you are going to miss something.

* * *

For many reasons, 1908 looks good to the CLAY-WORKER, and we are not overly optimistic, either.

* * *

If you want to know the why and wherefore of any feature of the clay business, try a button-hole talk—Southern Hotel, Columbus, February 3 to 8.

* * *

A Buckeye welcome is the sort that warms the cockles of the heart, and gives that kindly fellow-feeling so conducive to the interchange of trade confidences.

* * *

The Ohio Legislature will be in session at Columbus convention week, so the visiting clayworkers may, if they choose, see how the Buckeye lawmakers look and act when at work.

* * *

Never before in our twenty-four years of success, have our subscribers renewed more promptly, for which and the countless words of appreciation we have received, we are duly and truly thankful.

* * *

Those who have been busy telling what caused it and how to cure or prevent the financial flurry, will now turn about and straightway begin to throw fuel under the political pot to keep it boiling.

* * *

Mark Twain has nobly demonstrated by his own life that a man can gain fame by looking on the humorous side of things; and just think of the fun he has got out of it, too. Follow suit, try to laugh at your troubles, and attend the N. B. M. A. Convention.

It don't matter how many railroad bills come up and how much time they consume, one thing that every shipper should urge his congressman to see to is, that the matter of improving our inland waterways does not get sidetracked.

* * *

Reduced railroad rates have been granted by the Central Passenger Association. As the certificate plan has been abolished in the Central Passenger Association territory, delegates will simply purchase round trip excursion tickets. Read the official announcement for full instructions in this connection.

* * *

Speaking of waterway transportation, it is a pity we can not devise some way to utilize some of the water said to be in railway capitalization to further this cause in some way. If half that is claimed is true in this connection, there is enough of this stock water floating about to make a good sized canal.

* * *

It looks like the tobacco trust is to get a good shaking up. The Government is beginning the shake act, and Collier's is beginning the publication of its history, for which purpose it has been gathering material for some time. Maybe we consumers will see why our two-fers are so rank, if the smoke don't get in our eyes.

* * *

The new year looks good to THE CLAY-WORKER, and if "Well begun is half done," the balance of 1908 will be comparatively easy for the diligent editor. If any reader, after looking over this issue, thinks that our anniversary number is not itself well worth the price of a year's subscription, we will thank him to say so. This is a "really for sure" case of money refunded, if goods are not satisfactory.

* * *

Next comes the convention number, and, again the one issue will easily be worth more than the yearly subscription, for it will contain a full verbatim report of the National Convention, including all papers and discussions. Here, in this one issue, will be found enough food for reflection to last the most studious clayworker right through the winter months; and information of a character, too, to deserve most careful consideration, and, so considered, proves of great profit.

* * *

But, Mr. Brickmaker, do not make the mistake of thinking that you can get by careful study of this full report anything like the benefits to be obtained by attending the convention. Far from it! By odds, the most fruitful source of practical information is the "button-hole" talks between formal sessions. Much, very much, invaluable information on important, though minor details of the business is swapped freely in these lobby talks, that is never put in cold type and can be obtained only in one way, and that is the face-to-face intercourse of practical men.

SOMEWHAT PERSONAL.

On another page, Mr. D. V. Purington, who has been a reader of THE CLAY-WORKER since its first issue, in a characteristic communication, notes, as he has done many a time before, the improvement in the matter and makeup of THE CLAY-WORKER, and gives credit for same to the Junior Editor, James E. Randall, who now divides the honors with the Editor-in-chief, and the latter, it need not be said, is not a little pleased by the comparison, for it is the realization of a long cherished desire. In this connection, we may appropriately announce that the Junior Editor is now a member of the firm. During the past month, the partnership of T. A. Randall & Co. ceased to exist, and the firm became an incorporation under the same firm name. The officers of the incorporation are: President, Theodore A. Randall; vice

president, James E. Randall; secretary-treasurer, Denton F. Billingsley. Only those who have enjoyed the sensation can understand and appreciate the satisfaction that it affords the Senior Editor to share with the son the responsibilities and honors of his profession, and to know that what has constituted his life's work is to be continued by one specially trained for it. The Senior Editor does not feel at all like a back number, but it is a source of gratification to know that duties and responsibilities may be shifted to younger shoulders. Enthusiasm is a natural attribute of youth, and it is likewise a great force in business affairs, so we feel that the readers of *THE CLAY-WORKER* and the editors, too, may properly join in mutual felicitations.

NOVEL CONVENTION FEATURES.

The program of the N. B. M. A. Convention provides for a number of unusually interesting papers. For instance, one on a new mechanical device for taking green brick from the press to the kiln. The illustration or stereopticon views will show this novel apparatus as it is seen in actual operation. This one feature will alone be worth the trip to Columbus. Another equally interesting feature will be the illustrated lecture by Prof. Orton, showing a series of views of the leading plants in the Hocking Valley district. Instead of making a trip to these plants, the idea is to bring the plants to the convention, and we do not need to remark that if any one can do this, Prof. Orton can. Look over the program on a preceding page, and you can form an idea of what a busy, interesting and pleasant time those who attend are going to have.

REDUCED RAILROAD RATES TO COLUMBUS.

We call the special attention of our readers who are going to attend the National Convention to the conditions under which reduced railroad rates have been granted, which are fully set forth in the announcement. From all points within the territory of the Central Passenger Association, round trip excursion tickets will be sold February 2, 3 and 4, and the tickets will be good returning until and including Monday, February 10th. No certificate is required in this territory. Those coming from points beyond the Central Passenger Association territory will probably find it best and most convenient to use mileage books to gateway points. In that way the same rate will be obtained that has prevailed in years past, with the added advantage of stop-over privileges. Considering the unsettled state of the passenger traffic interests, owing to the enactment of two-cent fare laws in most of the Central States, the concession granted is all that could be expected. Note particularly that the date of sale is limited to Sunday, Monday and Tuesday in the Central Passenger Association territory.

WHY GO TO COLUMBUS!

Really, there is scarce room for a difference of opinion on the question of whether a man interested in the brick business should go to Columbus to attend the National Convention. There is scarcely a clayworker in the land but knows that these trips are worth while. As a fact, there is no week during the year that a brick manufacturer spends to better advantage than the week spent at the N. B. M. A. meeting, so the thing to discuss is how to get the most good out of it. It is a common human trait with any and all propositions, or ventures, to speculate on what one is to get out of it. A doctrine that has been handed down to us through the ages, and one that has been proven true many times in many ways, is that the more good we put into the affairs of life, the more we get out of it. "Give the best you have to the world, and the best comes back to you," is almost an axiom. So it is with our annual conventions. Those who take

deepest interest, give the most freely of their personal experiences, are the ones who profit most. True it is, that some are gifted for associational work, but every man, whatever be his talents, may and will profit by attending his trade convention if his heart is in his calling. If you wish to make the most of your opportunities the coming season, arrange to attend the Columbus convention.

TRADE LITERATURE.

THE AMERICAN PROCESS COMPANY is mailing a leaflet, illustrating and describing their direct heat, rotary blast dryers, for which the chief advantages claimed are automatic and economical operation. Write for leaflet, addressing the company at 62 Williams street, New York, N. Y.

THE THEW STEAM SHOVEL, with which the clayworkers of America, and other countries as well, are quite familiar, is profusely illustrated in a catalog issued by the Thew Automatic Shovel Company, Lorain, Ohio, a copy of which will be sent to any *CLAY-WORKER* reader desiring same. Four sizes of this shovel are shown on pages 162 and 163.

THE FROST MANUFACTURING COMPANY, Galesburg, Ill., make a specialty of high-grade boilers and engines, as well as dry pans. The popularity of the latter among those who have used them for a term of years is indicated in the list shown on page 204. Any of our readers who contemplate the purchase of a dry pan or an engine or boiler, are requested to write them for their latest catalog, mentioning *THE CLAY-WORKER*.

PULSOMETER is a very unusual word, and it is likewise a word of much meaning. Applied to pumping propositions, it means economy and efficiency in a very high degree, as many clayworkers who have used Pulsometer pumps for unwatering clay pits, etc., will gladly testify. For further particulars, see ad on page 176 of this issue, or better write for illustrated catalog to the Pulsometer Steam Pump Company, 14 Battery Place, New York, N. Y.

MARTIN, LANCASTER, PA., is a short way of mentioning the Henry Martin Brick Machine Manufacturing Company. So well known are they that a letter or post card, bearing the two words only will, as a rule, reach them promptly. If you doubt this, just drop them a line and ask for their latest catalog of brick machinery and brickyard supplies. By turning to pages 177, 178, 179 and 180, the reader will see that there is scarcely anything in the clay machinery line that they do not manufacture.

THE BONNOT COMPANY, Canton, Ohio, show their entire line of stiff clay machinery, including brick machines, automatic cutting tables, represses, wet and dry pans, screens, pug mills, and all manner of brickyard supplies in a handsome catalog, which will be mailed promptly to any reader of *THE CLAY-WORKER* asking for same. Their repress, automatic cutting table, pug mill, auger machines and dry pan are each illustrated in their color insert, pages 188a, 188b, 188c and 188d.

THE AMERICAN ENCAUSTIC TILING COMPANY has favored *THE CLAY-WORKER* with their complete series of catalogs—A, B, C and D, in which are illustrated the beautiful ceramic tiles manufactured by them. A glance through the handsomely illustrated pages, showing designs of floor tiles, wall tiles, and art ceramic mosaics, gives one a much more exalted opinion of the artistic possibilities of this branch of clayworking than is prevalent with those fairly familiar with the achievements in this line. Among other illustrations are a number in colors showing a series of mantels, which are charming in the variation of color scheme and variety of design. To the clayworker who contemplates building a home, these should appeal irresistibly, and to such we say,

write to the American Encaustic Tiling Company, Zanesville, Ohio, for pertinent suggestions on how to make the home beautiful.

THE WALLACE MANUFACTURING COMPANY, Frankfort, Ind., has out a new catalog, in which, among other "Big Wonders" shown, are those pictured on pages 196 and 197 of this issue. The whole "Wonder" family, including four sizes of Wonder brick machines, a variety of pug mills and granulators, disintegrators, dry pans and clay crushers, with a complete assortment of brickyard supplies, is illustrated in the catalog, a copy of which can be had for the asking.

MADDEN & CO., Rushville, Ind., have out a new catalog, illustrating their complete line of stiff clay machinery. Their new extra heavy Hoosier brick and tile machine is the "head liner," or star performer of the Hoosier company, but there are other warm members; their new clay granulators and extra length pug mills are built with a special view to great strength and capacity, as the reader may judge on taking a glimpse of them as they appear on pages 166 and 167. The catalog will be sent free to any address.

H. BREWER & CO. have issued a miniature catalog, designated as Bulletin No. 8, in which are given illustrations and descriptions of the improved conical roll clay crushers, one of which is pictured on page 195 of this issue. They will gladly mail this bulletin and any one of the other preceding seven, touching on the Brewer line of stiff clay machinery, to any reader who will manifest a desire for same. When writing to Tecumseh, Mich., for same, mention THE CLAY-WORKER, please.

CALENDARS AND OTHER SOUVENIRS.

The new crop of calendars is large and rich, both in color and variety. Perhaps had the "late unpleasantness" in financial circles arrived a month or two earlier, the tale would have been different. The first of the season were those of the C. W. Raymond Company, Dayton, Ohio, a group of four, each of which is a work of art. Three are busts of lovely girls, labeled respectively, "Our National Flower," "The American Princess," and "The Matinee Girl;" the fourth, a character study entitled, "Nothing Doing." This depicts two newsboys, one with and one without an apple, and you can see as plain as words, "There ain't goin' to be no core."

The Roessler-Hasslacher Chemical Company, 100 Williams street, New York, has made both an appropriate and a pretty selection, a lady fair, bearing in her arms an immense vase filled with flowers. As they deal in ceramic materials and chemicals used by potters, their offering will be prized by those interested in their products.

E. M. Freese & Co., Galion, Ohio, this year adopted the poster type of calendar. The theme is "A Flustered Four-in-Hand," and shows a group of merry-makers on a coach or tallyho, passing an automobile upon a mountain roadway. The picture, which is a ravishing combination of color, is so attractive that the calendar feature is almost forgotten, but, as the eye follows the bend of the road, it takes in the announcement that E. M. Freese & Co. manufacture brick, tile and terra cotta machinery.

James W. Hensley, Indianapolis, Ind., presents a bunch of American Beauties, bearing the Hoosier poet's famous couplet:

"For the world is full of roses,
And the roses full of dew;
And the dew is full of heavenly love
That drips for me and you."

The Marion Steam Shovel Company, Marion, Ohio, has added to their series of poster calendars, one of new and elaborate design, showing their shovel in use in all sections of the world, from icebound Moscow to tropical Honolulu.

The calendar pad, like the Marion steam shovel, covers the world.

A. M. & W. H. Wiles, Grassy Point, N. Y., present a domestic scene entitled, "This Little Pig Went to Market." It is a rational combination of picture and calendar, and reminds the observer that Wiles & Co. manufacture brick machinery, molds, trucks, barrows, etc.

The New York Brick and Paving Company, Syracuse, N. Y., has again adopted one of artist Brown's famous pictures entitled, "Attention," and shows a boy bootblack, whose eyes turn to his pet pup, who, evidently at his command, is "sitting up" in the most approved fashion. The users of vitrified paving brick, to whom this calendar has been sent, will undoubtedly take good care that it is preserved.

The Johnsonburg Vitrified Paving Brick Company, Johnsonburg, Pa., manufacturers of high-grade vitrified paving brick, chose for their offering an artist's idol, "Nathalie."

Sibley Brothers Coal Company, Birmingham, Ala., send a calendar of exceptional beauty. It is entitled "The Coronet," and is from the original painting by E. Vernon, the theme being taken from the verse:

"A single pearl on classic brow,
A sweetness that none can forget;
Thus, like a queen, my lady fair
Did wear her regal coronet."

Many other similar remembrances decorate our sanctum, and we are indebted to the following firms, to each and all of whom we tender our thanks:

The Boston Brick Company, South Boston, Va.; St. Mary's Sewer Pipe Company, St. Mary's Pa.; Dallas County Brick and Tile Works, Adel, Iowa; Lombard Brick and Tile Company, Lombard, Ill.; C. N. Adams, Alexandria, Va.; The Suffolk Clay Company, Suffolk, Va.; A. C. Ochs, Springfield, Minn.; Bessemer Limestone Company, Youngstown, Ohio. The latter favors us with a handsome bill book, in which to carry our surplus greenbacks. E. C. Tecktonius Manufacturing Company, Racine, Wis., send with their compliments a neat celluloid paper cutter, with the reminder that they make the best and cheapest lugs for kiln bands.

A MAN OF PEACE.

James W. Hensley and wife, of Indianapolis, are making a seven weeks' pleasure trip to the Pacific Coast. They will return via Mexico and New Orleans. While on pleasure bent, should any brickmaker meet Mr. Hensley en route, and insist on placing an order for a Quaker brick machine or a Monarch outfit, no trouble will ensue, for Mr. Hensley has marked Quaker propensities.

A GREAT STRIKER, BUT NOT A KNOCKER.

The most striking ad in this striking anniversary issue, is that of the Williams Patent Crusher and Pulverizer Company on pages 16 and 17. To appreciate fully the force of the "striking resemblance" referred to in the ad one must have seen the Williams pulverizer in action. Under normal conditions, it strikes 'steen thousand blows per minute, and, when hurried, its blows are so fast as to be utterly unaccountable. One of these monster "Deck Sweepers" will be exhibited at the N. B. M. A. Convention. Those of our readers who are curious on the subject can get the exact facts from Williams, the man behind the striker.

A NEW INDIANA BRICK PLANT.

O. E. Dietrich, Bremen, Ind., writes that he is going to build a new brick plant at Hibbard, at the junction of the Vandalia and Nickel Plate railroads, and that same will be equipped with a complete outfit of Fate machinery. They

will build a moderate sized plant, using the Imperial machine. Messrs. Fate & Co. now make a much larger machine, "The Fate Special," which they claim is the largest combined brick machine in the world. A glance at it as it is pictured on page 206 of this issue carries conviction on that score. They have other new things in the machinery line, which are beautifully illustrated in a new catalog. They will be glad to have a request for same from any CLAY-WORKER reader.

Written for THE CLAY-WORKER.

THE WISCONSIN CONVENTION.

THE SECRETARY OF THE Wisconsin Clayworkers' Association, Mr. Oscar Wilson, of Menomonie, writes that arrangements are being made for a lovefeast at the annual State meeting, to be held at Milwaukee, Wednesday, Thursday and Friday, February 13, 14 and 15. Not only are the clayworkers of Wisconsin expected to rally there enmasse, but it is anticipated that there will be a goodly attendance from the neighboring states, and the local manufacturers will demonstrate that some things have made Milwaukee famous which can not be dissipated by a single breath. Headquarters during the convention will be at the Hotel Blatz. Prof. E. R. Buckley, the first secretary of the association, promises to be present, and again lend his voice to the cause.

The program is not yet complete, but will include addresses on "Clayworkers, Old and New;" "Burning Brick with Coal without the Use of Grate Bars;" "The Relations of Employer and Employee;" "Advantages of Coal over Wood for Burning Brick in Up-Draft Kilns," and "The Trade Outlook for 1908." Other important features of manufacturing and selling brick will be considered. A cordial invitation is extended to every clayworker in the land to participate.

Written for THE CLAY-WORKER.

BRICKS WITHOUT STRAW.

Before Invention's mother had borne her little son,
So many things in this old world were differently run.
In fact, there's hardly anything we "run" or make, today,
That isn't done, because of him, in better, quicker way,

He was a healthy youngster, and he didn't pick his work;
He had to help his mother, and she taught him not to shirk.
He went to work at anything his willing hands could find,
And always made improvements with his cogitating mind.

He did not hesitate to tackle anything he found,
Until in this day—well, he almost makes the earth go 'round!
He has improved on everything we have, or do, or see,
And if his mother isn't proud of him—she ought to be!

But this tale is about the time he did the greatest deed
He ever did, and in the world's most dire and fearful need.
This deed, alone, sufficeth to commemorate his name
In fadeless immortality, in every hall of fame.

'Twas when God's people were in bondage in King Pharaoh's land,
And sore oppressed and beaten, and compelled to make by hand
The countless brick demanded, and the untenacious soil
Refused the shaping, without straw, however much the toll.

When almost the impossible in numbers, then, were made—
For which the sweat and blood of life of those who toiled were paid,
Then came the cruel mandate in this death-knell of a law:
"Shall beat with stripes to make more brick, and make them without straw!"

And, as the cutting lashes fell, on shoulders scarred and bare,
The toilers' hands hung helpless, and their heads dropped in despair.
Then this young lad, Invention, with his quick perception, saw
And showed the weary toilers how to make brick *without straw*.

And all along the centuries, this tale lives but to teach
That we are all brickmakers, in the clay God-gives to each;
And when Fate sore oppresses with some grim and cruel law,
Learn, through the lad Invention, how to make brick *without straw*.
Margaret Andrews Oldham.

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ESTABLISHED COMPANIES, as well as beginners, find our services profitable. We correct faults of manufacture and keep plants up-to-date. Engagements for special service, or by the year.

THE RICHARDSON-LOVEJOY
ENGINEERING CO.

[See page 189.]

WANTED, FOR SALE, ETC.

WANTED.

Position as superintendent or foreman with a roofing tile plant. Thoroughly understand the manufacture of roofing tiles, all kinds of glazes, and also burning and building of kilns and erecting of plants. If necessary will take some stock. Address "K."

1 1 cm Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on
Pages 144, 152 and 153.



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We originate these machines, but are only too often given the flattery of imitation, and our products are the result of our practical experience and the knowledge of the requirements.

Our corps of Engineers are men drawn from the Universities and most of them have a post graduate's diploma in the school of "Hard Knocks" and of practicability and thoroness.

We expect to continue these inventions of Clayworking Machinery, and are ready to meet the requirement of the Claycraft, with machinery which knows no superior.

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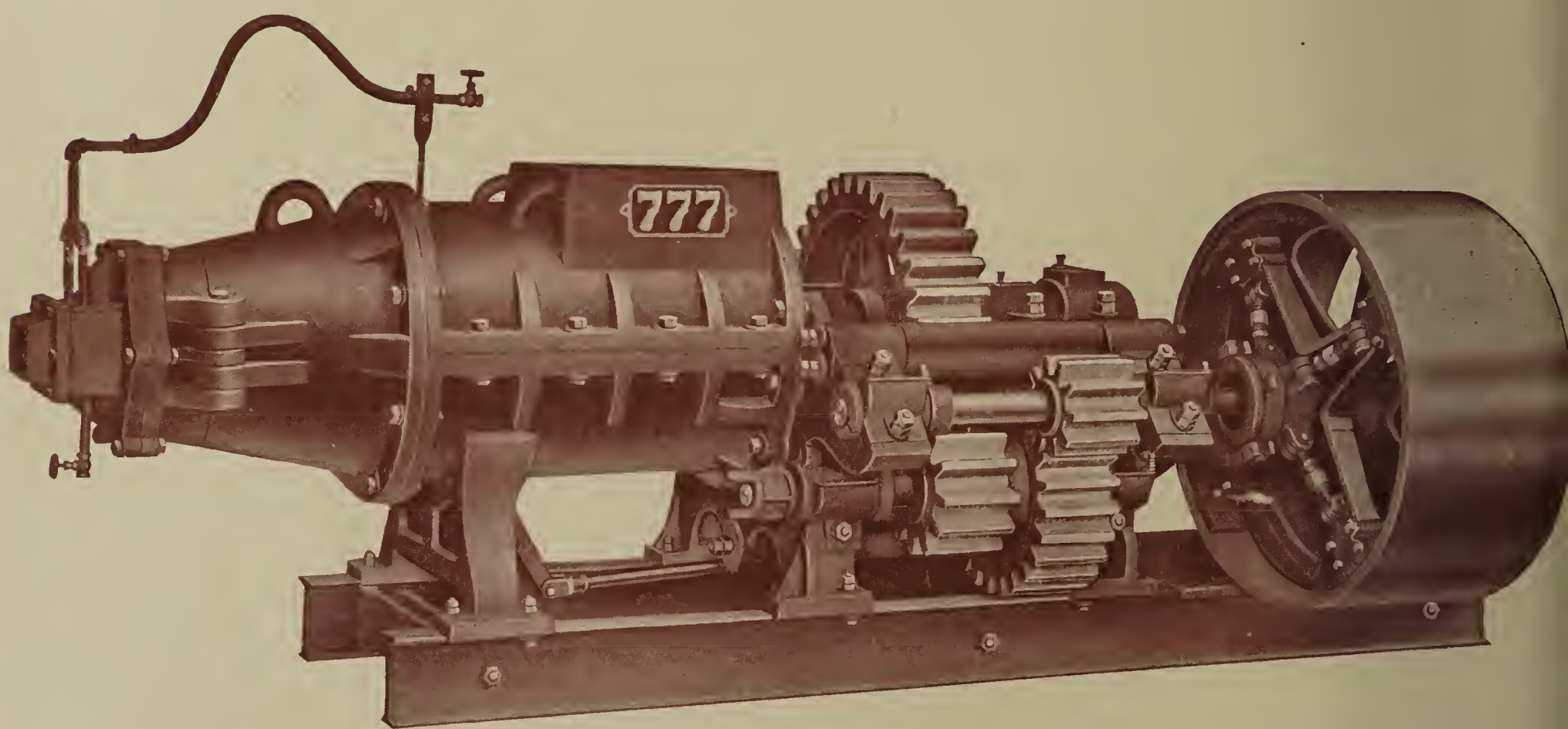
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Dayton, Ohio, U. S. A.

*And This—Every machine covered by the Raymond Guarantee,
known and respected in all the world.*

YOUR OWN GOOD JUDGMENT

Should tell you that the best made is the cheapest to use. That the "Raymond 777" Brick Machine is the cheapest to use is amply shown by the long life it has maintained under every condition in which it has operated.



And Now This—All of the "Raymond" Brick Machines (as well as their entire manufacture) are consistently designed for the strenuous life, and time and performance have proven that they know no superior.

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of Clayworking Machinery in the World.

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Is especially designed to meet the most exacting requirements of those needing a machine for a large output.

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MOVEMENT: The motion of the reel is continuous, producing an even wear in all parts, obviating any sudden breakages and closing down of the plant.

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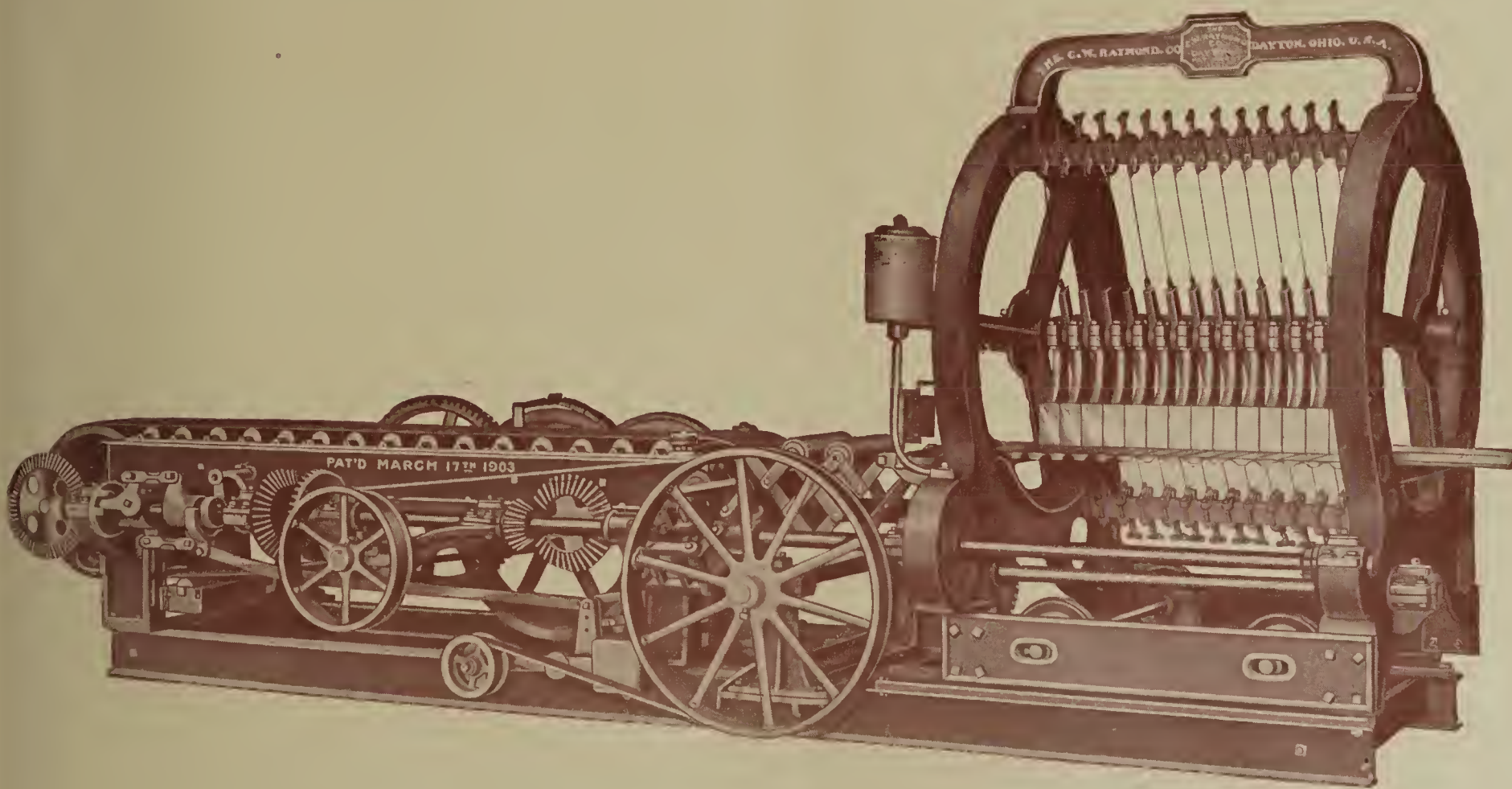
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REGISTER: The machine is sufficiently accurate to register perfectly at every cut at any capacity.

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and therefore are the most economical.

THE PORTSMOUTH MACHINE & CASTING CO.,

LET US FIGURE WITH YOU.

PORTSMOUTH, OHIO.

Mention The Clay-Worker.

Written for THE CLAY-WORKER.

LOUISVILLE BRICK NEWS.



ALTHOUGH THE BUSINESS in the brick and allied clay industries is a little quiet at this time, in this locality, it is not to be wondered at, because there are good and plausible reasons for the same, and the manufacturers are not greatly alarmed over the situation as it exists today. The most gratifying reports are heard as regards the business for the year that has just closed, so that the operators are not so unreasonable as to expect an immediate resumption of business so soon in the new year.

The prospects for building in this section for the present year are very encouraging, that is, if all signs do not go amiss, there will be plenty for the brick people to do when the balmy days of spring arrive. In addition to this, new streets are being laid, calling for vitrified brick; new sewers are being built, requiring sewer pipe; lands are being drained, and houses put under roof, so that all the needs for the clay-worker's commodities will have an ample outlet before another six months rolls by.

In the past year we had many things to contend with, in the way of late season, strikes, and financial flurries, so that it may be considered remarkable in a measure that we came out of the difficulties with a balance on the right side of the ledger. Consequently we need have no fear on account of the present dullness, for the sun will soon shine again, and business will be such as to give every one something to do to fill orders.

Brick has always been a favorite construction material in this section, and that accounts for the great number of brick structures in this city and vicinity. The color is very attractive, and is pleasing to the eye, so that they will continue to gain in popularity, despite the fact that there are other materials endeavoring to make inroads on the market.

Some of the brickyards are still operating here, but many of them have closed down until the advent of more favorable weather and other conditions look more encouraging.

The Hydraulic Pressed Brick Company say that they are operating to some extent, but they are not as much rushed as they could wish to be. They are not surprised at the present slump, however, as it would seem unnatural to find conditions otherwise in the face of the present situation in all sections of the country. They are looking forward to doing a very satisfactory business during the coming months, and believe that conditions will right themselves within a reasonable time. The past year was a very satisfactory one with them, notwithstanding the fact of the united troubles existing in this city.

The P. Bannon Sewer Pipe Company are not rushed with any great amount of orders, but they have a reasonably good business, and are living in anticipation of a very fair demand with the opening up of business in the spring. The past year was, in every respect, satisfactory to them, and, if the present year is as good, they will have no complaints to make at all.

The Kentucky Vitrified Brick Company find the demand for their commodity at this time to be rather off, but they are not expecting anything else at this time, owing to the financial conditions, and the early part of the season. They are well pleased with the demand for the past year, and say that if everything comes along as well in the present year, there will be small cause for complaint in their line. They believe this will materialize as soon as could be expected, and they are willing to await the arrival of the same.

The Southern Brick and Tile Company have closed down their plant for some weeks, in order to overhaul the same, and get things in shape for a big business during the coming months. They are not overcrowded with orders at this time,

but see no reason why the demand should not be very brisk with the arrival of the spring months. The business done in the past twelve months was such as to make them perfectly satisfied, and they are getting in readiness for the demand that will surely develop in the present year.

The Burrel & Walker Clay Manufacturing Company find the demand a little slow at this time, but are far from the opinion that there will not be a very fine business in the coming months with them. They say that the past year was brisk enough to make them feel satisfied, and that they will be sure to get their share of the orders that will materialize within the next few months.

The Louisville Brick Company is not very actively engaged just at this time, but will be so just as soon as the building operations get active. They are of the opinion that this will be forthcoming with the arrival of spring, so that they have no real cause for alarm at this time. They are in a position to take care of the demand when it does arrive, and they are sure it will materialize soon enough for everybody.

The Louisville Fire Brick Company, at Highland Park, Ky., find a slight improvement in the demand with them during the past week, though they are not as yet operating their full force. The past year was so satisfactory to them that they can not complain of anything in this respect, and only hope that the same can be said at the end of the present year. They see no reason why conditions should not be such as to make all conditions favorable.

The Louisville Pottery Company finds the present demand for their wares a trifle dull, though it is hardly time for them to be actively engaged. They expect to have a fine business during the present year, and are arranging their plans to this end. The business in 1907 was in every way pleasing to them, and they are not in a position to offer complaints.

COLONEL.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICKYARDS.

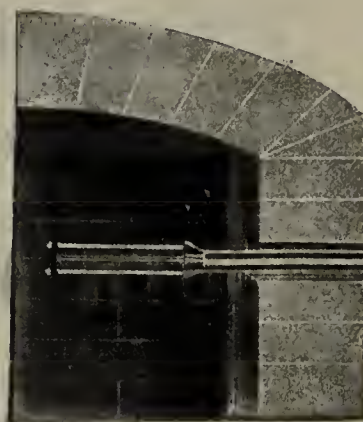


BUILDING SITUATION HERE continues in a very satisfactory condition. In 1907 the number of buildings erected fell a trifle short, but the work was of a very substantial character.

Notwithstanding the stringency of the money market, there are indications of a good year ahead. Many of the architects have plans on the boards for large buildings, and the operative builders are planning to build about the usual number of houses. About six thousand houses are erected annually in Philadelphia, and, unless something unforeseen happens, the usual number will be built this year.

S. B. Dobbs' office and exhibit rooms, at 1218 Chestnut
(Continued on Page 144.)

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

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& SON,
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**QUEEN & CRESCENT
ROUTE**

street, 303-304 Bailey building, who was formerly with the Hydraulic Pressed Brick Company, but who, for the last five years, has been selling face brick direct, having the exclusive sale of ten to fifteen factories, seems to be doing a large portion of the business in high-grade face brick, enameled brick, genuine Harvards, and paving brick. His sales reached 10,000,000 brick last year, and he has, at the present time, the contract for the brick required for the Lafayette building, 5th and Chestnut streets, about 350,000; the Denkla building, about 100,000; the Bulletin building, 150,000; Smith, Kline & French manufacturing building, 100,000; the Schoble building, 100,000; the Roman Catholic Church of the Most Precious Blood, 210,000, and several other large buildings and operations, requiring from 300,000 to 400,000 brick each. Mr. Dobbs supplied most of the large operations last year, including one of 195 houses, at Front and Indiana avenues,

which operation took 420,000 face brick. His business has increased to such volume that he has taken larger offices, and has established the finest face brick exhibit in the city.

Some of the factories he represents exclusively are the Atlantic Brick Manufacturing Company, Ohio Mining and Manufacturing Company, Harbison-Walker Refractories Company, Coshocton Brick Company, Alumina Shale Brick Company, and Andrew Ramsay, Mt. Savage, Md., enamel brick. These enamel brick, owing to the superior quality of the celebrated Mt. Savage clays, give unusually good satisfaction, as it seems to be almost impossible to craze or crack them under any condition. They have been used in all the filtration work here, and in some other very prominent buildings, including the Evening Bulletin building, Central Trust Company building, Atlantic Refining Company's cold storage warehouses, York Jail, and other similar work.

M. E. LOCKINGTON.

WANTED, FOR SALE, ETC.

WANTED—Three second hand clay cars, bottom dump, also 15,000 sand mold brick pallets. Address "U. C. T.,"
1 1 d Care Clay-Worker.

FOR SALE CHEAP.

Big No. 6 Monarch machine, in first-class condition. Address
JOHN B. PRULLAGE,
1 1 c Vincennes, Ind.

FOR SALE—A complete soft mud brick outfit. One Potts all iron machine, mold sander, disintegrator, trucks, shafting, pulleys, belting, 20,000 pallets, racks and other articles. Machinery good as new. Address
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1 1 d Bloomington, Ill.

FOR SALE.

One Boyd four-mold press brick machine, together with elevator, screen and dry pan, complete. The above is in good condition, and can be purchased cheap. Address.
CROWN PRESS BRICK CO.,
1 1 dm Montreal, Que., Can.

WANTED—Position with a building brick plant. Am thoroughly experienced in the work from burning to management. Have also had experience in installing brick machinery, and building to plans and specifications. Can burn with wood, coal or gas. Address
PITTS,
1 3 dm Care Clay-Worker.

FOR SALE.

Brick and tile plant, located on the line of new railroad, 80 rods from new depot. Three acres of best clay. Down-draft kilns and sheds. New horse power machinery, dies, trucks, wheelbarrows, and a very good demand for product. Satisfactory reasons for selling. Address
GENOA BRICK AND TILE CO.,
1 1 dm Genoa, N. Y.

WANTED.

Parties who are not getting satisfactory hard burns can make arrangements with one who will guarantee to get results or no pay. One who is fully competent to take full charge of modern plant in all departments. Up or down-draft kilns. Fine face, hollow, common brick, stiff or soft mud, or drain tile. Can build and handle kilns, keep all machinery in perfect working order. Strictly sober; good handler of men. Been in the business over 20 years. Will take either full charge or take the kiln department. Address "L,"
1 1 c Care Clay-Worker.

FOR SALE OR RENT.

A well-equipped soft mud brick plant, 2,500 capacity, at Princeton, Ind. A bargain on account of owner's health. Address
CHAS. READ,
1 1 d Oakland City, Ind.

TO LEASE.

Brick plant at Fishkill-on-Hudson. River front property; convenient to New York. Large quantities of clay, modern equipment. Address
BENJ. RICHARDS,
75 Liberty street,
1 1 dm New York City.

WANTED—Position as foreman on a first-class paving or front brick yard. Expert burner in all clay products. Twenty-five years' experience, strictly temperate and best references. Address "MODEL,"
1 1 c Care Clay-Worker.

FOR SALE—One J. D. Fate tile machine, with dies 3 to 12 inches; two cut-off tables; one 25 h. p. engine; 35 h. p. boiler; 50 feet 14-inch, 6-ply belt, all in good condition. Price very low. Address
O. J. MONTGOMERY,
1 2 cm Bluffton, Ind.

FOR SALE.

A stiff mud brick plant, machinery in good condition. Will sell half interest or all very cheap. Liberal terms, good location, must be sold, and soon. A rare opportunity, worth investigating. Write me quick.
T. E. JOYCE,
1 1 cm Grafton, W. Va.

FOR SALE CHEAP.

One Monarch soft mud machine, granulator, sander and molds, almost new; two Atlas engines, one 25 h. p., and one 40 h. p.; two boilers and fronts, one 30 h. p., and one 60 h. p. Address
GARRISON BRICK & COAL CO.,
1 1 d Bloomington, Ind.

FOR SALE AT A GREAT BARGAIN.

Clay property consisting of 12 acres of clay adapted to the manufacture of brick, roofing tile, hollow tile, terra cotta, and kindred articles. Clay of the finest quality, having received the Gold Medal at the St. Louis Exposition, also Bronze Medal on roofing tile made from same. The plant consists of two kilns, two Raymond brick presses and clay shingle dies; one Freese brick and tile mill, Bensing automatic cutter, Potts disintegrator, boiler and engine, and a lot of tools and implements. It is located at Searcy Station, Ky., and directly on the L. & A. R. R., making shipping facilities ideal. Great demand for the output, and the right party could make a fortune. Address C. L. S.,
1 1 cm Care Clay-Worker.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
THE T. B. TOWNSEND BRICK & CONTRACTING CO.,
5 tf d Zanesville, Ohio.

WANTED—Position as boss burner with a shale brick company. Have had twelve years' experience. Can give good references and guarantee satisfaction. Address
"WILLIAMS,"
1 1 cm Care Clay-Worker.

FOR SALE OR LEASE—An up-to-date, well-equipped dry press brick plant near Charleston, W. Va., now idle, owing to the death of the proprietor. Well situated, good market, and excellent clay from which can be made buff, iron spot, gray, red and flash brick. Natural gas for fuel. A rare opportunity for an experienced man to establish himself in the press brick business with small capital. For full particulars, Address
MRS. W. A. BRADFORD,
1 3 dm Charleston, W. Va.

FOR SALE

AT A DECIDED BARGAIN,

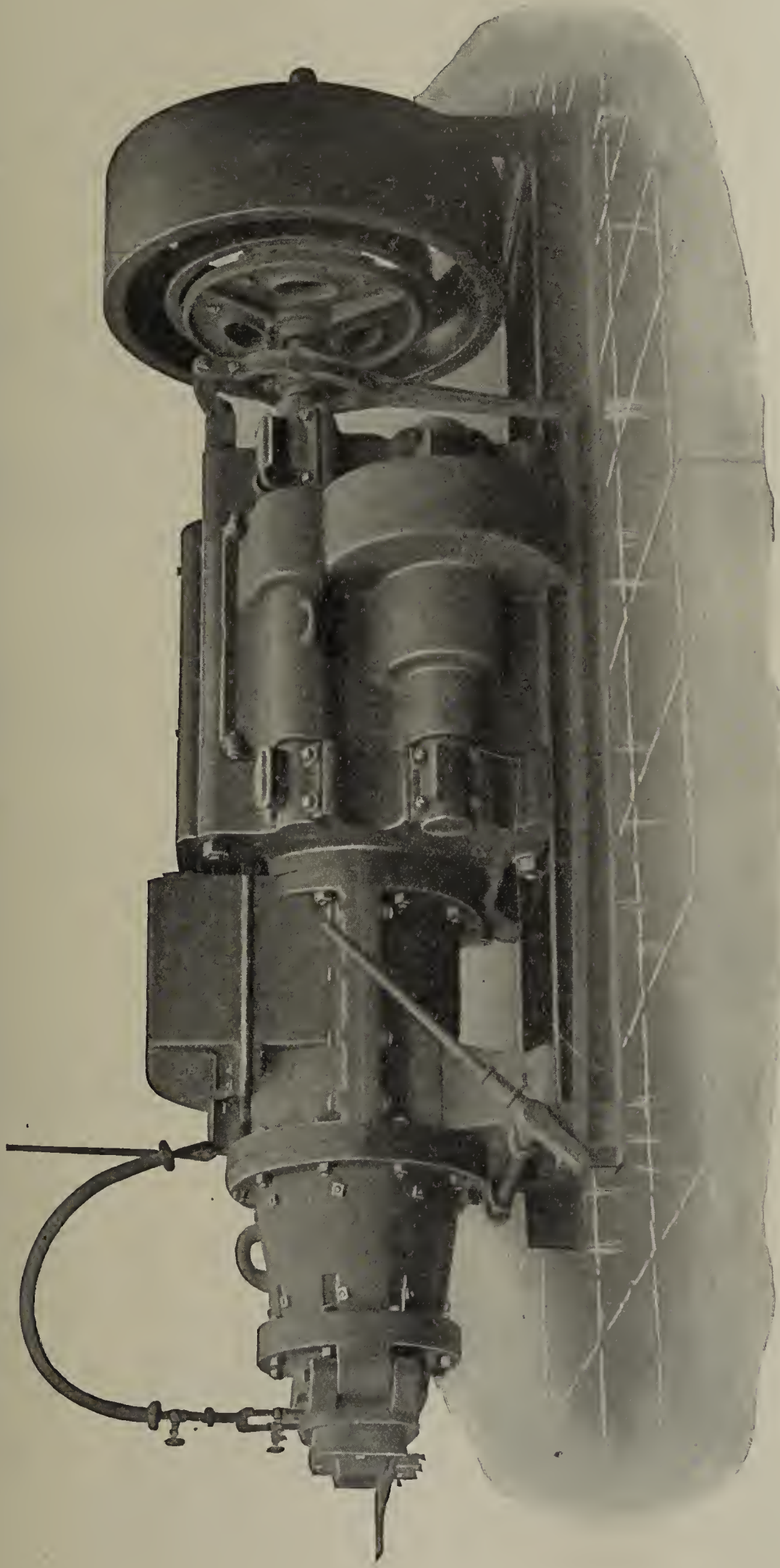
The best brick plant located in the northwest. It is fitted up with modern machinery, including Penfield Brick Machine, Potts disintegrator, Benson side cutter, Bechtel system of trucking, good kilns and drier sheds, machine shop, barns, boarding house for employees. Good reason for selling.
A. L. MARTIN,
613 Hennepin Ave.,
1 tf d Minneapolis, Minn.

FOR SALE AT A BARGAIN.

All or half interest in a brick plant to a practical man; located 63 miles from New Orleans on Illinois Central railroad; plant comprises 21 acres of land, 2 large up-draft kilns, one 4-mold Boyd Press, one 6-foot dry pan, 130 by 20 engine; one 54-in. by 16-ft. boiler; one Hercules, Sr., machine and sander; one fire-proof waste heat dryer; 80 rack cars; 14 good tenement houses; 27,000-gallon oil tank; one clay gatherer; a lot of racks and pallets; eight or ten tons 16-lb. T rails, 28 oil burners, 2 wagons, 2 carts, 2 mules, and a lot of other fixtures too numerous to mention; the best clay in the South; a three-cent per hundred rate to New Orleans; side track into plant; machinery all practically new. Price \$6,000, cash or on time. Come and look at it. Your railroad fare paid both ways if not as represented. For further particulars address
S. J. CAMPBELL,
1 tf d Independence, La.

Continued on page 152.

Modern Stiff Mud Brick Machinery.



We've been building Brick Machinery a good many years and have, naturally been brought into contact with a variety of clays and conditions and have been able to produce machinery more and more nearly adapted to the requirements of our customers. Our motto in this work has been "Prove all things and hold fast to that which is good." Consequently the features in our products which have not been found good have been discarded and improvements from time to time have been substituted.

Let us get acquainted with your troubles or your wants, and if we cannot do you good we will tell you so. We build Brick Machines in many sizes and patterns.

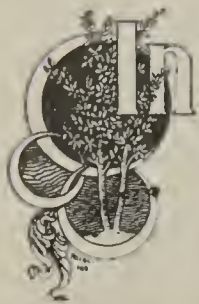
(Mention The Clay-Worker.)

E. M. FRIESE & CO., Galion, Ohio.

(See ads on pages 202 and 203.)

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



IN SPITE OF THE recent financial flurry and the effect which it had, in temporarily putting a crimp in building operations in Chicago, the outlook for the new year is encouraging, and to many even akin to roseate.

The record for the old year was remarkably good, and the period of financial stringency came on too late, really, to spoil it. Brick, common, front, pavers, terra cotta and tile of all kinds and fireproofing all found a splendid market here, and in this vicinity. An evidence of the prosperity of the year in terra cotta is seen in a recent acquisition of six acres, which the Northwestern Terra Cotta Company has made in the northwest corner of Lake View, immediately adjoining its present plant. The total holdings of this company, along Clybourn avenue, now extend northwestward to Diversity boulevard, and comprise a tract of twenty-five acres. The need of the additional acreage in the near future was foreseen by the men in charge of this great enterprise, with a force that warranted the expenditure of the \$50,000 recorded as the purchase price for the ground. Paving brick men, too, report a good year just closed, with bright prospects for 1908. Not only has the demand for streets paved with this material increased, but many of the products of the paving brick plants have found increased favor as front brick for handsome office buildings, apartment houses, private residences and the like.

Moreover, there has been no actual cessation in building activity, and the number of new projects under practical contemplation indicates that there will be another year of prosperity. It may not quite equal last year, or the year before, but, in spite of the fact that it will be the presidential year, and follow on the heels of a small panic, it looks as though it would be worth while for every fellow in the building material business and manufacture. Building operations in Chicago, in so far as the immediate and near future is concerned, therefore, are upon an extensive scale, and promise to continue so for a considerable time to come. Small constructive work was cut off by early cold weather and a couple of heavy snowfalls. At present, however, the winter is remarkably open; there has been no day as yet when the mercury has stood near the zero mark, and this class of building is bound to start up again, as soon as the season is far enough advanced to insure against bitter cold or heavy lasting snow. There has certainly been no let up in the work under way or under contemplation, and, instead of diminution in the number of buildings projected, there is growth, and, therefore, no reason exists for pessimism on this account. Low prices now prevailing in the building material market are causing property owners who are considering the erection of buildings, to hasten the formulation of their plans, so that the contracts can be let under the present low scale of prices, and the work put under way in time to derive the full benefit of the situation.

Before the winter is over it is believed that the permits taken out for new jobs will involve total costs estimated in the millions.

In the downtown district work has progressed upon the mammoth structure of the Corn Exchange National Bank's new home until, towering high, it overshadows everything in LaSalle street from the Board of Trade building to the river. Even this, however, will not be lord of the street for long, for, by the first of March, work will have been started on the LaSalle Hotel building, which is to rise 22 stories above the street, and cost in the neighborhood of \$3,000,000, not including the furnishings, which, it is said, will come to \$1,000,000 more. The fees to the city for the permit, which was taken out recently, alone cost \$2,450. It will occupy a site 29,000 square feet in area at the northwest corner of LaSalle and Madison streets, and have 1,170 rooms. Two of the stories will be below the street level.

Permits have been taken out, and the framework started

for the eleven-story brick club house for the University Club. This will be one of the handsomest structures of the kind in the city, and will cost between \$900,000 and \$1,000,000. It will stand at the northwest corner of Monroe and Michigan avenue.

Still another loop hotel is being planned by James K. Seabee, proprietor of the Saratoga hotel. It will be twelve stories in height, and will be erected at 110-114 Madison street. It will be fireproof throughout, occupy a site 67x190 feet, and cost in the neighborhood of \$800,000.

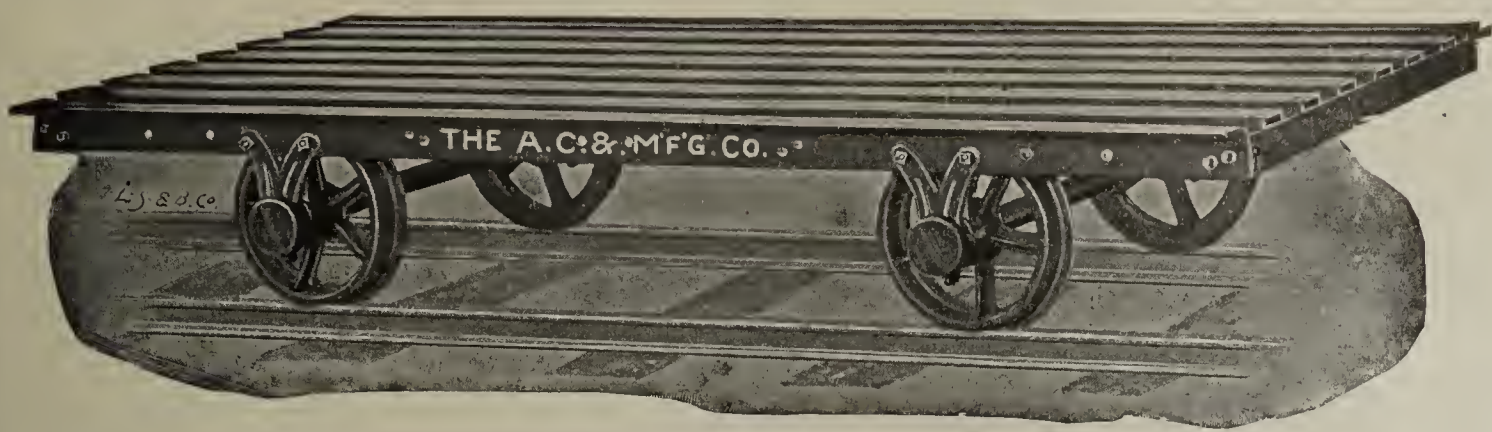
Elsewhere in and about the city there is also plenty doing, and about to be done. The condemnation proceedings of the Northwestern Railroad, in making ready for their new \$5,000,000 station, just west of the river, are driving westward the great industrial colony that thrived in that locality, and this means that the most concentrated lot of building activity will be found in the section of the West Side lying between Canal street and Ashland boulevard, with some concerns finding sites even farther to the west. The county board will probably soon order the construction of a \$500,000 infirmary out in the country. Armour & Company expect to have their new \$400,000 office building in the Stock Yards finished in the next twelve months.

Thus it may be said that the trend in prospective work has been steadily upward in the last month, although it may be six weeks or two months before the situation will be really satisfactory. The feeling of confidence is strong, however, that the coming season is to be a good one. The mere fact that prices for most branches of construction work were given a tumble, may, of itself, prove a tonic to the situation, and encourage those to build who would not otherwise have thought of it. December records showed a falling off of 73 per cent., as against those for the same month of 1906. At that, however, Chicago led the country in its building record for the last month of the old year, and, since the first of the new year, its onward pace has been accelerated, and it is worthy of note that more permits were taken out in the second week of January, 1908, than during the corresponding week of 1907.

One encouraging thing in the Chicago situation lies in the disinclination of builders in general to follow after concrete idols, so to speak. The wonderful advance that has been made in brick and terra cotta during the past years, and the stunning artistic triumphs which Chicago architects have achieved, leaves little temptation for the builder to use the colder concrete, when he wants beauty in his structure, and some of the experiments in this line here have been anything but successes. It is only just to say that these were chiefly early attempts, but the great \$2,000,000 building just being completed for Montgomery Ward & Co., on the north branch of the Chicago River, near Chicago avenue, is the only really large project, outside of grain elevators, that has attracted great attention. In this connection, considerable discussion has been heard regarding reports of the fire which destroyed the Parker building, in Fourth avenue, New York City, on January 10. Great masses of the cement, which formed the pillars about the steel framework, gave way, and crashed through to the ground, carrying everything below the seventh floor with it. Three firemen went down with it and were injured. The charge that such walls are liable to collapse, in the event of hot fires, is the one most frequently made by the advocates of fireproofing and clay products for walls, and most strenuously denied by the concrete men.

There are indications that there will be much apartment building during the coming year. Many plans are already out, and still more are in the architects' hands. A syndicate, of which Frank I. Bennet is the head, has secured the entire strip of property along the south side of East Sixty-first street, from Washington avenue to Cottage Grove avenue, formerly used by the Illinois Central Railroad Company as a right of way when passenger and stock trains were run into the Washington Park race track in the "good old days," before Chicago donned its anti-gambling "lid." A number of apartment houses have already been put up, and more are to come this year, it is said.

SCRIP.



No. 108. Stiff Mud Flat Car. Steel Deck.



No. 114. Sand Lime Brick Car. Channel Frame.



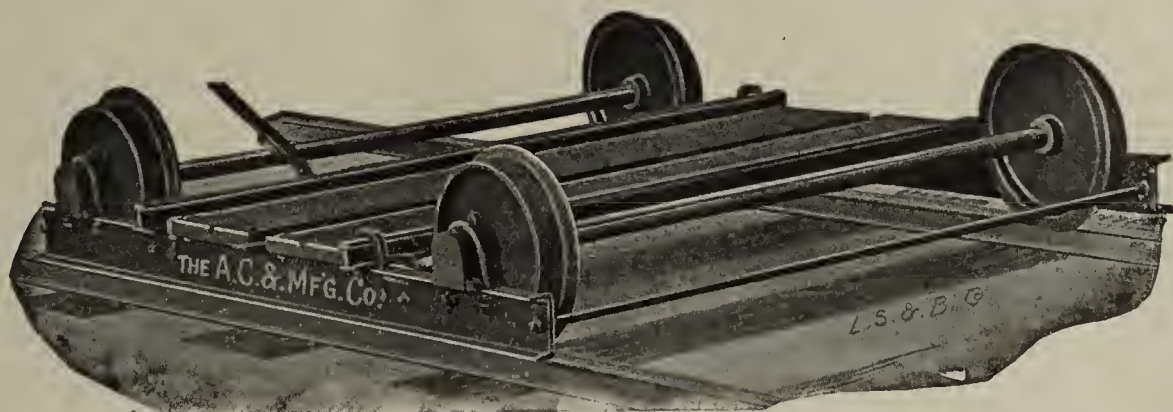
No. 1025. Steel Frog.

The Atlas Car & Mfg. Co., CLEVELAND, OHIO.

Manufacturers of Steel Dryer Cars of all Descriptions and Equipments for Hot Air Dryers, including Rail, Frogs, Switches, Steel Ties, Portable Track, Etc.
Also Transfer Cars, Turntables, Clay and Dump Cars.



No. A. Flanged Pallet.

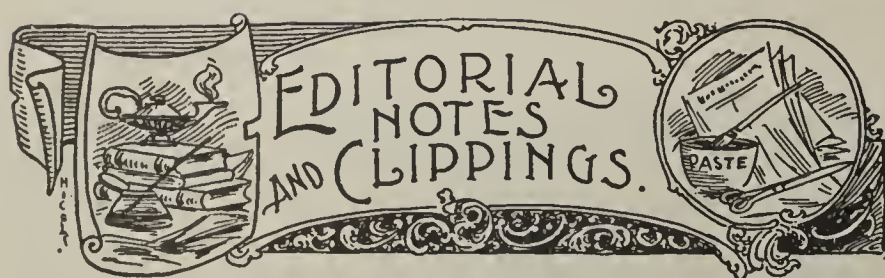


No. 142. Transfer Car.



No. 147. Checkered Steel Top Turntable.

SEE AD ON PAGE 4.



The Bessemer Coal and Coke Company will erect a brick-making plant at Connellsville, Pa.

Rockford, Iowa, is to have a brick and tile plant. Wm. Colby is at the head of the enterprise.

The Clay Center Brick Company has been incorporated at Clay Center, Kans., with \$30,000 capital stock.

The Lexington Brick Company, of Lexington, Ky., has filed amended articles of incorporation, increasing its capital stock from \$40,000 to \$75,000.

The plant of A. Bartz, at Centralia, Wash., is to be improved by the installation of modern machinery, and the capacity of the plant almost doubled.

Work has been started on the brickmaking plant the city of Minneapolis is installing at the workhouse, by which they expect to give the prisoners employment.

The Schmitt Brick Company, of Columbus, Ohio, has been incorporated with a capital stock of \$48,000. The company will operate the brickyard of Phillip Schmitt, near the city.

I. J. Dickens has organized a company at Monticello, Ark., for the manufacture of drain tile. A sewer is to be put in at Monticello, which will be built of drain tile from the new plant.

The Schroepel Brick Works, at Collinsville, Ill., was partly destroyed by fire on New Year's day. On his way to the fire, the owner, Mr. Schroepel, was thrown from his buggy and slightly injured.

Wm. M. Stuart, manager of the Harrisburg Clay Company's works, at Mount Holly, Pa., died at his home in Carlisle, Pa., from pneumonia, after an illness of four days. He was 32 years old, and leaves a wife and two small children.

The Devonshire Brick and Ceramic Company, of Columbus, Ohio, has purchased the plant of the Roseville Brick and Terra Cotta Company, at Roseville, Ohio, for \$65,000. The new owners will at once put the plant in shape for operation.

The Burke Brothers Brick Company's plant at Fort Smith, Ark., which was shut down about the first of December, on account of lack of funds, started operations again the first of January. They have a number of good contracts on hand now, and look for no further trouble.

John Sailes, manager of the Waverley Brick Company, writes that they had a good season last year, but are shut down now for the winter months. The company has a bed of clay at their plant at Ettricks, Va., 23 feet deep and of superior quality, from which they are making an excellent grade of building brick.

The American Sewer Pipe Company, of Barberton, Ohio, has begun the construction of a factory water works system, to cost \$10,000. It will afford all the water necessary in the various manufacturing processes, and ample fire protection. The principal feature of the plant will be the water tank, with a capacity of 50,000 gallons.

The Delaware Clay Manufacturing Company, Delaware, Ohio, had an exceptionally good trade in 1907. One of the orders recently booked by this company is for 150 cars of hollow block, for a cream separator plant at Marysville, Ohio. J. F. Denison, the manager of the company, states that the prospects are bright for an equally good year for 1908. The company has a sales office at Columbus, Ohio.

A. A. Gery, until recently head of the group of Montello brick plants, whose financial affairs are at present being ventilated in the courts, has purchased the plant of the Schuylkill Valley Clay Manufacturing Company, at Shoemakersville, Pa., which has been owned by the Philadelphia capitalists. The plant manufactures sewer pipe, conduits and fireproofing, and represents an investment of \$250,000. It has been idle for about a year, but Mr. Gery states that he will put it into active operation very shortly. Mr. Gery and his brothers, F. S. and W. A. Gery, have organized the Glengery Brick and

Clay Company, capitalized at \$500,000, for the purpose of carrying on the business.

The plant of the Blackstone Erick Company, Richmond, Va., is to be enlarged to meet the increased demand for their product.

J. F. Berry is at the head of a stock company at Mount Pleasant, Texas, which is being organized to start a press brick plant at that point, where they have a fine quality of clay.

Daniel Strickland, of North Haven, Conn., has purchased the brickmaking plant of Pray & Smith, at Greenfield, Mass. He will not operate the yard until spring, when he will make his residence at Greenfield, Mass.

The plant of Sankey Brothers, brick manufacturers, Pittsburg, Pa., was damaged to the extent of \$5,000, by a fire which started in the dryer. In addition to the building, about 75,000 brick were ruined by having water thrown on them.

James E. Berry's brick plant, at Woodbridge, N. J., was completely destroyed by fire early in the morning of December 30th. The origin of the fire is a mystery, and it had gained such headway before it was discovered that it could not be controlled. The loss is estimated at \$17,000.

The Arkansas Brick and Manufacturing Company, Little Rock, Ark., which has been turning out building brick for some time, has been making tests of a bed of clay just discovered on their land, which have proven so satisfactory that they will at once install machinery for the manufacture of paving brick.

Harry C. Wettengel, treasurer of the Central Brick Company, Pittsburg, Pa., died in Salt Lake City, Utah, December 16, as the result of an operation for appendicitis. Mr. Wettengel had been traveling in the West for some time, and was on his way home to spend the Christmas holidays when taken ill. He was 37 years old, unmarried, and one of the best known young business men of Pittsburg.

A heavy downpour of rain caused a high clay bank at the MacAvoy & Morris brickyards, at 31st and Dickinson streets, Philadelphia, Pa., to collapse, burying Albert Ferra, a laborer, beneath it. He was confined under the heavy weight of earth for nearly a half-hour. When finally rescued by his fellow laborers, it was found that he had sustained a fracture of the leg, and was terribly crushed about the body.

Manager Harry Walters, of the Hydraulic Pressed Brick Company, Brazil, Ind., has received orders to commence at once the shipment to San Francisco of the face brick for the Palace Hotel, to be built there. The contract calls for 1,250,000 face brick, and it will require 125 cars to transport the brick. The making of the brick for this order will enable the company to operate their plant at Brazil on full time over two months.

An interesting application of the waste heat from enameling furnaces to the warming of a building is presented in an installation being made by the Massachusetts Fan Company, Watertown, Mass. This consists of two steel plate motor driven fans, so placed in connection with a piping system at the plant of the Carnahan Stamping and Enameling Company, Canton, Ohio, as to draw the waste heat from the furnaces, and thence distribute it by means of another piping system through an adjoining building. The system is similar to that frequently applied in connection with the utilization of waste heat from brick kilns, and the economy secured is comparable thereto.

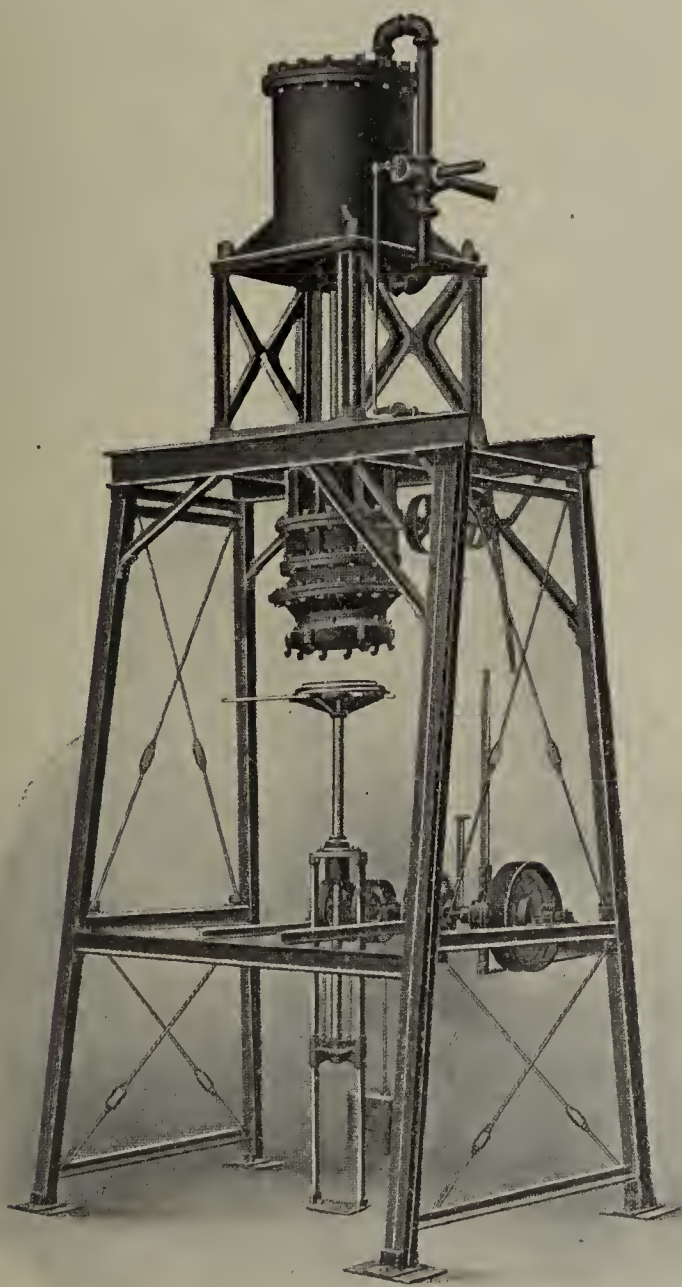
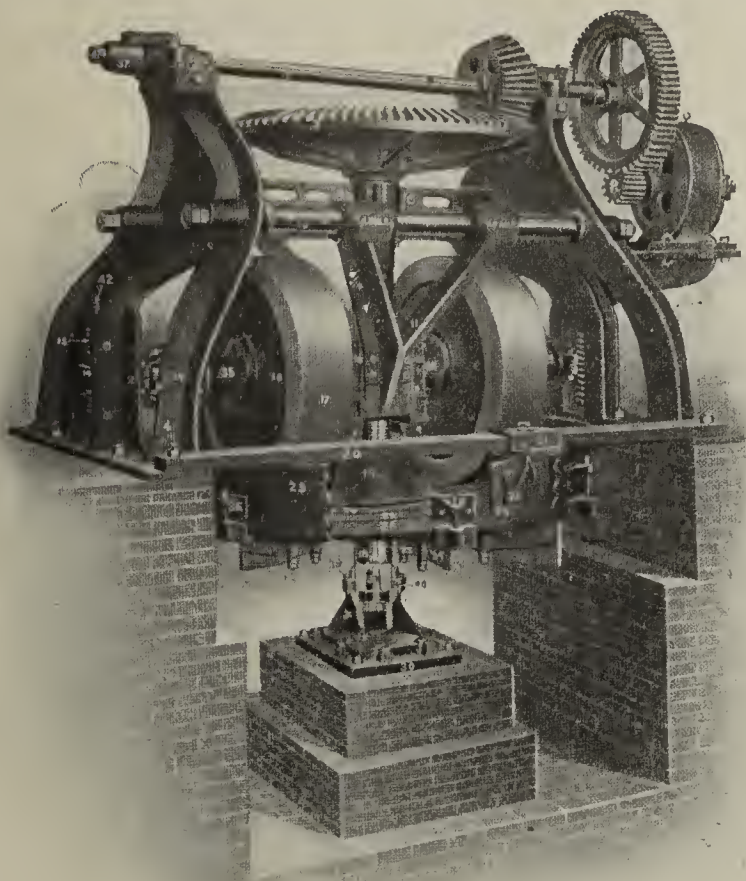
A party of Hudson River brick men, to the number of about forty, went to Camden, N. J., recently, as the guests of the Camden Coke Company, for the purpose of investigating the merits of coke as fuel for burning brick. The party was taken in a special car from Kingston, N. Y., to Philadelphia, where they were entertained at the Bellevue-Stratford Hotel over night, and the next morning, after an automobile trip about Philadelphia, were taken in the Camden Coke Company's steamer down the river to the plant of the company at Camden, where they spent the remainder of the day. Upon the completion of the inspection of the plant the party took their steamer back to Philadelphia. There were carriages in waiting to convey them to the railroad station. In addition to the parlor car a dining car had been attached to the train for the party, whose members enjoyed a luncheon 90 miles long on their way back to Jersey City. The trip was not only enjoyable, but was also an instructive one to the practical men of business in the manufacture of brick. The idea of the trip was to show these men what can be

(Continued on page 150.)

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the equal of **Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

EDITORIAL NOTES AND CLIPPINGS—Continued.

done in the substitution of coal for coke in the brickyards along the Hudson River.

A small fire in the office of the Simons Brick Company, Los Angeles, Cal., caused a loss of \$300. The fire was of incendiary origin.

The Massachusetts Fan Company, Watertown, Mass., is furnishing a large steel plate waste heat fan for installation in connection with the kilns of the C. P. Mayer Brick Company, Bridgeville, Pa.

The brickyards on the York and Piscataqua rivers, Maine, will ship no more of their product until spring. The season just finished has been a highly successful one for the industry in this part.

The dryer sheds at the plant of the Norristown Brick Company's plant, at Norristown, Pa., caught fire about 5 o'clock on the evening of January 6, and, after hard work, the flames were extinguished. The loss is estimated at \$500.

J. Boice, an employe at the plant of the Trumbull Brick Company, Warren, Ohio, was struck by a B. & O. train and quite seriously injured, but will recover. He was walking on the track, on his way home from work, and heard the engine whistle, but supposed the train was on a side track.

Jesse D. Hand, one of the owners of the Britton Press Brick Company, was caught in the fly wheel at the plant and whirled around four times before he was released, and was then thrown into a five-foot pit of clay. He was badly cut about the head, and a number of his ribs were broken.

Mr. Wm. F. Stimmel, Kutstown, Pa., is installing, at the present time, the improved Martin patented rack pipe steam brick dryer system of 18,000 daily capacity, including the Martin automatic cable delivery system, this being installed by the Henry Martin Brick Machine Manufacturing Company, Lancaster, Pa.

The plant of the Wausau Brick and Tile Company, Wausau, Wis., was completely destroyed by fire January 3. The plant had been closed down for the winter season, and the origin of the fire is a mystery. The loss is estimated at \$14,000 by the manager, Mr. Herman Gerbsch, on which there is about \$2,000 insurance. The plant will, in all probability, be rebuilt.

Peter Eno, a veteran brick manufacturer, of New Hampshire, died, December 14, at the hospital at Exeter, where he had undergone a surgical operation. Mr. Eno was 65 years old, and had been engaged in the manufacture of brick since early manhood, first in Canada, and later on in New Hampshire, having been in Exeter for fifteen years. He leaves a wife, one daughter and six sons.

The Central New England Brick Company, New Haven, Conn., is made the defendant in a suit for \$1,000 brought by G. A. Pickett, of New Haven, and J. H. Connley, of Berlin, of the American Brick Company. It is alleged the defendant promised to pay the plaintiffs whatever sums of money were due them when they ceased to be stockholders in the defendant corporation, and that \$700 is owed in consequence.

The Massachusetts Fan Company, Watertown, Mass., has just issued an additional section of its perpetual catalog. This section, which comprises sixteen pages, and is entitled "Vertical and Horizontal Engines for Fan Driving," includes illustrations, descriptions, dimensions and horse power tables. The entire catalog is thus brought up to a total of 116 pages of exceptionally valuable matter relating to blowers and exhausters, heating, ventilating, drying and mechanical draft apparatus, etc.

Alleging that they had lost two valuable contracts for supplying large quantities of brick on account of the delay of the Southern Railway in furnishing the necessary cars for the handling of same, the Morrison-Trammell Brick Company, Rome, Ga., recently brought suit against the railway company for the recovery of \$3,303.75. The petition states that there is no other line of railroad near the brick plant of the plaintiff, and that the Southern Railway Company is under contract with them to furnish cars whenever desired for the transportation of brick.

A company has been organized at Watertown, Pa., to be known as the Watertown Brick and Clay Products Company, and a plant will be erected at once for the manufacture of paving brick. The officers of the company are: President, H. F. Algert, of Watertown; vice president, John B. Myers, of Lock Haven; secretary, Charles A. Ball, of Watertown, who will have charge of the construction of the plant; treasurer, Wm. A. Nicely, Watertown, and general manager,

Samuel G. Davis. The company owns an excellent deposit of shale.

The Florida Clay Company has its new plant, at Yalaha, Fla., completed and in operation, and the daily output is very satisfactory. The plant is operated by electric power.

The Hill & Karnes Brick Co. is the name of a new company incorporated at Paducah, Ky. The capital stock is \$50,000, and the incorporators are Frank P. Hill, Ernest Karnes and N. Karnes.

B. F. Wasson, the brick manufacturer, of Everett, Wash., will leave the last of January with his family for Panama, where, with a number of associates, he will engage in the production of brick and other building material.

The Price Brick Company, Clinton, Iowa, has had a very successful season. The demand for their product is constantly growing, and the plant will be enlarged the coming season, and a number of improvements made in same.

The Pine Bluff (Ark.) Brick Company has closed down for some needed repairs, after one of the most prosperous seasons in its history. The company turned out over 8,000,000 brick in 1907, and the prospects are that the output will be even greater in 1908. Most of the brick have been shipped out of the city.

The Kenilworth Brick Company, at Kenilworth, W. Va., has announced that plans are maturing for improvements to their plant which will increase the capacity. It is possible that additional kilns will be erected. The company believes that the outlook for business for 1908 is bright, and that operations will continue throughout the season.

William Myers, employed in the clay mines of the Pennsylvania Fire Brick Company, at Beech Creek, Pa., was painfully, though probably not fatally, injured recently by the premature explosion of a stick of dynamite. Mr. Myers was tamping the dynamite in a hole, preparatory to putting off a blast, when there was a terrific explosion and he was hurled to one side with great force. He was picked up in a partly unconscious condition, and his head, face, body and limbs were cut and bruised, while his right eye was torn out. The injured man was taken to the hospital.

The Goss Brick Company's new plant near Tacoma, Wash., is fast nearing completion. The company is capitalized at \$50,000, and the plant, when completed, will be one of the largest and most up-to-date in that part of the country, with a capacity of 50,000 brick per day. They will manufacture common brick at first, but later on will install machinery for the manufacture of pressed and ornamental building brick, and vitrified paving brick. The officers of the company are: President, W. R. Rust; general manager and vice president, F. H. Goss, and secretary and treasurer, Llewellyn Jones.

OBITUARY.

E. W. Face, a well known citizen of Norfolk, Va., died December 20, aged 78 years. He was for a long period a prominent brick manufacturer of that city, but had not been in active business for some time. He was able to be out up to a few days ago, his last illness having been of short duration. He leaves a widow and six children. The deceased was a native of Hampton, Va., but had resided in Norfolk since boyhood. He was a man of sterling integrity, and was very highly esteemed in the community.

Frank Alsip, a well known brick manufacturer, inventor of many brickmaking devices and a pioneer in the California gold fields of 1849, died at his home in Chicago, Ill., December 20. Last January Mr. Alsip was afflicted with a severe attack of rheumatism, which resulted in a weakening of his constitution, from which he never fully recovered. He was born in Pittsburg in 1827. After the Chicago fire he engaged in the brick manufacturing business in that city, finally incorporating the Alsip Brick Company in 1887. He is survived by four children—Frank B. Alsip, Charles H. Alsip, Mrs. W. B. Weigel and Mrs. George R. Linn.

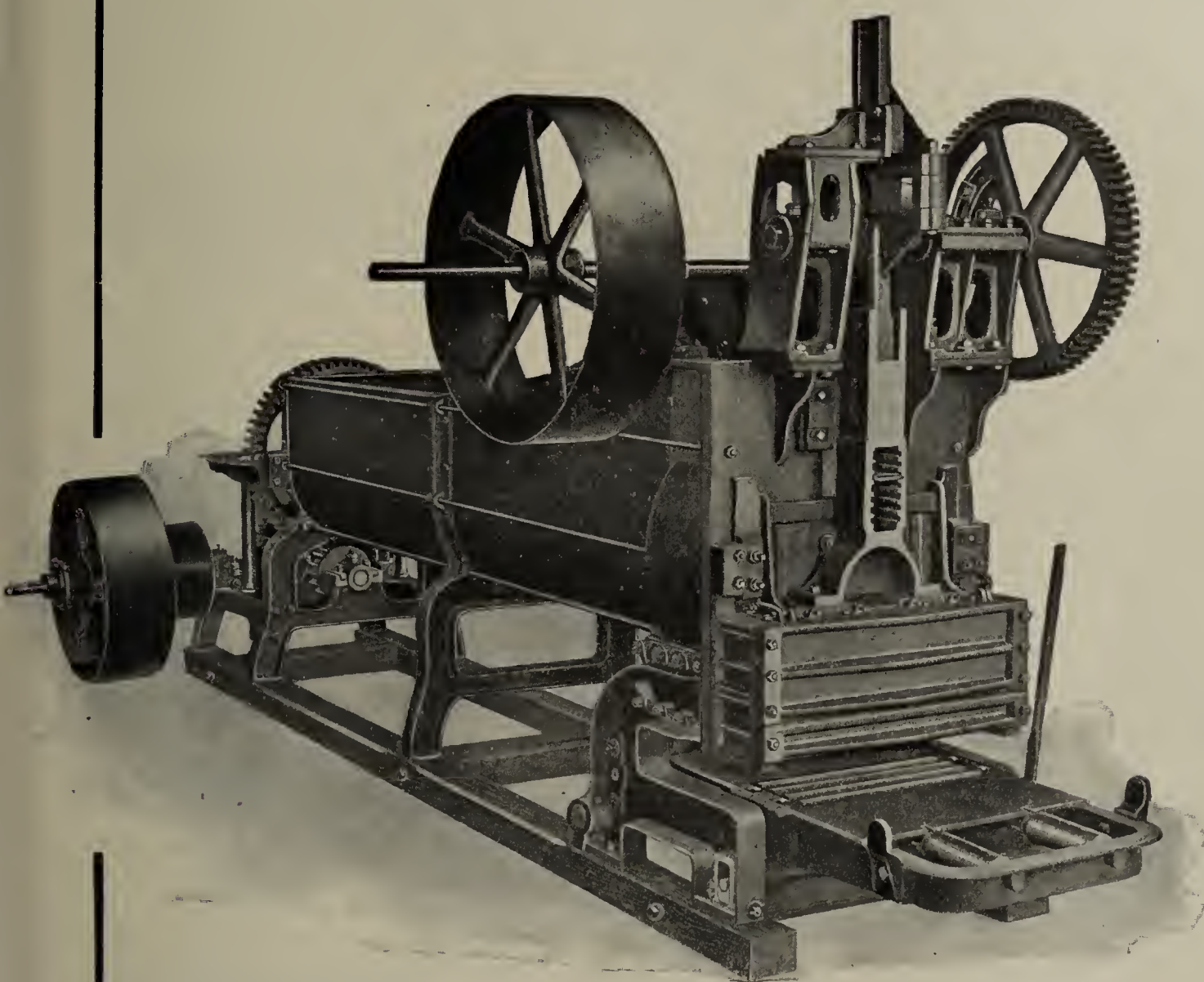
Isaac Reese, one of the pioneer fire brickmakers in Western Pennsylvania, died at his home in Pittsburg, January 1st, as the results of an injury received about a month ago while attempting to board a street car. Mr. Reese was 87 years old, and had been identified with the fire brick industry for more than half a century. In 1896 he took his sons into partnership with him, the firm being known as the Isaac Reese & Sons Co., of which Mr. Reese was president and general manager. In 1902 the firm entered the combine known as the Harbison-Walker Refractories Company, but retained the firm name and its own offices, and then Mr. Reese retired from active business life. Mr. Reese is survived by his sons, George and Walter, and two daughters.

QUALITY COUNTS.

Potts Horizontal Stock Brick Machines

made entirely of Iron and Steel, Cast Steel Gear, Steel Shafts,
makes it a machine in a class of its own.

There is no **Sand Mold Machine** made which can be compared with it for



Simplicity,
Durability,
Strength,
Quantity
and
Quality of
Brick
Made.

Has ample tempering capacity, working the clay direct from the bank without the use of an extra Pug Mill; ample strength to work the clay stiff and fill a **Six-Brick Mold** perfectly. The brick made can not be equaled for clean, sharp corners and smooth surfaces.

EVERY MACHINE GUARANTEED.

**We Manufacture a Complete Line of Machinery
and Supplies.**

C. & A. POTTS & CO., Indianapolis, Ind.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE—Model "C" four-mold dry press, very cheap, write for particulars to
A. B. C.,
1 1 L Care Clay-Worker.

FOR SALE—Valuable patent kiln and waste heat system. Owner has no time to handle same. Address W. N. W.,
1 2 cm Care Clay-Worker.

WANTED SITUATION—Superintendent of stoneware plant desires a similar position in another locality. Am up-to-date in all branches of the business. Address
1 1 c H. B., Care Clay-Worker.

WANTED—A practical, intelligent man to fill the position as superintendent of sewer pipe factory. Address,
COLUMBIA CLAY WORKS,
1011 Missouri Trust Bldg.,
1 1 dm St. Louis, Mo.

WANTED—Experienced man who can take small money interest and manage dry press brick plant. A good opportunity for the right man. Address,
"WASHBURN,"
1 2 d Care Clay-Worker.

FOR SALE.
One hundred and seventeen acres, 20 miles from St. Louis. River and rail transportation. Contains first-class shale, fire clay and a 26-inch vein of coal. All can be dug with steam shovel, no mining necessary. For particulars and analysis of clay and shale, address T. P. PLUMRIDGE,
1 2 dm 211 N. 7th st., St. Louis, Mo.

WANTED—A good practical man, who thoroughly understands the manufacture of fireproofing, using a stiff mud machine and tunnel dryer. Raw material consists of high-grade plastic fire clay. Plant located in southern Ohio. Address, stating experience, age and full particulars,
"FIREPROOFING,"
1 1 dm Care Clay-Worker.

SITUATION WANTED.
As an all around man in molding shop. Have had experience in general ware from the molding shop until the ware comes from the kiln. Also have my own process in colored enamels for majolica and enameled brick. Address,
H. KOEHLER,
343 East 57th st.,
1 1 cm New York City, N. Y.

WANTED.
Clayworkers who are having trouble of any sort in the operating features of their plant, whether in the making, drying or burning, to know that my experience of twenty-five years enables me to give valuable practical advice that will prevent further loss and trouble, if skill and knowledge as a practical worker and chemist can accomplish that purpose. Terms reasonable and contracts made contingent upon success. Address J. J. KOCH,
5 tf L 3325 Caroline St., St. Louis, Mo.

FOR SALE—Eight thousand dollars buys an up-to-date brick and tile plant, twelve acres of land, brick dwelling, in the best section in eastern Iowa. Address
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WANTED POSITION—Manufacturers of front, stiff or dry press brick requiring the services of competent man, as superintendent or manager, to communicate with "PYROMETER,"
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FOR SALE—A splendid opportunity to purchase at a bargain an interest in or the entire business of a brick plant and lumber yard. Address
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FOR SALE—Cheap, well-equipped tile and building block plant, with improved farm of 80 acres, or any amount desired. Market for entire output. Address
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FOR SALE—Brick and tile plant at Carthage, Ill. Hercules soft mud machine. 5B Madden & Co. machine, for making drain tile and stiff mud brick machinery. Sheds and kilns in good repair; 35 h. p. engine and 50 h. p. boiler. Address
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BRICK PLANT WANTED AT JACKSONVILLE, ILL.
One of the best places in the whole country to establish a small up-to-date, modern brick plant. Local consumption 3,000,000 annually. Abundance of good clay; no competition. Will give detailed information upon application to the JACKSONVILLE BUSINESS MEN'S ASSOCIATION,
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FOR SALE.
One 30,000 steampipe dryer, Martin make.
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One four-mold Boyd dry press machine, good as new, 1904 model.
One Williams patent pulverizer and crusher, used two seasons.
Reason for selling, material not suited to these machines. Address
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FOR SALE.
One steam power and one h. p. soft clay machines.
One feed water boiler heater.
A number of dryer cars.
Two second-hand dump carts, practically as good as new.
All of the above in first-class condition. Address,
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WANTED—A good man to take charge of soft mud brickyard. Must understand the business from clay to market. Capacity, 15,000 to 20,000. Address
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WANTED.
Experienced man who understands the manufacture of face brick and street pavers to take some stock and take charge of plant. Will give the right man a first class opportunity. Address
BERT,
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FOR SALE—One Hercules brick machine, Horton make, capacity, 40,000 per day. Also mold sander for same and 50 good molds. Machine has only made two million brick. Brick sheds, racks, and pallets to hold 105,000 brick; five good brick trucks. Good reason for selling. Address 10 L.,
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In good condition. Immediate shipment.
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CONVEYING & POWER-TRANSMITTING MACHINERY



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Right and left hand one, two and three way switches of various gauges, radius and weight rail, at special prices.

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Cleveland, Ohio.

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1 45-ton, Standard Gauge, Little
Giant Vulcan Steam Shovel.

4 9 x 14, 36-in. Gauge, Vulcan
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Dinkeys.

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J. Dump Cars.

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Established by the Legislature
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Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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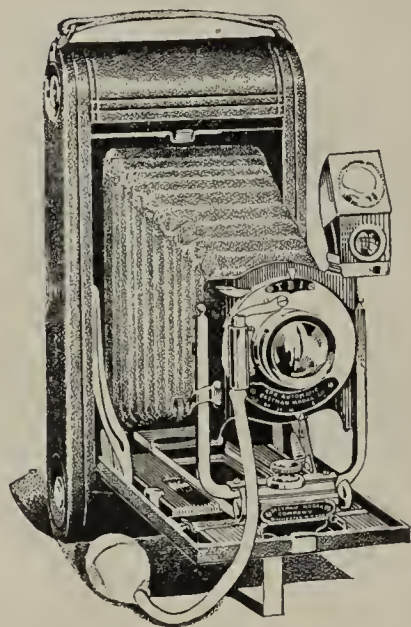
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We manufacture **BRICK AND TILE
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Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descrip-
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MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

Marion Machine, Foundry & Supply Co., Marion, Indiana:

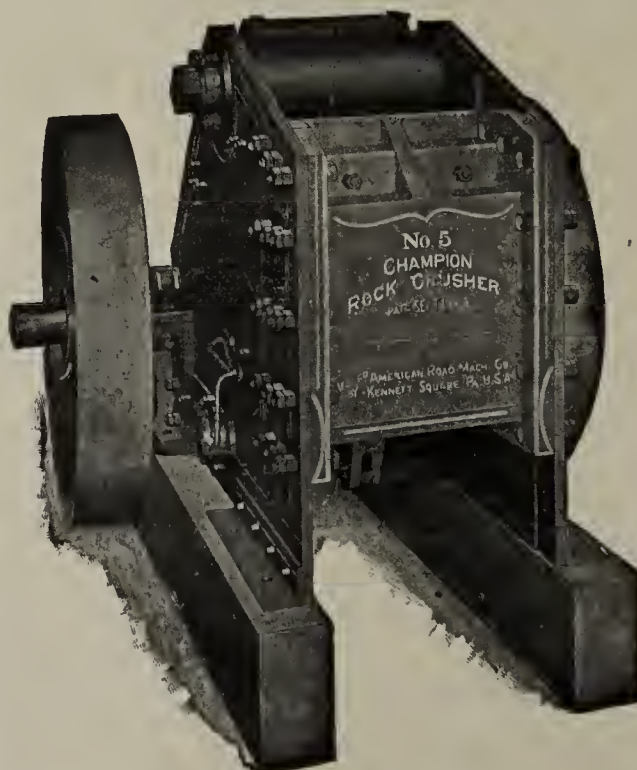
Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

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It Looks Good
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It Looks Better

crushing shale, fire clay,
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THE CHAMPION CRUSHER

is expensive, *to do with-
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Catalogue is free on appli-
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COX'S Special Drawn Coil Wire is
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Brick and Tile Cutting Wires For End-Cut, Side-Cut
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Satisfaction guaranteed.
Send for samples and prices.

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For Brick, Roofing Tile,
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TRIPLE PRESSURE BRICK PRESS

The strongest and most efficient Brick
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We build and equip complete

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The Anton Vogt Down Draft Kiln

and the

QUESTION OF THE HOUR.

Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,

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ATTENTION.

Do you want to buy a

Good Clay

Disintegrator

or Pulverizer?

Do you want to buy a

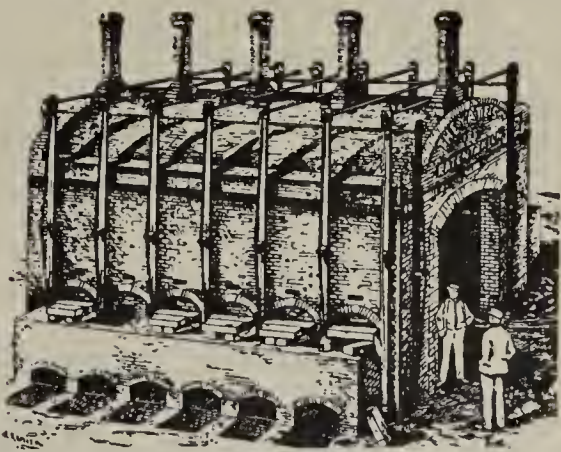
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For Economy of Fuel and Percentage of Hard Burned Brick, This kiln will give satisfaction. Constructed to burn without smoke and give an even distribution of heat, producing uniform burns.

Hot air dryer. Continuous and muffle kiln.

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Samples and estimates cheerfully furnished
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Sole Importers in the United States of the

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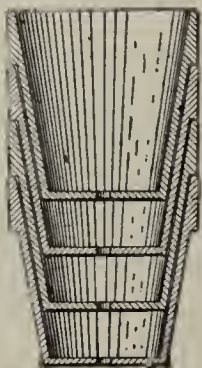


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The only preventative for scum and discolor-
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Water.

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Make Money

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No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

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Something New in Brick Kilns and Brick Dryers

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Double Up and Down Draft Kiln.

THE INDUSTRIAL BRICK CO., Inc.

Manufacturers of

All Kinds of Building Brick.

Mount Vernon, Ind. Nov. 1, 1907.

To Whom it May Concern:—

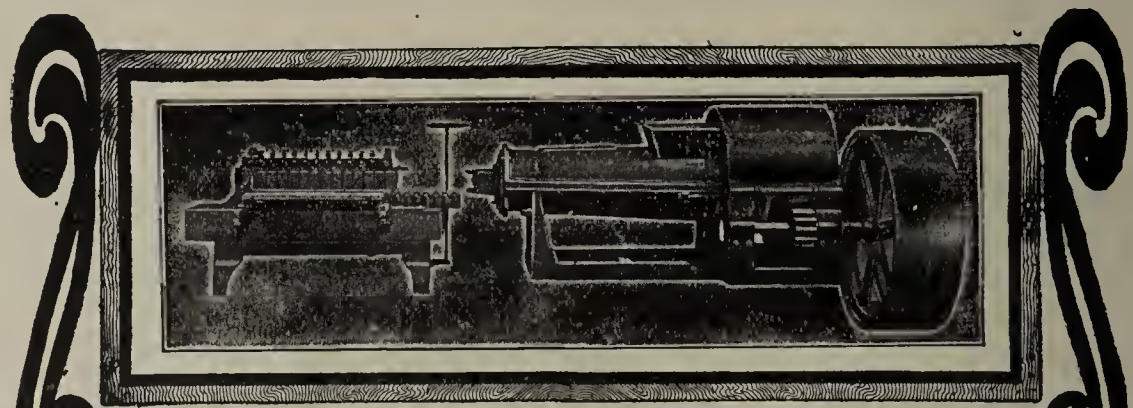
This is to certify that Mr. W. F. Dennis has con-
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Brick Kilns in our yards, burned a kiln of brick
to the entire satisfaction of this Company, and we
further certify that the kiln above mentioned will
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Brick plants installed and put in operation.
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Kells Brick and Tile Machine

has been the synonym of excellence in the Brick and Clay-
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It has had few rivals and no superiors. Improved from
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Strength, Simplicity, Durability, Efficiency and Quality

of finished product, until it has reached the highest state of
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If you intend to build or rebuild your brick plant acquaint yourself with the

Chmelewski Patent Kiln

That's just the thing you need to get prosperous.
For descriptive booklet write to

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Sole Agent in the U. S. A. and Canada.

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The most profitable kiln on the market
for burning any clay product.

Absolute Draft Control. Economy of Fuel and Time.
All Hard Brick.

Kiln and Yard Rights, with Plans, Specifications, etc., sold at very reasonable rates. Booklet, estimates and full information cheerfully furnished.

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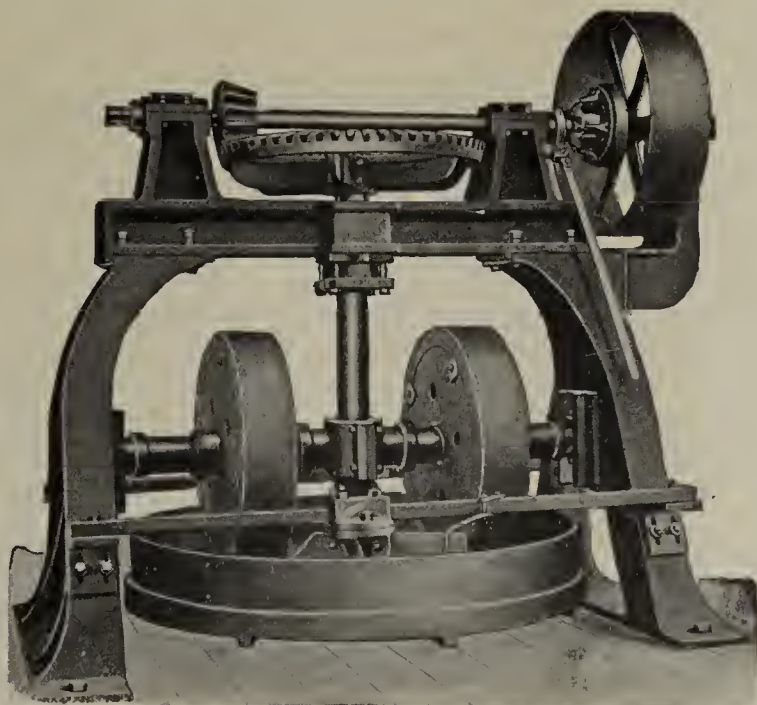
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Dry and Wet
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for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

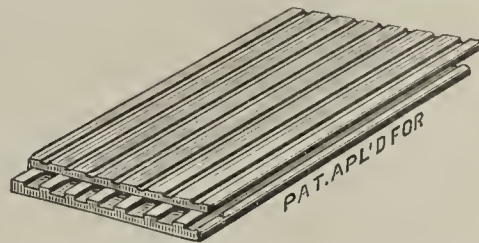


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\$2—The CLAY-WORKER One Year in Advance—\$2.

Roofing Tile Machinery.



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Special Roller and Auger Presses for
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Sanitary Earthenware. All kinds of Fire Clay Products.

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Brand of

FIRE BRICK

Awarded Gold Medal at St. Louis for
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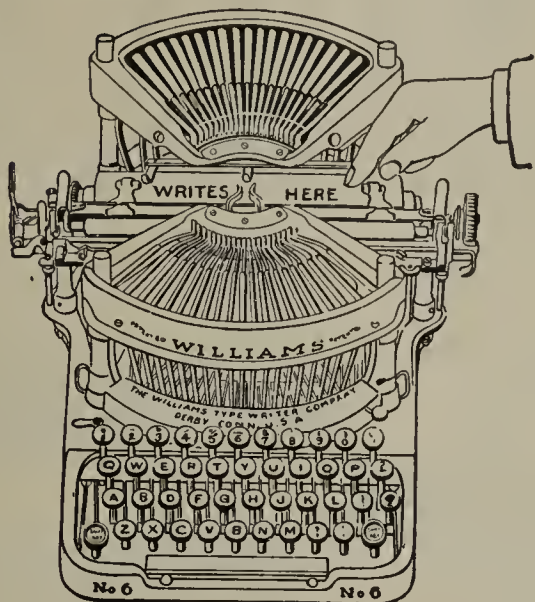
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Saves the beginner time when learning.
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Saves time, energy, worry and money.
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LUMP, GRAIN AND GROUND

60-70% 70-80% 80-90% OXIDE.

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5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

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CARBONATE OF BARYTES

R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese
and all Chemicals used by the Clay Trades.

EXCURSION RATES TO

N. B. M. A. CONVENTION.

BALTIMORE & OHIO
and the



BALTIMORE & OHIO
Southwestern R. R.

These companies offer EXCURSION RATES to COLUMBUS, OHIO, and return from principal points on account of the TWENTY-SECOND ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION and Auxiliary Bodies, to be held FEBURARY 3RD to 8TH, inclusive, 1908.

Tickets on Sale February 2, 3 and 4, 1908.

Return Limit, February 10, 1908.

These lines afford the finest, most modern, and best equipped through car service, consisting of solid vestibuled trains, up-to-date Pullman drawing room sleepers, luxurious parlor and dining cars.

The three chief essentials of Modern Travel—

SAFETY,

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SPEED.

For detailed information as to rates, sleeping car reservations an other particulars apply to the nearest B. & O. or B. & O. S. W. Ticket Agent, or address

B. N. AUSTIN,

G. P. A., B & O. R. R.,

Chicago, Ill.

O. P. McCARTY,

G. P. A., B. & O. S. W. R. R.,

Cincinnati, Ohio.

The 22d Annual Convention

OF THE

National Brick Manufacturers' Association,

The American Ceramic Society and the

National Paving Brick Manufacturers' Association and the
National Ass'n of Mfrs. of Clayworking Appliances.

WILL BE HELD AT

COLUMBUS, OHIO MONDAY TO SATURDAY,
FEBRUARY 3d to 8th, 1908.

Special Railroad Rates From All Points, Tickets Good Returning Until February 10th.

The Sessions of the Ceramic Society will be held Monday and Tuesday, the 3d and 4th.

The Sessions of the National Paving Brick Manufacturers' Association will begin Tuesday, the 4th.

The Sessions of the National Association of Manufacturers of Clayworking Appliances will be held Tuesday, the 4th.

The Sessions of the N. B. M. A. will be held Wednesday, Thursday and Friday, the 5th, 6th and 7th.



FULL VERBATIM REPORT of the Convention, which bids fair to be the most successful in the history of the N. B. M. A. will be given in the February CLAY-WORKER, including all papers, discussions and portraits of prominent members. Next to attending the Convention, the best thing a brickmaker can do is to read THE CLAY-WORKER's report. It is so full

and accurate that those who attend the Convention would not be without it, and those who don't go can't afford to miss it. The consensus of opinion among progressive brick-makers is that the Convention Number of THE CLAY-WORKER is the most valuable publication of the year. If you are not already a regular subscriber don't neglect to send in

your order in time to get the February or Convention number.

THE CLAY-WORKER is now in its 25th Year and is recognized the world over as the best clayworkers' magazine published in the English language. It has more readers at home and abroad than all its followers combined. Take THE CLAY-WORKER and you get the best value for your money. \$2.00 a year. Every issue is worth that sum.

1908 FEBRUARY 1908						
Su	Mo	Tu	We	Th	Fr	Sa
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2	3 = 4 = 5 = 6 = 7 = 8					
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

Advertising Matter to Insure Insertion

Must be Received by the First of the Month.

T. A. Randall & Co.,

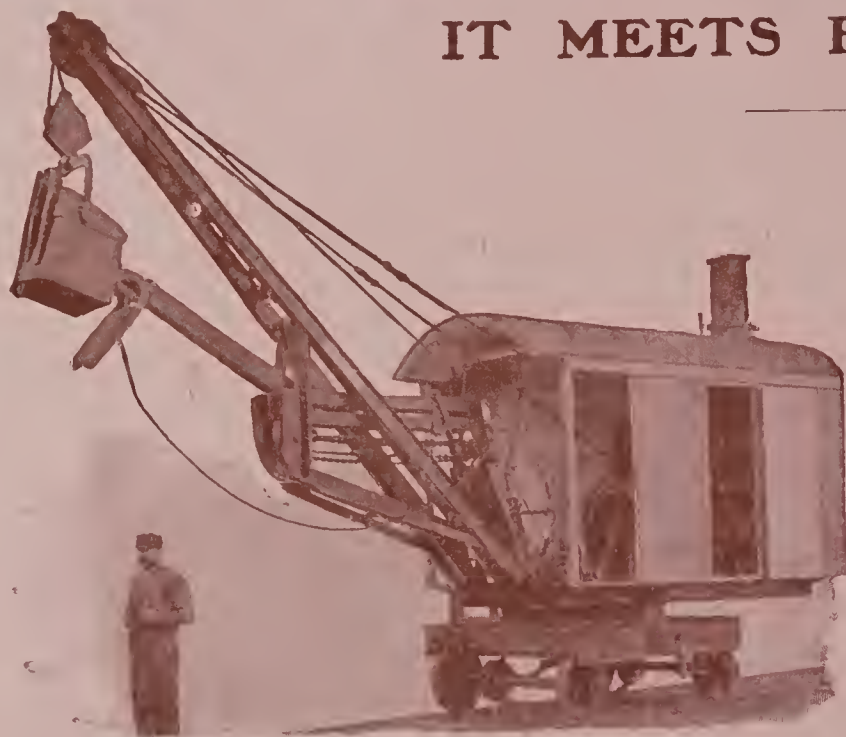
PUBLISHERS,

INDIANAPOLIS, IND., U. S. A.

The Clay-Worker is Unequaled as an Advertising Medium.

Handle Your Clay With One Man and The Thew Steam Shovel.

IT MEETS EVERY REQUIREMENT.



Type No. 0.

Swings through a complete circle.
Loads cars at side or in rear.
Cleans level floor for track.
Controlled by one operator.
Self-propelling and easily moved.

SHOVELS FOR ORDINARY CLAYS.

Type No. 0.—Weight 13 tons, $\frac{1}{2}$ or $\frac{5}{8}$ -yard dipper, capacity 50,000 to 70,000 brick. Especially designed for yards of moderate size.

Type No. 1.—Weight 25 tons, $\frac{3}{4}$ or 1-yard dipper, capacity 50,000 to 125,000 brick. Handles tough clays and is a very popular tool.

Type No. 3.—Weight 35 tons, $1\frac{1}{4}$ or $1\frac{1}{2}$ -yard dipper. Recommended for larger outputs than 100,000 brick per day.



Type No. 1.

One man on the shovel.
One boy on the ground.
It does not strike.
It does not quit.
It works in all kinds of weather.

We cover the field. We meet the requirements. We guarantee results. Write for Catalogue.

THE THEW AUTOMATIC SHOVEL COMPANY, Lorain, Ohio

Mention The Clay-Worker.

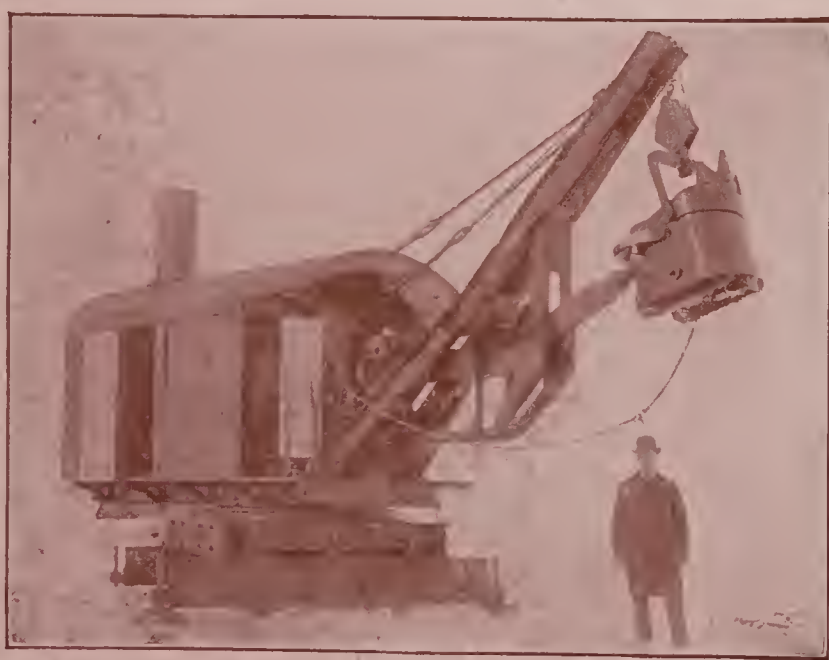
Convenience and Economy are Combined in

The Thew Steam Shovel

With Excellence of Design, Material and Workmanship.



Reduces labor cost to a minimum.
Secures thorough mixture of clay.
Handles its own track when moving.
Can be used as crane or for switching cars.
Available for stripping as well as handling clay.



Type No. 2.

SHOVELS FOR SHALES AND FIRE CLAYS.

Type No. 2.—Weight 30 tons, $\frac{3}{4}$ or 1-yard dipper for difficult materials. Widely used for shales.

Type No. 4.—Weight 50 tons, $1\frac{1}{4}$ -yard dipper. Very powerful and intended for extremely difficult shales.



Type No. 4.

The Thew Shovel

Is a labor Saver.

Is a Money Saver.

Is a Time Saver.

Is a Trouble Saver.

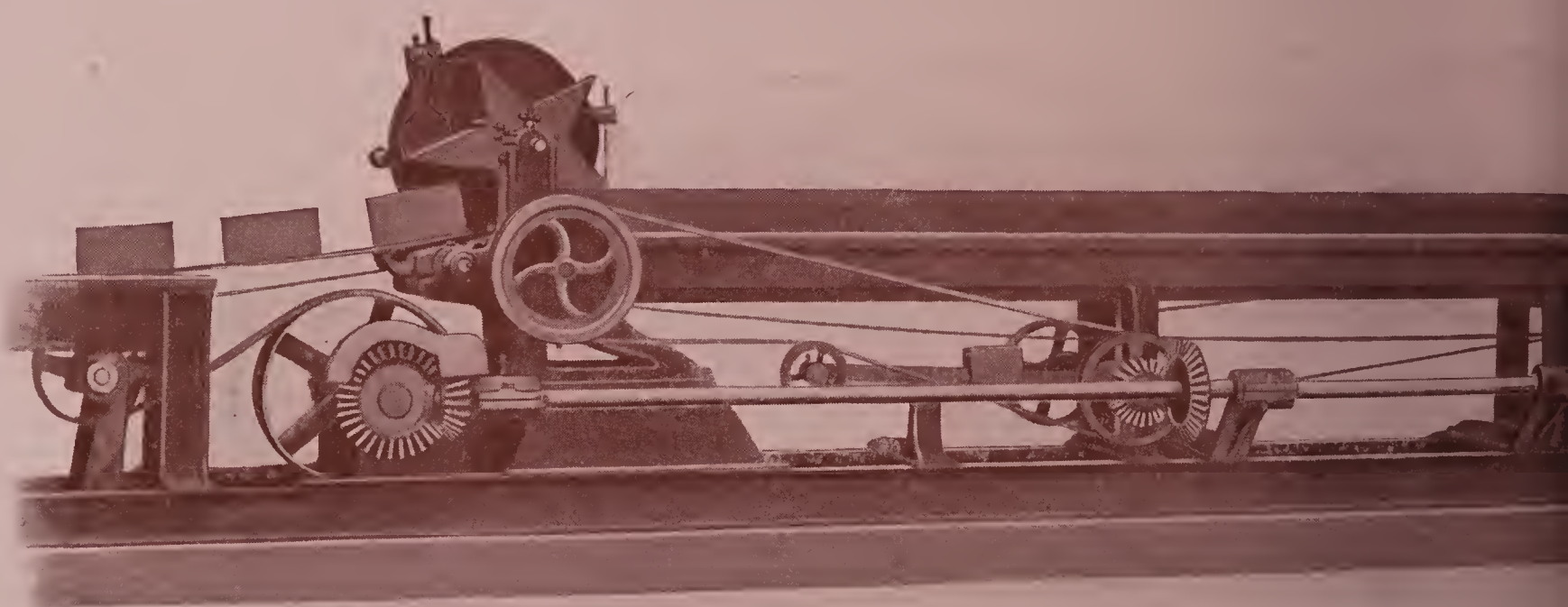
We also build Railroad Excavators and modify our designs to suit special conditions.

THE THEW AUTOMATIC SHOVEL COMPANY, Lorain, Ohio.

Mention The Clay-Worker.

THE STEELE 1908 MODEL BRICK

Sixteen years' experience in building Brick Ma
Clays, enables us to point with pride



Pine Hall, N. C., Dec. 23rd, 1907.

Messrs. J. C. Steele & Sons,
Statesville, N. C.:

Gentlemen—We are using your No. 5 brick machine with complete equipment and can make with it all of the brick we care to make, and of as good a quality as we want to make. In appearance the brick are almost like repressed brick, and we have been selling a large part of our output to be used as face brick. Your cutting table cuts perfectly smooth and the equipment altogether, we consider the best that can be bought.

Yours very truly,

(Signed) CONSOLIDATED BRICK & TILE COMPANY.

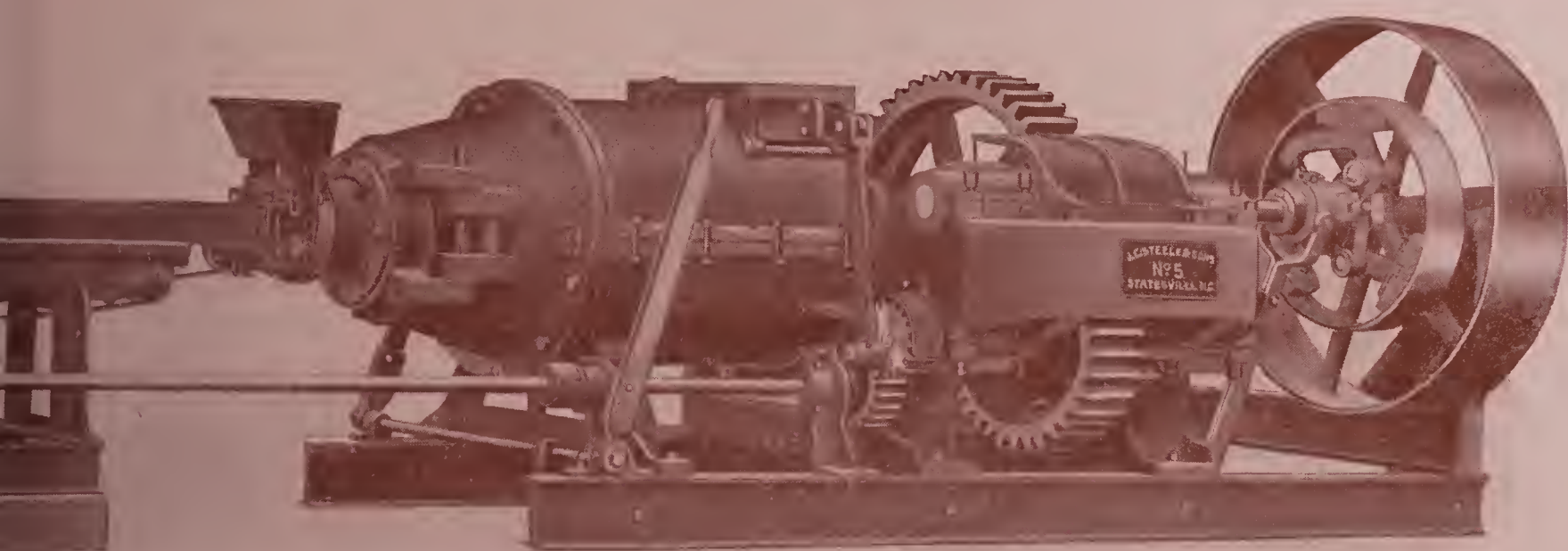
By Geo. A. Hanes, Pres. and Mgr.

Write for further information.

J. C. STEELE & SONS,

MACHINE AND AUTOMATIC CUTTER.

machinery to work the wide variety of Southern
to our No. 5, refined in every detail.



Louisville, Miss., Nov. 25th, 1907.

Messrs. J. C. Steele & Sons,
Statesville, N. C.:

Dear Sirs—We want to say a word in behalf of your brick machinery. We are using two of your No. 4 machines, one at Kosciusko and one at our Louisville, Miss., plant. We have all three of the preparatory machines and can not say too much for them. We turn out 50,000 brick per ten hours working time and have not paid out \$5.00 on repairs for both of our machines during the year 1907, and consider them among the best and strongest machines on the market.

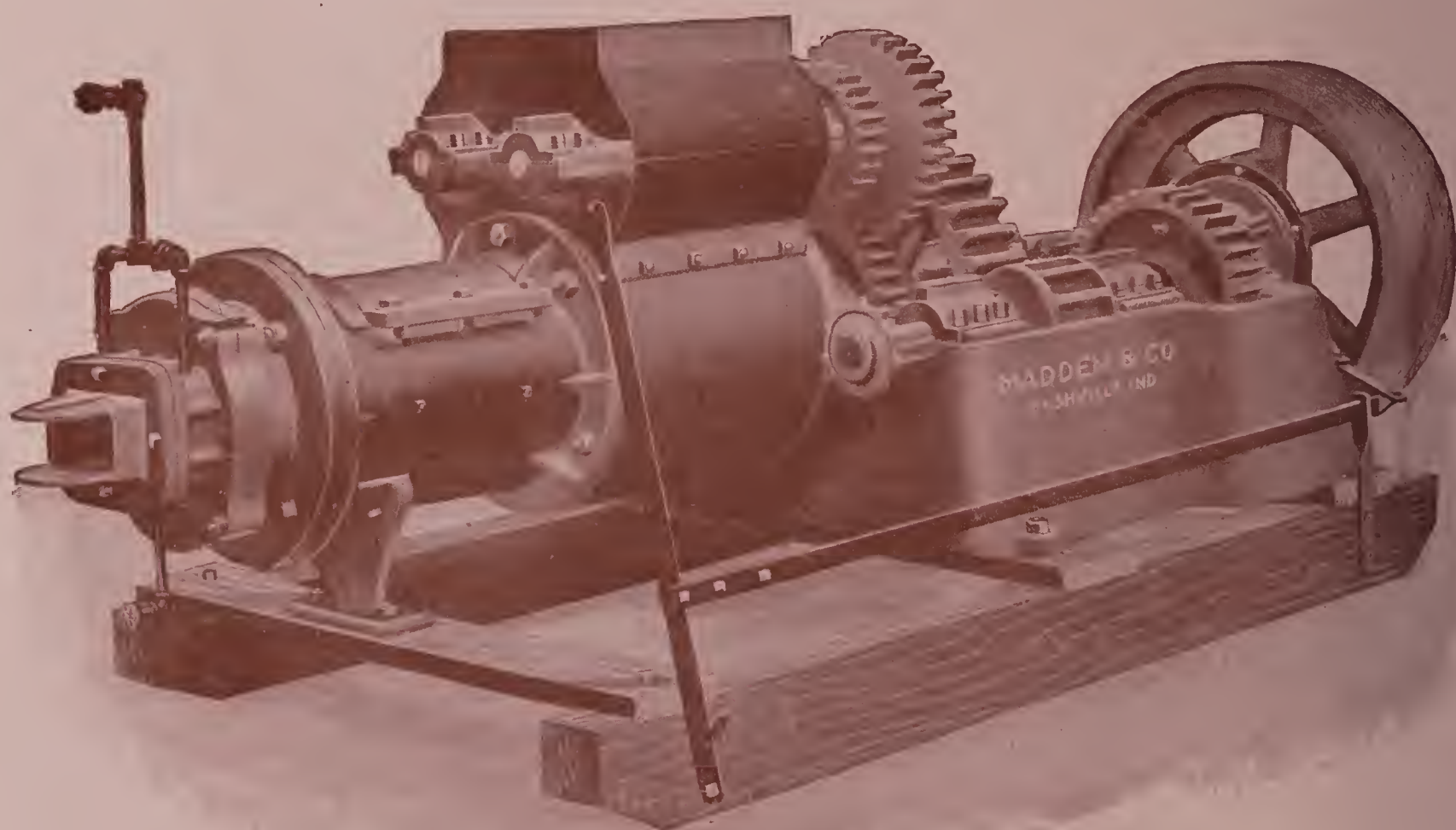
Respectfully,
(Signed) STORER & MILLER.
Per A. M. Storer.

We build a complete line.

Statesville, N. C.

NEW MODEL HOOSIER BRICK, TILE

**A Line of Extra Heavy Stiff Clay Machinery of Great Strength,
Capacity and Durability for Making Brick,
Tile and Fire Proofing.**



No. 6 D Hoosier Brick Machine.

This is a New Heavy Duty Machine designed to meet the demands for a machine constructed on somewhat the same lines as our well-known C Machine, but larger, heavier and stronger, and with greater capacity; gearing is all extra heavy, broad faced, steel-cut when desired; shafts are heavy and strong and amply able to withstand the severe strain; bearings are unusually large and long; rear bearing of auger shaft is of the submerged type, provided with adjustable anti-friction thrust discs; machine is furnished with our friction clutch pulley, 40-inch diameter, 12-inch face.

Recent Purchasers of These Machines

Mason City Brick & Tile Co., Mason City, Iowa; North Iowa Brick & Tile Co. (2), Mason City, Iowa; National Drain Tile Co. (2), Streator, Ill.

If you want a machine of capacity and with the question of breakage practically eliminated, write to

Mention
The Clayworker.

MADDEN & CO.,

AND HOLLOW BLOCK MACHINERY.



Extra Heavy Hoosier Clay Granulator.

Our Heavy Duty Granulators, heavy gears, spur or bevel, and shafting, self-contained bearings, large and long, free from contact with the clay, main shaft, set "off center" which prevents rocks or foreign substances becoming wedged between drum and end of knives, thereby avoiding the greatest cause for broken and bent knives. Drum of heavy boiler firmly bolted to frame. The whole making a very rigid and compact machine, capable of standing the most severe service. Made in any length.



Extra Heavy Hoosier Pug Mill.

Our Pug Mills built with the same generous proportions as granulators. They are machines for large capacity; either bevel or spur gear; made in any length.

Write for Catalogue.

Rushville, Ind.

INDIANA ELECTROTYPE COMPANY



*Designers
Engravers
Electrotypers*

Both Phones 1270
23 West Pearl St
INDIANAPOLIS



THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO
Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

Name

Postoffice

Street and Number

County State

E. WUERZ Kiln & Chimney Construction Co.



197 Havemeyer St.,
Brooklyn, N. Y.

KILNS for firing Brick, Lime,
Cement and Porcelain.

MUFFLE KILNS for Glaz-
ing and Enameling Brick.

CHIMNEYS with radial and
common brick, round or
square.

Old chimneys straightened,
pointed or bent without incon-
veniencing or delaying opera-
tions.

Estimates cheerfully fur-
nished on application.

Agents Wanted.

CLAY AND SAND CARS



The above cut shows one of our all-steel rocker type, double
side dump cars. This car is so constructed that when the load
is dumped it rights itself at once and is ready for the next load.

A LARGE STOCK

of Cars (all styles), Portable Track, Turntables, etc., for
Brickyards, Sand-Lime Brick Plants, Sand, Pipe and Coal
Yards ready for prompt shipment. Write for Catalog 2B.

RAILROAD SPECIALISTS FOR ALL INDUSTRIES.
ERNST WIENER
• COMPANY •

64-68 Broad Street, New York, N. Y.

WORKS

Youngstown, Ohio. Brooklyn, N. Y.
715 Hartford Bldg., Chicago. 402 Oliver Bldg., Boston.
Barnaby Bldg., Bisbee, Ariz. 333 Cooper Bldg., Denver, Col.

An Emergency Accident Cabinet

Free **On**

90 Days **Trial**

FOUR OF OUR
CABINETS for
FACTORY,
SHOP,
HOME, and
TRAVELER

FACTORY SIZE contains 150 yards of bandages of
various widths and 34 other articles liable to be needed
in case of accident.

Price, \$9.50. Sent on approval.

HOUSEHOLD SIZE contains 18 articles for First
Aid. No home can afford to be without one. Price, \$2.00.

Ready Reference Chart sent with all cabinets shows
at glance how to treat all cases until doctor arrives.

Agents wanted to handle these fast selling necessities.

The Accident Cabinet Co., Kalamazoo, Mich.



B. E. BECHTEL.

We Are PRACTICAL BRICKMAKERS.

We install Dryers that **DRY BRICKS** either open
air or artificial.

We manufacture Disintegrators and Automatic Brick,
Tile and Hollow Block Cutting Tables. Absolutely no stop
for broken wires. Write for our catalogue.

BECHTEL'S,
Waterloo, Ont., Can.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.

These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Sqaure Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.

Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

AMERICAN BRICK COMPANY.

Pittsburg Kiln Construction Co.,
Mr. Thomas Hampton, Patentee,
West Elizabeth, Pa.

Dear Sir—We are using three kilns on the yard now, two of them with your patent bottom. The two parent kilns are doing good work; just finished firing one tonight. We are getting good burns; all tile hard clear to the floor.

The following is a list of the amount of tile of different sizes that we get in the 30 ft. kiln, as we are in the habit of setting them:

On floor 3 tier	3 in. tile of 5,000 each,	15,000
2 " 4 "	" 3,000 "	6,000
1 " 5 "	" 2,040 "	2,040
2 " 10 "	" 550 "	1,100
2 " 12 "	" 415 "	830

Set in kiln ten tiers high.

The 5 ins. are stuffed with 3 ins.
The 10 " " 6 ins. and 4 ins.
The 12 " " 8 ins. 5 ins. and 3 ins.

Thus making a total in kiln as follows:

17,870 3-in. 7,100 4 in. 2,810 5 in. 1,100 6-in.
830 8-in. 1,100 10-in. 830 12-in.

Coal consumed, 16 tons. Time required, 94 to 96 hours from time fires are first lighted until burn is completed. All the tile are hard from top to bottom; no soft ones to set back in next kiln.

I have tried to make the above as clear as possible; should you at any time wish any more information that I can give, write me and I will be glad to assist you in any way possible. Thanking you for your communication and kind regards, I am
Yours truly, H. A. YARGER
Manager.

Don't you want some? Plans furnished cheap.

Pittsburgh Kiln Construction Co.,
West Elizabeth, Pa.



A FRIEND

said some harsh, some good—and some clever things about Leviathan Belting.

FREE.

These remarks have been attractively printed and will be sent to any one giving firm name, H. P. of plant and position he occupies.

MAIN BELTING COMPANY,

1224 Carpenter St., Philadelphia.
59 Market St., Chicago.

THE BOSS SYSTEM OF BURNING BRICK.

WATER SMOKE WITH ALL SLACK
BURN WITH ALL SLACK
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME
LESS LABOR

APPLIES TO ANY STYLE OF KILN
BURNS COMMON BUILDING BRICK
BURNS PAVING BRICK
BURNS DRY PRESSED BRICK
BURNS HIGH CLASS FRONT BRICK
BURNS TERRA COTTA

Thirty years' experience; will guarantee to burn any kind of clay, including the most refractory fire clay for 40% less fuel cost than by the old method. Can be applied to kilns already built without any alterations. Write for Catalogue.

JOHN C. BOSS,

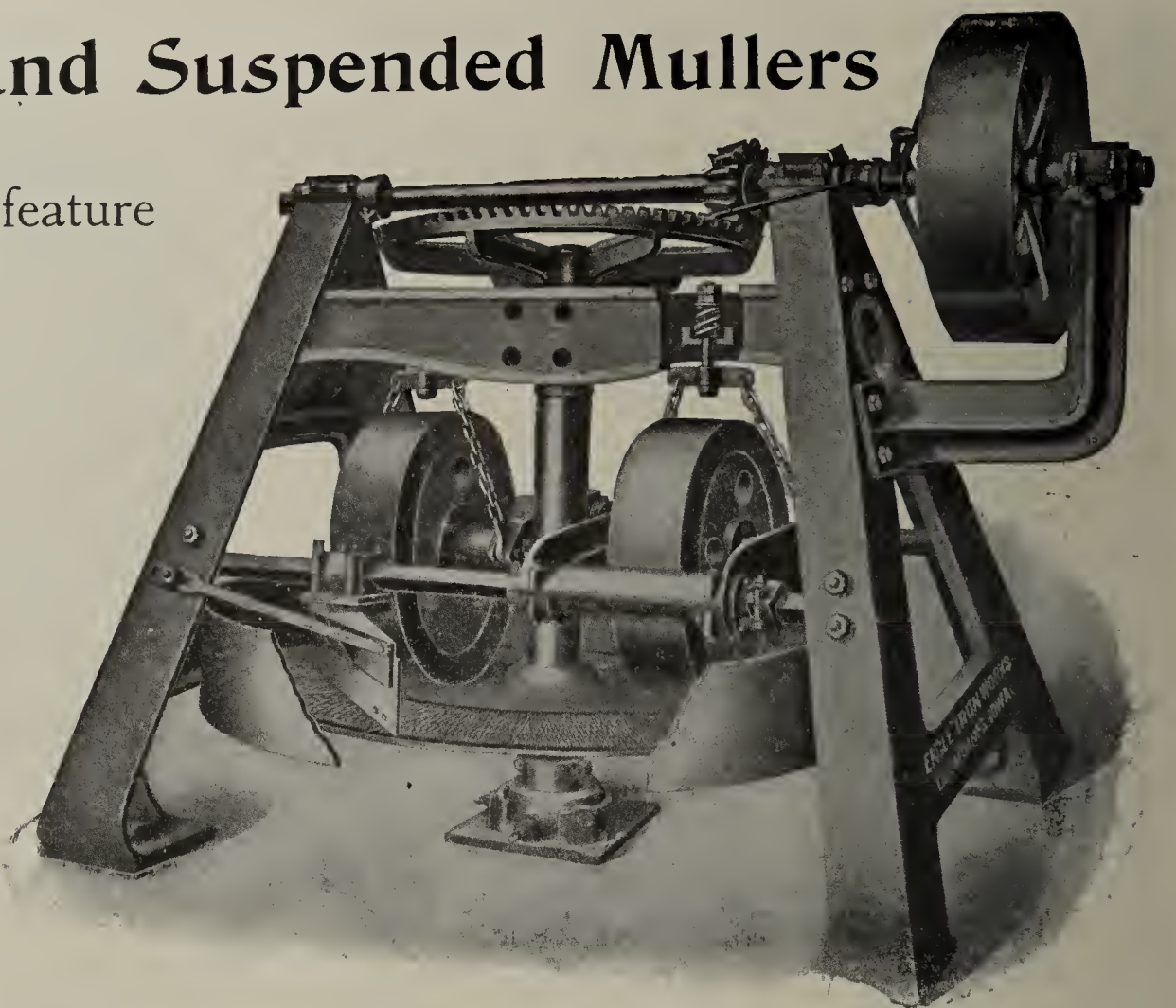
Office; 405 Monger Block, ELKHART, IND.

Independent and Suspended Mullers

the distinguishing feature
of our

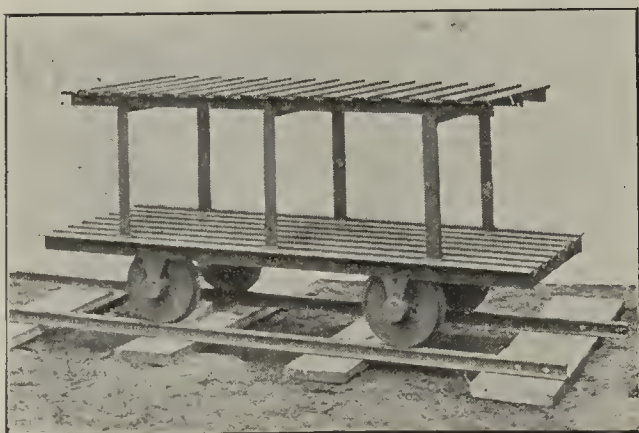
DRY PANS.

Other valuable
features which our
catalogue fully
describes.



EAGLE IRON WORKS, Des Moines, Ia.

WHAT YOU ALL DOIN'.



No. 244.

Brick Cars	{	Single deck	Switches	Kiln Bands
		Double deck	Frogs	Pallets
		Triple deck	Rail	Anything in
Dump Cars		Transfers	Turntables	Special designs

Complete Estimates for Brick plants.

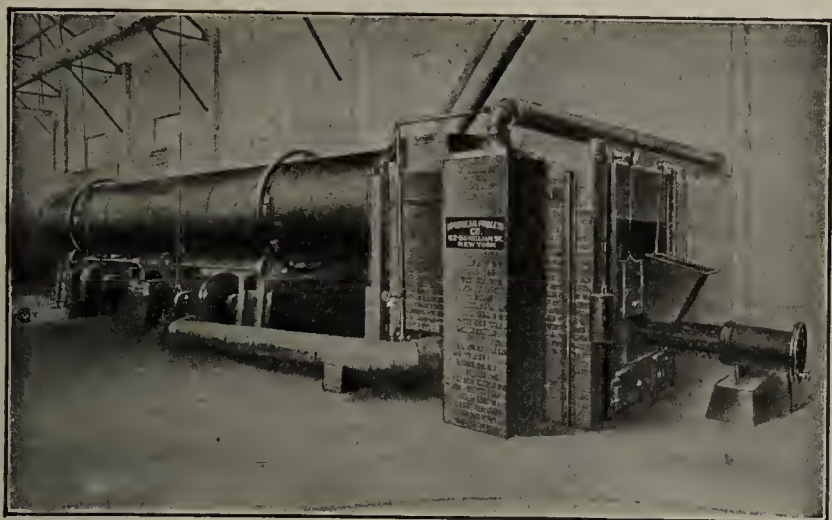
Remember we have never shown a more complete line of up to date brickyard equipment than we are showing this fall. Should you desire complete estimates on Brick Plants let us know and we can supply you with information. We are one of the largest producers of brickyard equipment in the world.

Write for Catalogue
on



No. 52.

The Cleveland Car Company
West Park, Ohio, Suburb of
Cleveland.



Automatic Improved DRYERS

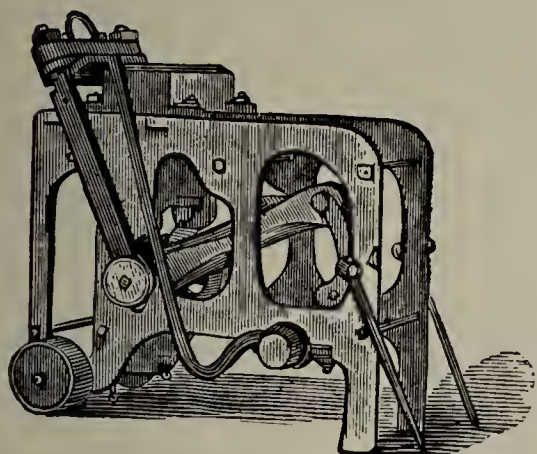
ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

AMERICAN PROCESS CO.,

62-64 William St., New York.

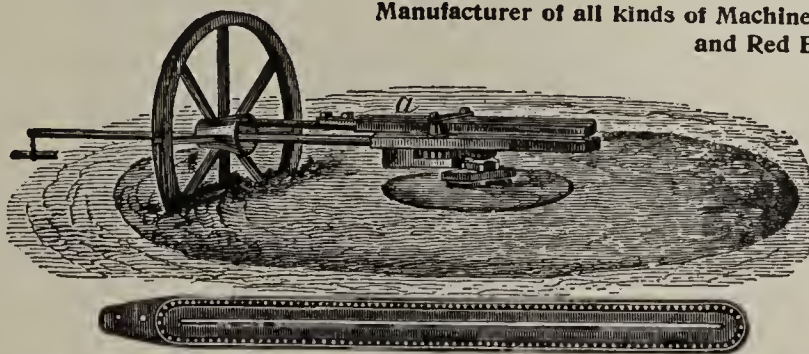


RED BRICK PRESS.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price-List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

STEAM SHOVELS FOR BRICK YARDS.



We have a large number of Shovels in brickyard service in all parts of the country, and can furnish machines of any dipper capacity desired from $\frac{3}{4}$ to 5 cubic yards. If interested write for catalog.

The Marion Steam Shovel Co.,

Marion, Ohio.

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.

F. H. HOPKINS & CO., Agents
Montreal, P. Q.

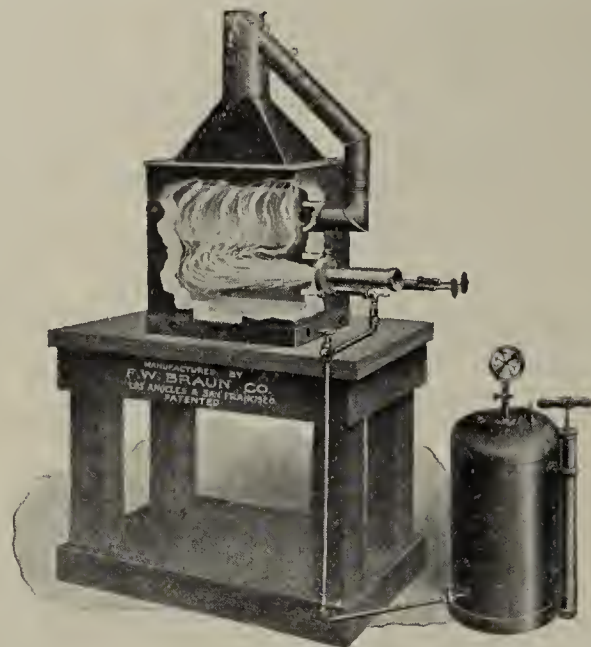
BRAUN'S TEST KILN

An apparatus that has merit and should be found in every Clayworker's Laboratory.

Endorsed by the
leading clay
experts.

GOLD MEDALS.

St. Louis,
Portland,
Jamestown
Expositions.



A FEW OF THE USERS.

Blue Ridge Enamel Brick Co., Newark, N. J.
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Reading Fire Brick Co., Reading, Pa.
Big Savage Fire Brick Co., Frostburg, Md.
Hydraulic Press Brick Co., St. Louis, Mo.
Geological Survey, Atlanta, Ga.
University of Montana, Missoula, Mont.
Ohio Silica Co., East Liverpool, Ohio.
Tiffany Enamel Brick Co., Chicago, Ill.
Knoxville Brick Co., Towell, Tenn.
Warrick Roofing Tile Co., Evansville, Ind.
National Tile Co., Anderson, Ind.
Hebron Fire & Pressed Brick Co., Hebron, S. Dak.
Coffeyville Vitrified Brick & Tile Co., Independence, Kas.
Western Clay Mfg. Co., Portland, Oregon.
Simons Brick Co., Los Angeles, Cal.

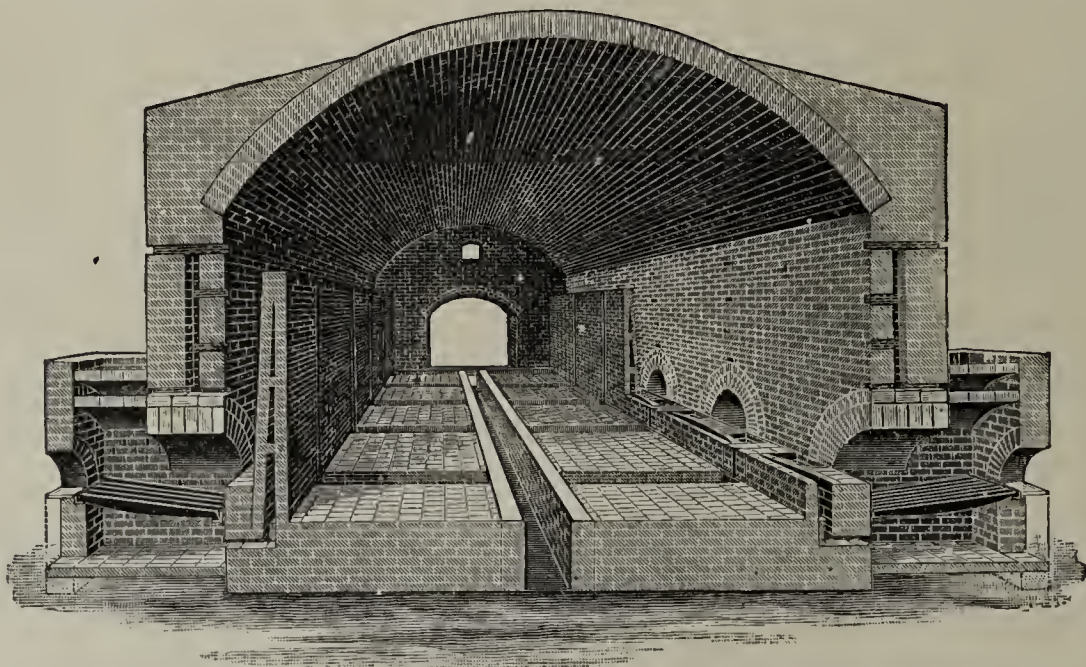
SEND FOR OUR BOOKLET "C." IT CONTAINS VALUABLE INFORMATION IN REGARD TO TESTING THE BURNING OF CLAYS, GLAZES, MIXTURES, ETC.

Mention
The Clayworker.

F. W. BRAUN, Los Angeles.

The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

HAIGH'S NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning

**ROOFING TILE, DRY PRESSED, FACING, PAVING
AND COMMON BUILDING BRICK.**

A CURE FOR THE SMOKE NUISANCE. Among other advantages, the Haigh Continuous Kiln offers relief to many brickmakers whose plants have nearby neighbors who object to the smoke from ordinary kilns. An instance is that of William Conway, President of the National Brick Manufacturers' Association of Philadelphia, whose plant is now surrounded by flats and residences. He built a Haigh Continuous Kiln early the past season and has had no complaints of the smoke nuisance since. In regard to the kiln, he says: "The product is all that could be desired, our brick being of good color and well burned." An illustrated leaflet showing views of President Conway's plant and his new Haigh kiln mailed free on application.

POINTS OF SUPERIORITY. Cheapness in Construction. Easy to Understand and Operate. Perfectly free from any Nuisance. Will save more than one-half of the fuel used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

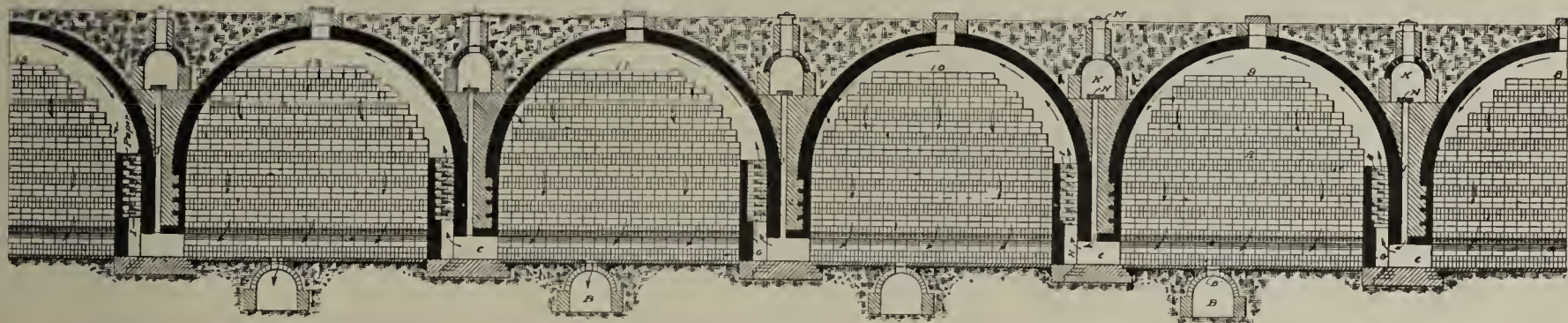
HAIGH'S KILN ARCH RAISER.

Every Brickmaker Who Has Kilns With an Arch on Should Have One.

For Further Particulars Address

**H. HAIGH, Brick Works Engineer,
CATSKILL, N. Y.**

THE YOUNGREN CONTINUOUS KILN PRODUCER GAS FIRED.



This kiln has now been developed to a state of perfection that places it far in advance of any other system of kilns for burning any and all kinds of clay product.

The kiln is fired with producer gas which is generated from ordinary bituminous coal in a gas producer attached to the kiln. This renders the operation easy and places the regulation of the temperature under most accurate control.

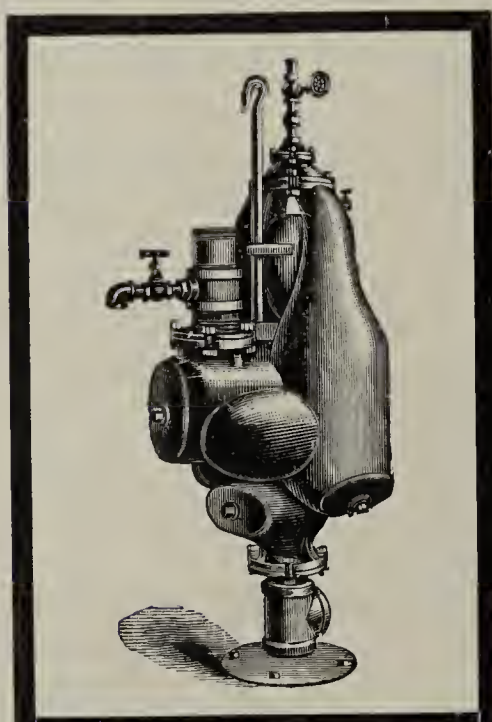
For particulars address

P. L. YOUNGREN,

299 Twenty-Fifth Street, MILWAUKEE, WIS.

PULSOMETERS

FOR UNWATERING CLAY PITS.



THE BEST
ROUGH=
SERVICE
LOW=LIFT
PUMP
MADE.

This pump, having no easily deranged inside or outside mechanism, will handle **gritty muddy water** or other liquids heavily charged with foreign matter, without the least injury to itself or to any of its working parts.

Does not require engine, belt, oil, packing or special foundation—merely a steam pipe from boiler, that's all.

THE PULSOMETER STEAM PUMP

operates as well suspended as stationary and may be raised or lowered as occasion demands, without interrupting its work.

We do not believe there is any other form of pumping apparatus that is so well adapted to the **rough-service** requirements of the Clayworker or Brickmaker as the PULSOMETER.

Write for free illustrated, descriptive catalogue telling all about them.

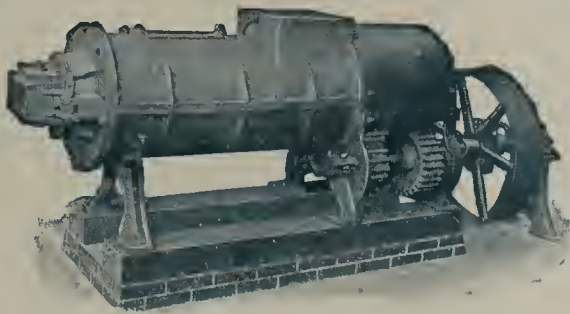
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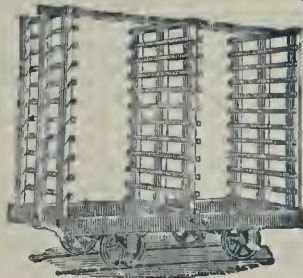
"We Furnish Everything the Brickmaker Needs"

1908

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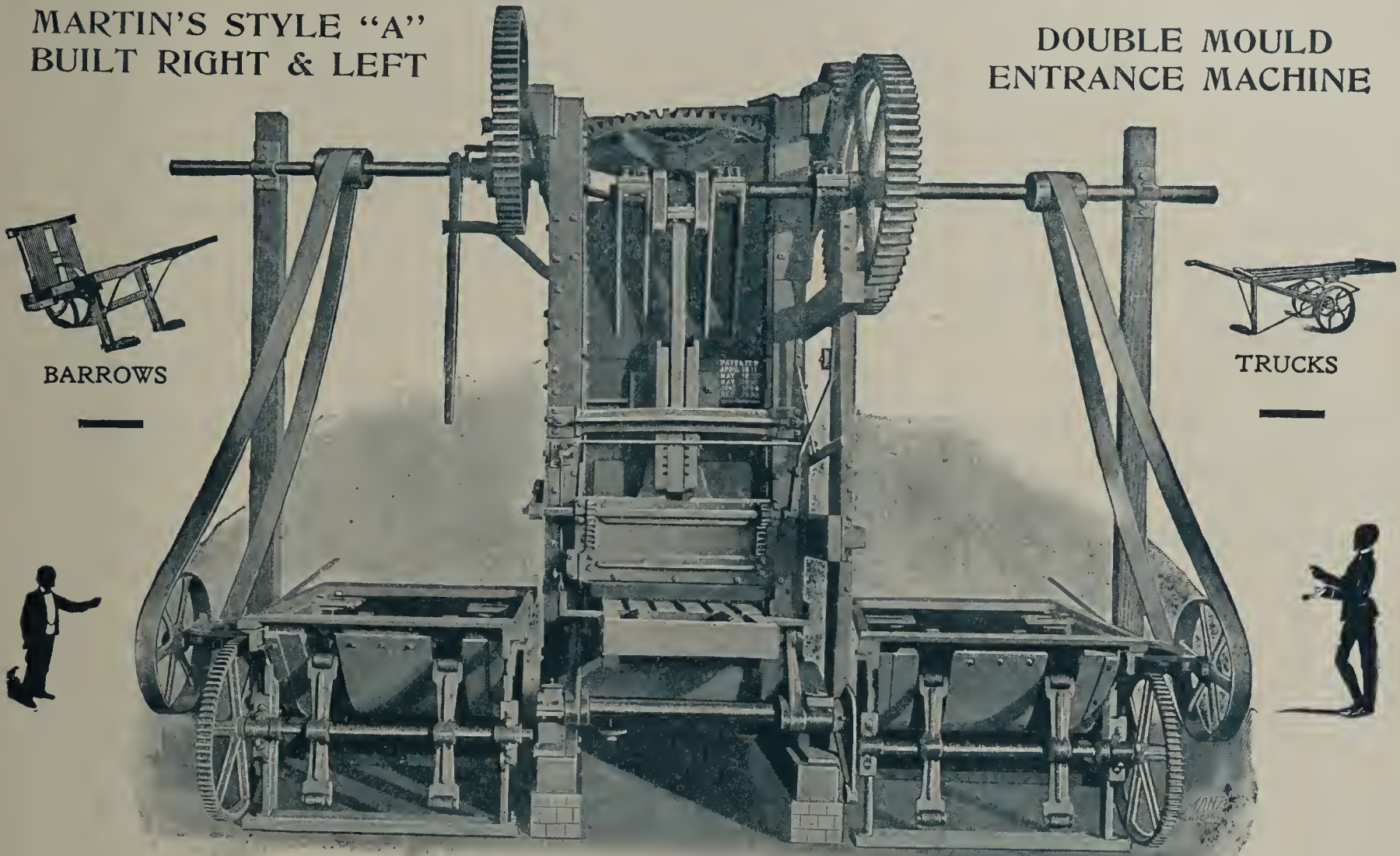
NO. 1 AUGER BRICK AND TILE MACHINE



WE EQUIP BRICK PLANTS COMPLETE

MARTIN'S STYLE "A"
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DOUBLE MOULD
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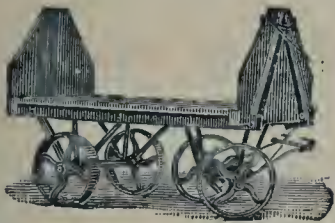


BARROWS

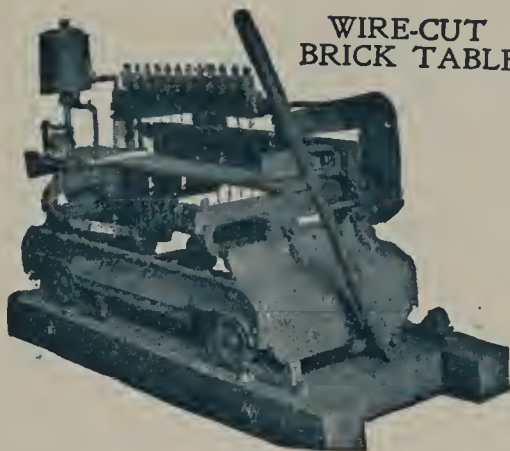


TRUCKS

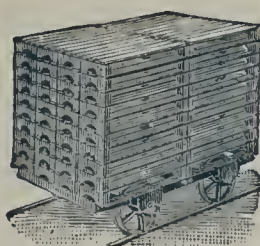
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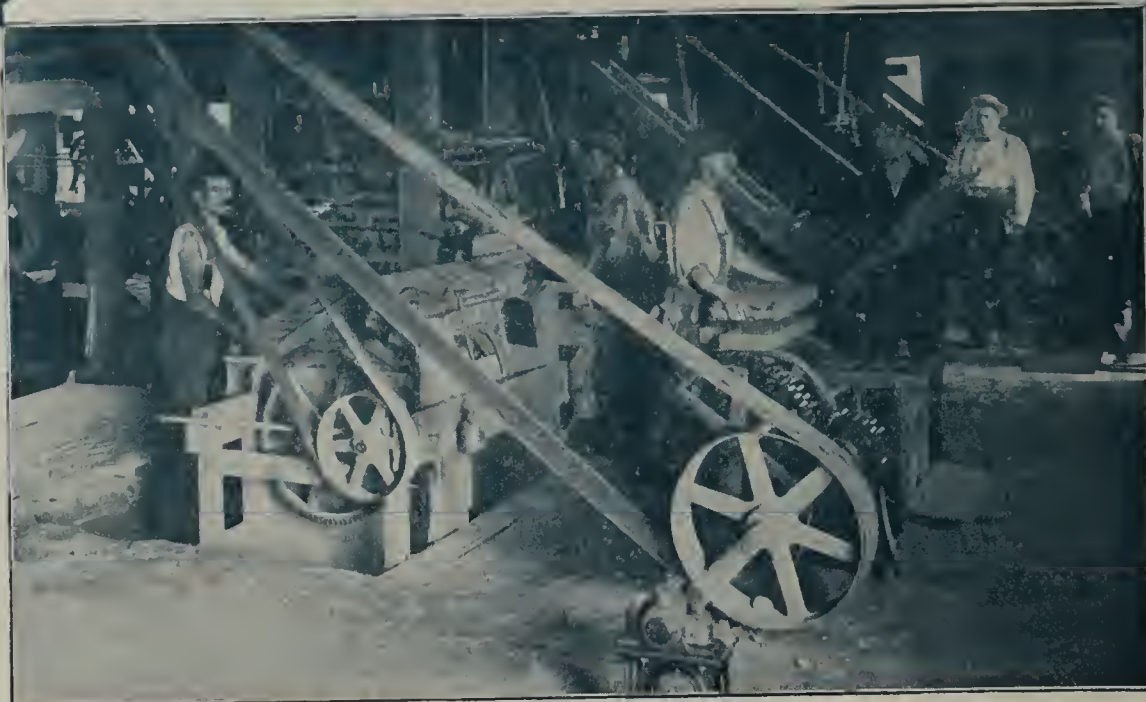
DRYER
CARS

LET US TALK BRICK
MACHINERY
WITH YOU
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"We Furnish Everything the Brickmaker Needs"



MACHINE ROOM—THE BRICK
COMING FROM MACHINE, GOING TO DRYER



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NO
TRACKS
NECESSARY
AND
NO CARS
TO
HANDLE
—

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BRICK
DRIED
IN FROM
SIX
TO
TWELVE
HOURS
—

THE "MARTIN PATENT SYSTEM" RACK PIPE STEAM BRICK DRYERS
ARE THE MOST SATISFACTORY, AND SURE WAY TO DRY BRICK

THE HENRY MARTIN
BRICK MACHINE MFG. CO.
LANCASTER, PA.

PATENTED

February 22nd, 1898. No. 599509
October 10th, 1905. No. 95520
November 14th, 1905. No. 804489

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THE "MARTIN CABLE SYSTEM" HANDLES THE BRICK MOST ECO-
NOMICALLY, DISPENSES WITH TRUCKERS AND CAR PUSHERS

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IT IS
VERY SIMPLE
IN
CONSTRUCTION
REQUIRES
NO LARGE
STACKS
—



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THE BENIFITS
OF
OPEN AIR
DRYING
UTILIZED
IN THIS
SYSTEM
—

INTERIOR VIEW OF A MARTIN PATENT
SYSTEM STEAM BRICK DRYER





THE CABLE DELIVERY SYSTEM
IS THE MOST LABOR SAVING DEVICE



PRACTICALLY
NO
WEAR
OR
TEAR
OPERATION
SIMPLE



ALWAYS
READY
AND
DOES ITS
WORK
MOST
SATISFACTORILY

THE "MARTIN" DRYER AND THE DESIGN IN ARRANGING IT ARE UNDER THE
PROTECTION OF THE UNITED STATES GOVERNMENT BY VIRTUE OF PATENTS GRANTED

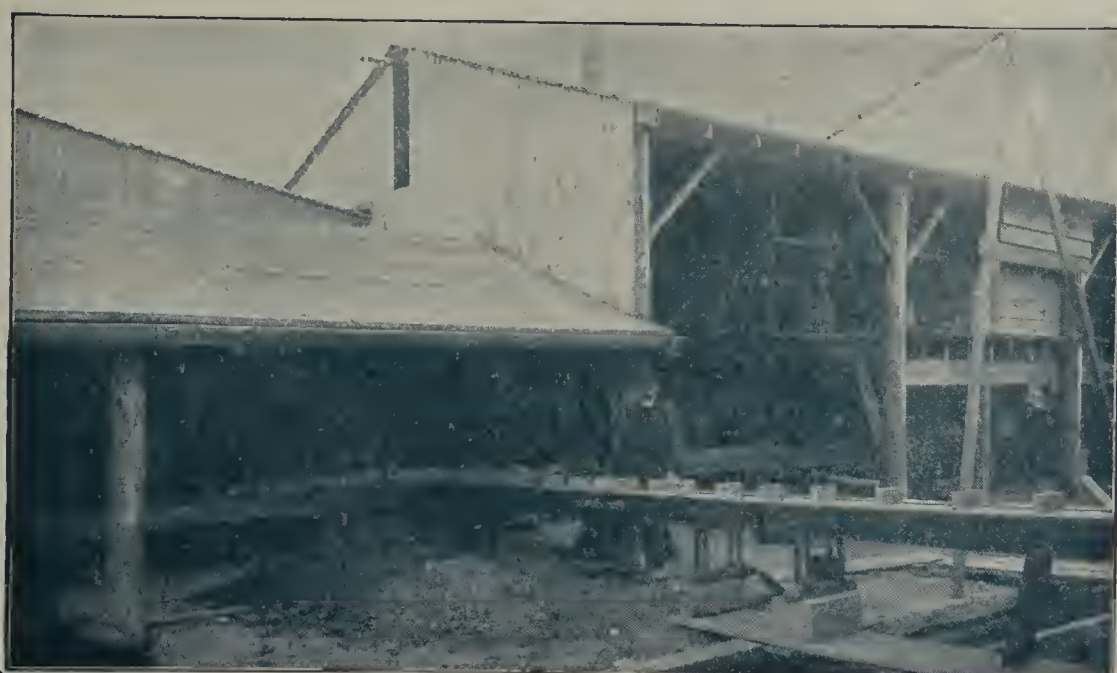
LET US
FURNISH YOU
WITH
COMPLETE PLANS

THE HENRY MARTIN
BRICK MACHINE MFG. CO.,
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THIS SYSTEM
ADAPTED FOR EITHER
SOFT OR STIFF MUD
BUILDING BRICK

THE SALE AND THE CONSTRUCTION OF THE "MARTIN" RACK PIPE STEAM BRICK DRYER
IS UNDER THE DIRECT SUPERVISION OF THE FACTORY OFFICE AT LANCASTER, PA.

NO FANS
NO BLOWERS
NO TUNNELS
USED
IN THE
MARTIN
SYSTEM



"MARTIN"
PATENT DRYERS
ARE
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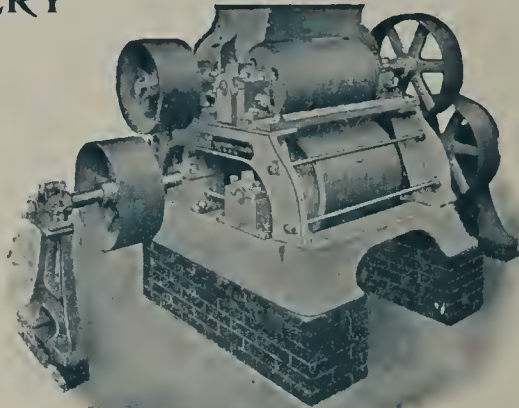
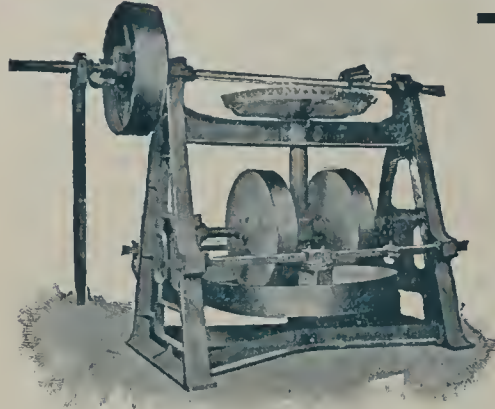
CONVEYING STIFF-MUD BRICK FROM
AUGER MACHINE TO DRYER



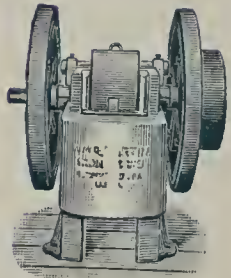
"We Furnish Everything the Brickmaker Needs"

CRUSHING
MACHINERY

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ROCK

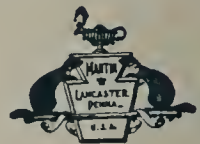
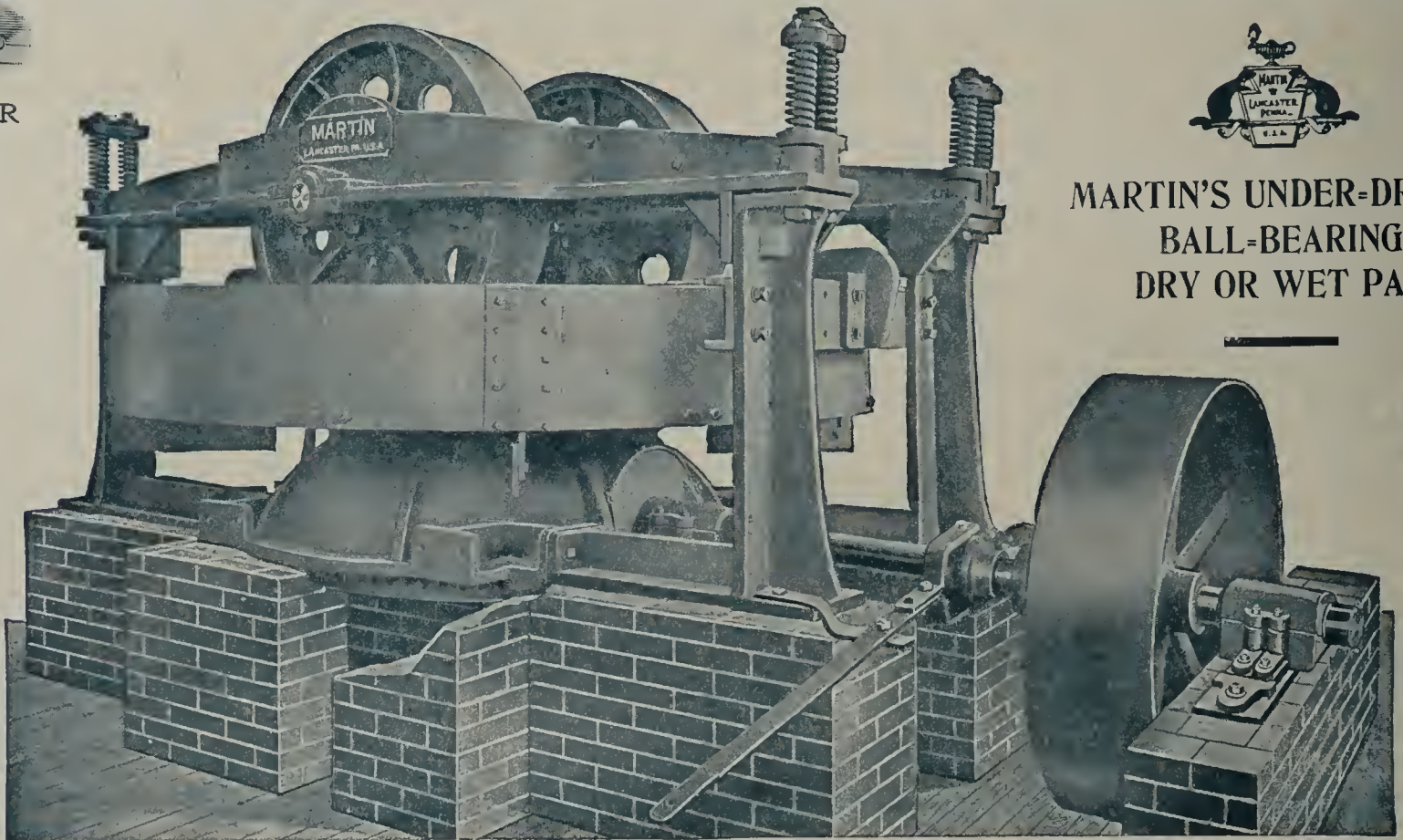


CRUSHER

FIVE-FOOT DRY PAN

COMPOUND DISINTEGRATOR

OUR CRUSHING MACHINERY=FULLY TESTED



MARTIN'S UNDER-DRIVEN
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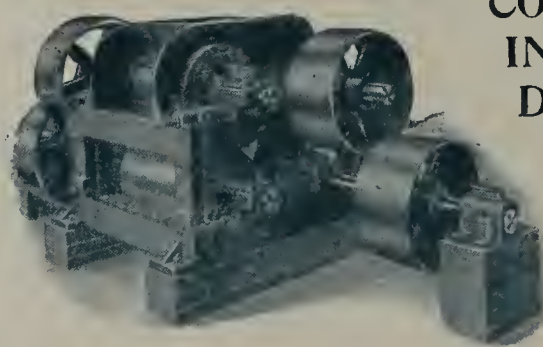
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LET'S
FIGURE
TOGETHER



HIGH-SPEED DISINTEGRATOR

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FOUR-ROLL DISINTEGRATOR

COMPLETE
IN EVERY
DETAIL

DO YOU HAVE OUR CATALOGUE?

"We Furnish Everything the Brickmaker Needs"



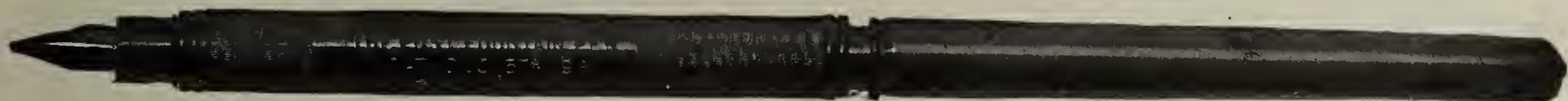
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We will send this famous Gold Pointed pen, post paid, and The CLAY-WORKER for one year, to any address in the United States and Canada for **\$3.00**



The New Way.

"POST" SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen. NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



The Old Way.

Gen. Lew. Wallace: The author of "Ben Hur" writes, "I have tried every kind in the market and unhesitatingly give the preference to the "Post."

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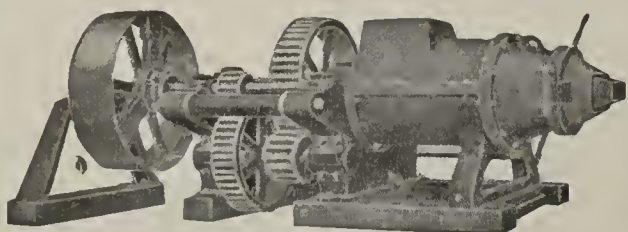
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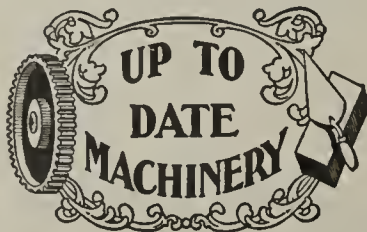
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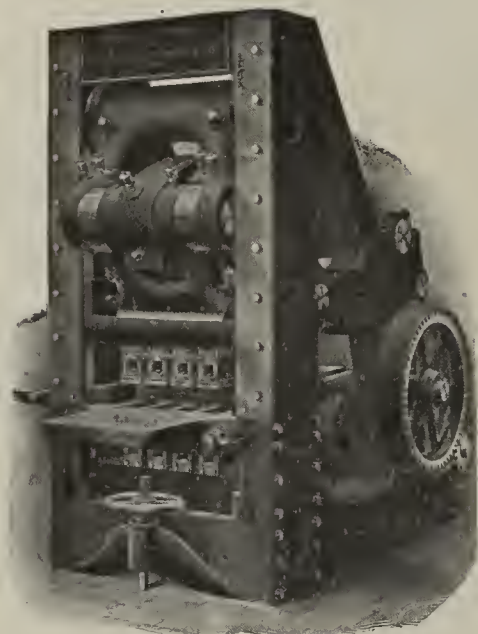
For Making

**ALL KINDS OF
BRICK.**

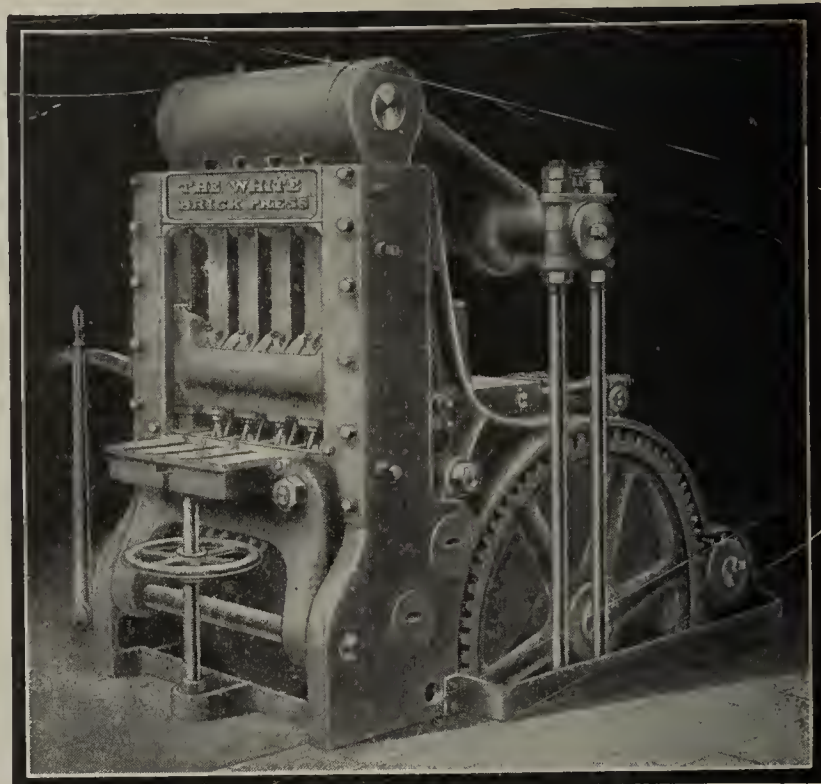
Specialty for 1907
**Rocking Grates
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Portable Excavating, Screening and Loading Machines For Sand and Gravel of Jeffrey Construction.



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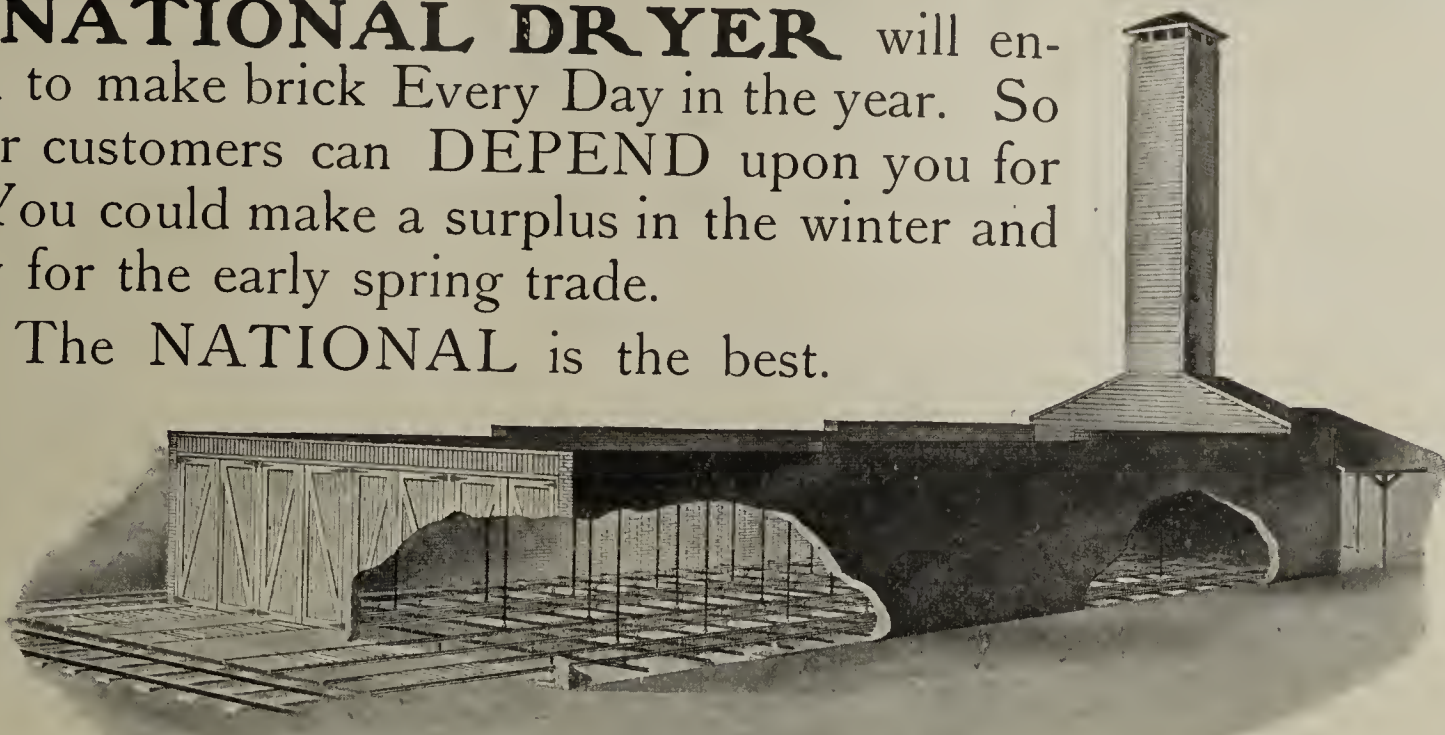
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And a **NATIONAL DRYER** will enable you to make brick Every Day in the year. So that your customers can **DEPEND** upon you for brick. You could make a surplus in the winter and be ready for the early spring trade.

The **NATIONAL** is the best.

Our large catalogue gives details and contains information that will be of value to you.

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Steel Roller Bearing cars of all kinds. Transfers, Turntables, "T" Rail, etc.

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FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for; write us.

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An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryer, kilns, etc.

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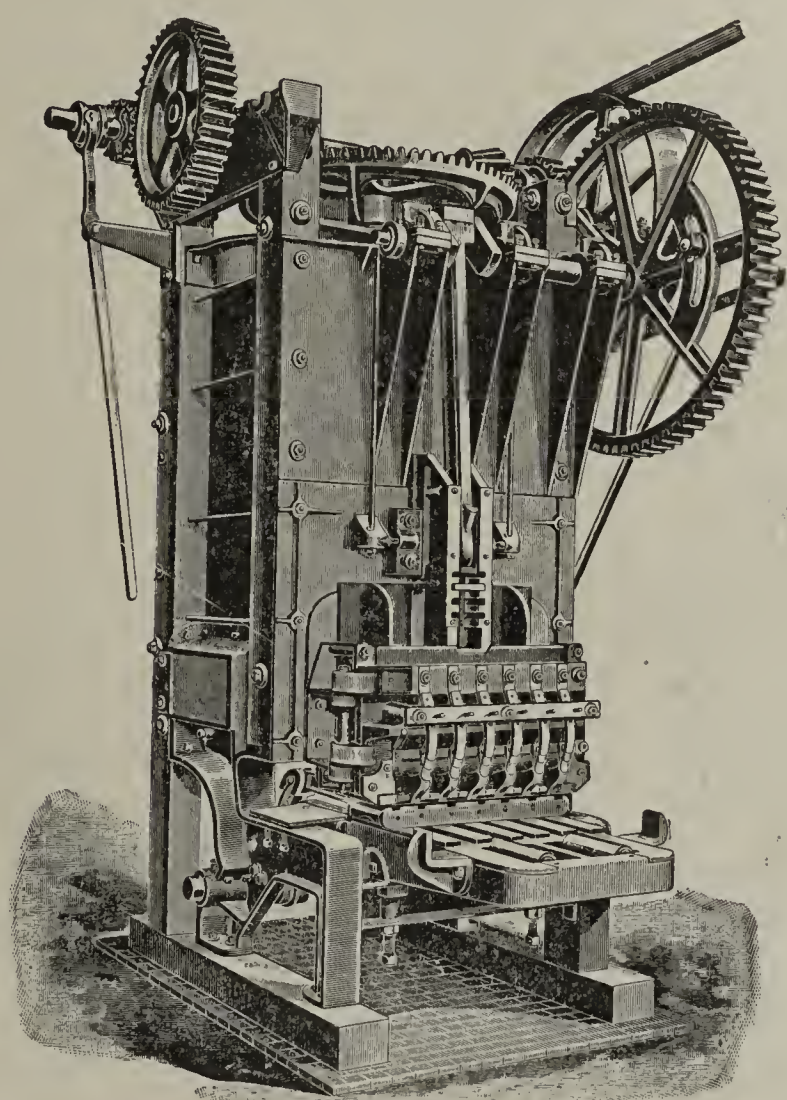
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Indianapolis, Ind., U. S. A.

Every Buyer of New Haven Machines A Satisfied User.

The "New Vertical" Brick Machine is the most substantial Upright Soft Clay Brick Machine in the world.

We manufacture a full line of supplies including



Pug Mills,
Coal Crushers,
Clay Elevators,
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Tempered Steel
Brick Strikes,
Clay Cars,
Brick Trucks,

Stamp Mills,
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Elevators,
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Dump Tables.

"New Haven" Vertical Machine.

In fact we can furnish machinery of the most improved modern construction for brick manufactories of any capacity. Competent workmen are employed in every department, hence we can guarantee our machinery to be well made and capable of performing the work for which it was designed.

The EASTERN MACHINERY CO.,

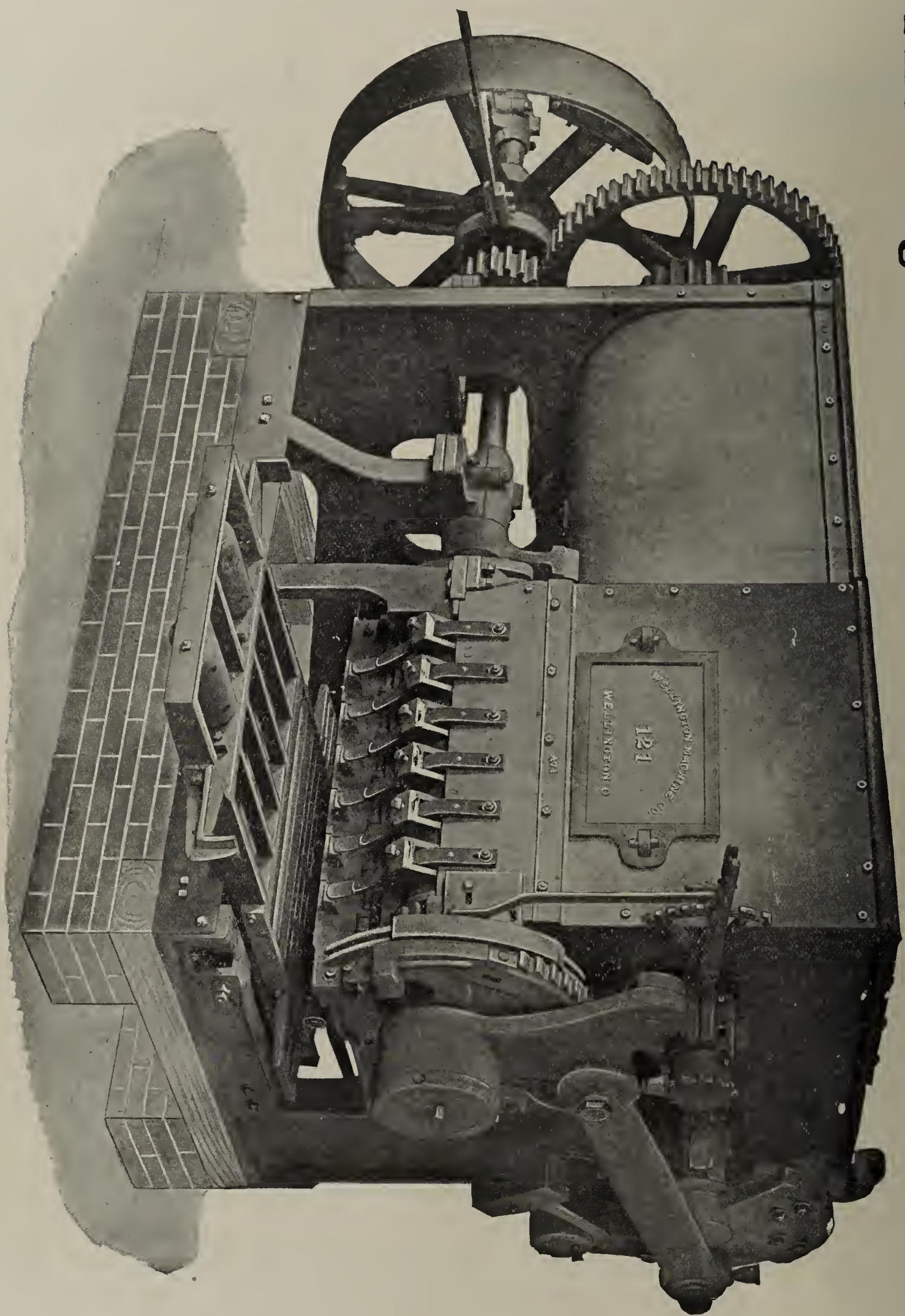
NEW HAVEN, CONN.

OVER
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"Monarch"
Brick
Machines
in use

OVER
565

"Quaker"
Machines
in use.

WRITE
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Pug Mills,
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Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
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Drums,
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Elevators,
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and all
kinds of
Kiln
Castings.



The "Big No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

**ROLLER-BEARING
BARROWS.**

The Wellington Machine Co.,
WELLINGTON,
OHIO.

Send for Catalogue.

We manufacture a complete line of BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BEARERS.

The best built, Price \$6.50 each.

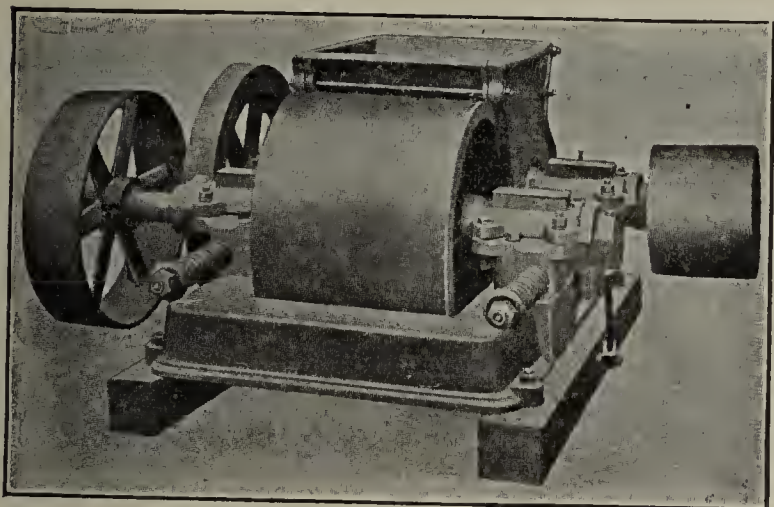
Stock size wheel, 20 inches diameter.
(If wanted 18 inches.)



There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.

Our Heavy Clay Disintegrator.

Note the springs and what is said about them below.



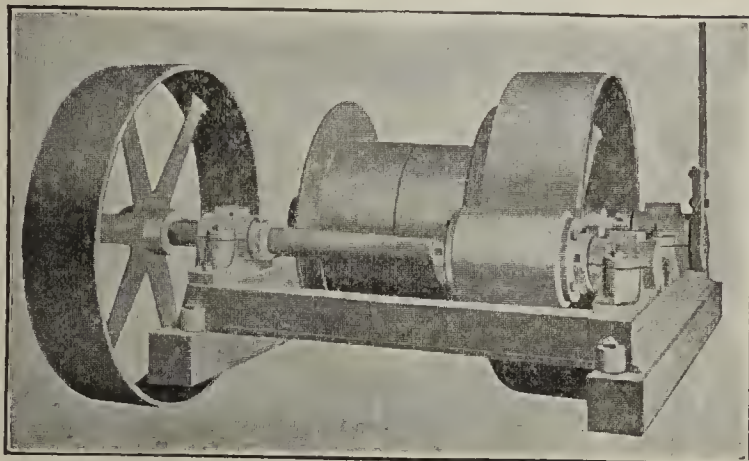
This particular disintegrator we believe to be much the best one that is built, as we intend it for large capacity, and to stand up to severe work for years. Both rolls are chilled. The journals are 10 inches in length. The small roll has a heavy balance wheel. Note its massive construction. There is a weighted scraper so hung that it automatically cleans the large roll.

RELIEF SPRINGS: After considerable experimenting we have learned just how to put relief springs on the large roll, and do it successfully. Occasionally a bolt or something else gets into a disintegrator that cannot be crushed, and it always means a smash-up. We have experimented long before adopting these, but can now guarantee them a success.

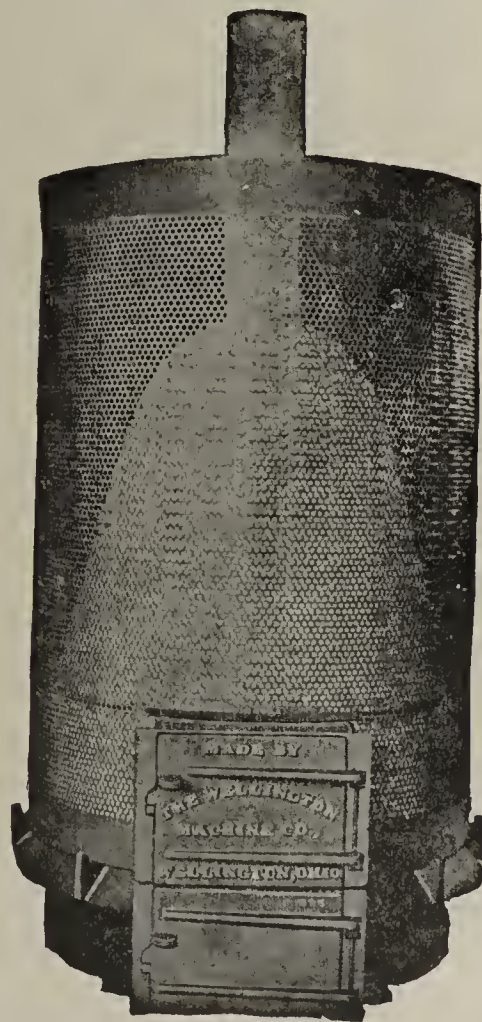
CAPACITY, 25,000 to 50,000 per day according to speed at which it is run. Pulleys fast roll 14 dia. x 10-in. speed, 700 to 800. Slow roll, 24 dia. x 6-in.; speed, 50 to 75.

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ON APPLICATION.

Winding Drum.



Our Direct Driven Self-Contained Winding
Drum is a Labor-Saver.



Sand Dryer.

Weight, 1,100 lbs. Every brick works needs one. Diameter over all, 3 ft. 1 in. Height, 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

JAMES W. HENSLEY,

Successor to S. K. Fletcher.

Indianapolis, Ind.

WHY WORRY ALONG WITH ANTIQUATED EQUIPMENT?



Hanover Brick Company, Whippany, N. J.

The Scott Kiln Drying System strikes directly at the root of the extravagant labor-cost in the brickyard, and as an investment, is the most attractive proposition before the brick-maker today.

You can actually save at least 50% of labor expense about your yard by substituting the Scott Kiln Drying System for the old dryer method.

Is it not worth while to investigate a system that will actually put hundreds of dollars in your pocket every year?

If it develops that the Scott Kiln-Drying System is not adapted to your yard, we are in a position to furnish you the very best in the line of Waste Heat or Steam Brick Dryer equipment. Our experience of over a score of years is at your disposal to assist in selecting the apparatus and method of installation.

Ask for Catalogue No. 213-C.

American Blower Company,

(Licensees Alex. A. Scott Patents)

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New York.

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Atlanta.

1550 Marquette Bldg.
Chicago.

The RICHARDSON-LOVEJOY ENGINEERING CO.,

Consulting Engineers and Factory Architects
1534 North High St., COLUMBUS, OHIO.



"This entire building devoted to the technics of the clay industries. Look it over when you come to the *Convention*."

ENGINEERING.

Geological Examination of Properties; Surveying and Mapping; Investigation of Manufacturing Propositions; Designing of Plants; Driers for Any Material; Kilns of All Types; Faults of Manufacture Corrected; Modernizing for More Economical Operation.

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Preliminary Practical Tests Showing Value of Clay for Any Purpose; Chemical Analysis; Refractory Tests; Cement Testing.

TESTING AND CONTROLLING APPARATUS.

Thermometers, Pyrometers, Hygrometers, Anemometers, Draft Gages, Recording Apparatus, Power Plant Specialties, Fuel Testing and Gas Analysis Apparatus.

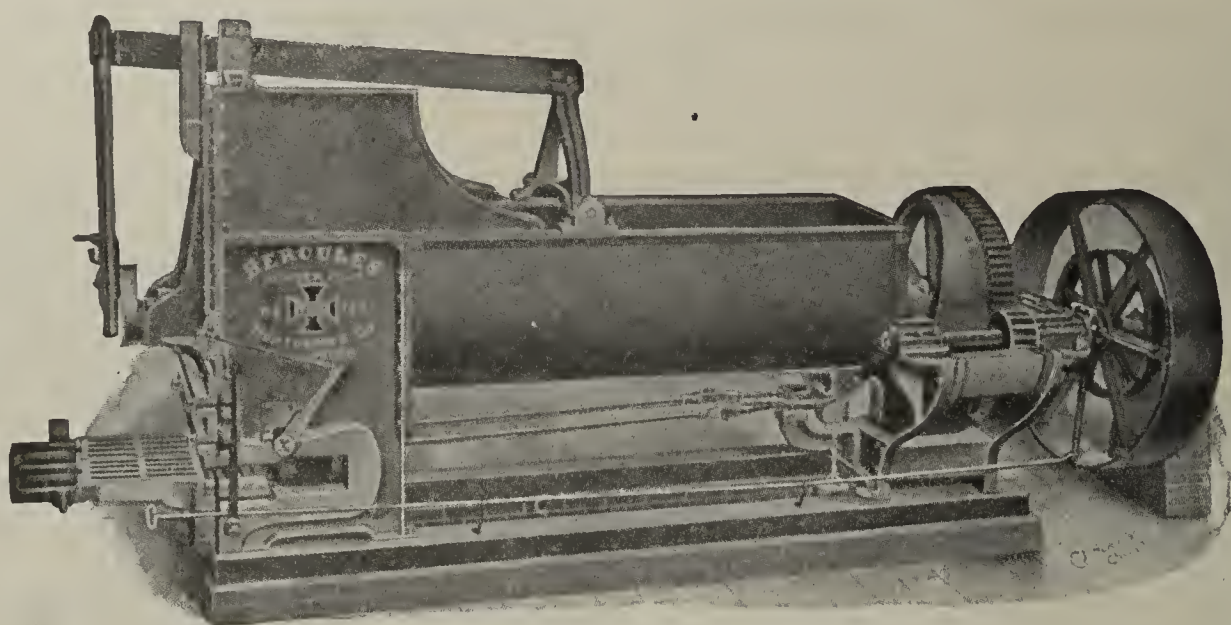
The cost of our services is insignificant compared with the returns from an Economical Construction and Economical Operation.

Send for "Brick Works Engineering;" "Brick Kilns;" Testing and Controlling Apparatus."

"HERCULES."

"Perfectly Simple. Simply Perfect."

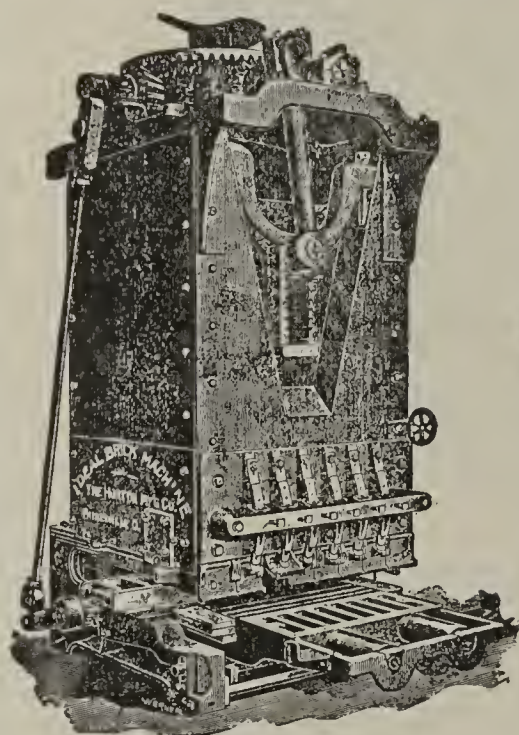
NOTHING TO
EQUAL IT IN
HANDLING
STIFF CLAYS.
THE LATEST
FIRE BRICK
MAKER
MADE.



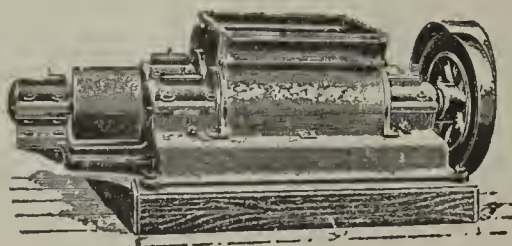
LET US
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LONG LIST
OF MORE
THAN SAT-
ISFIED
USERS.

Hercules No. 4 Brick Machine.

Now is the time to get ready for
next season's work. Tell us your
needs—We know we can please you.

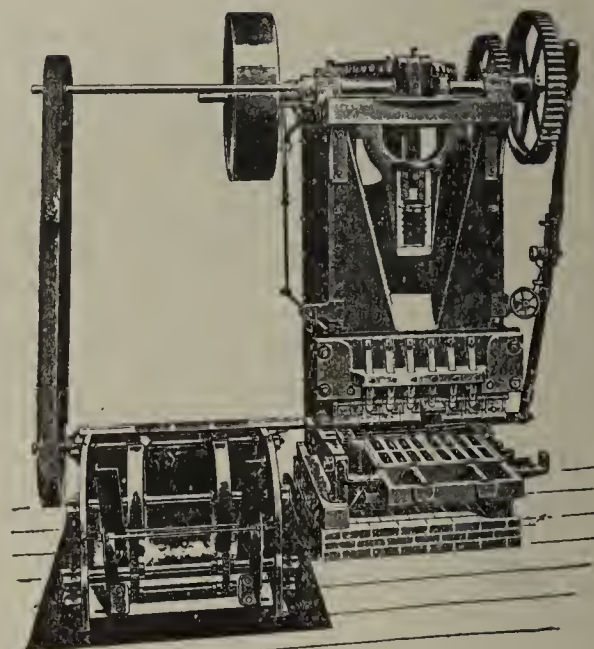


Ideal Horse Power Machine.



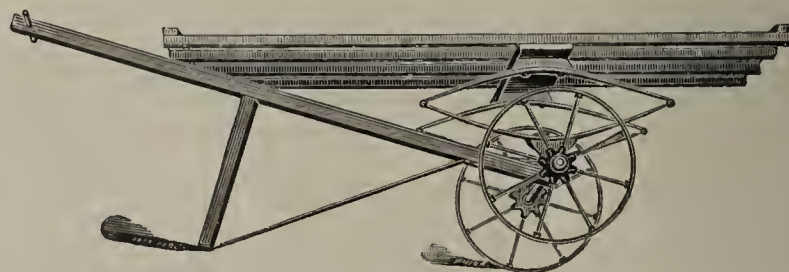
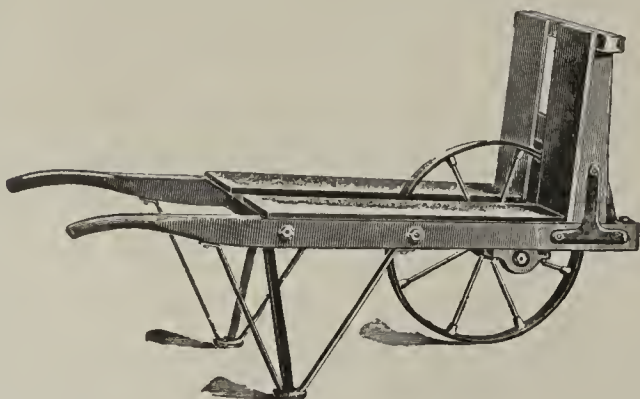
Disintegrator.

We also make a full line of Crushers.



Ideal Steam Power Machine and Sander.

WE MAKE A COMPLETE LINE OF BARROWS AND TRUCKS.

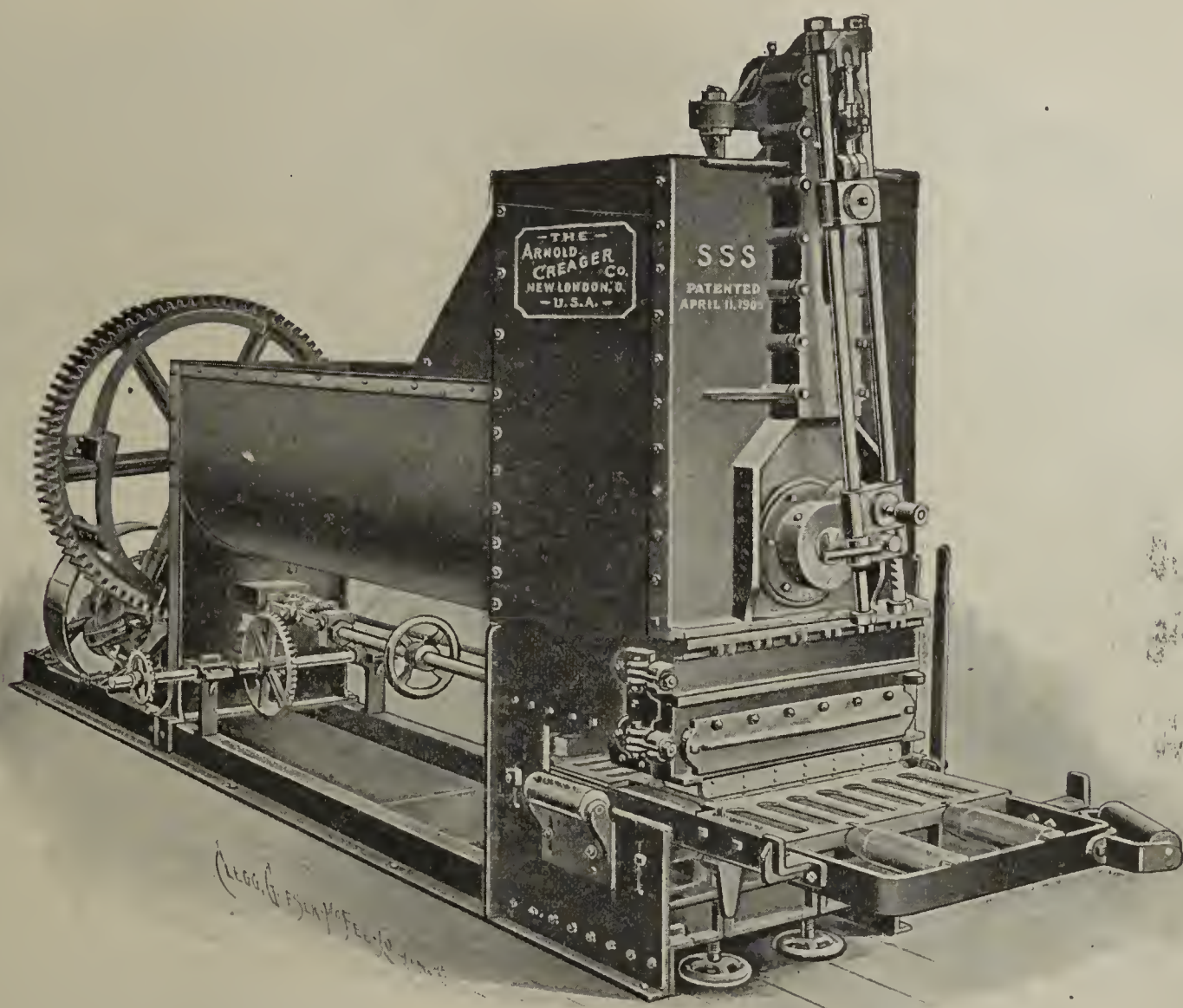


MOLDS.

This is a frequent source of complaint, if you allow *price* to be the *factor in deciding*. We want you to send us a *trial order*, and we will *guarantee* the molds to satisfy and the *price right*.
A complete line of Brickmaker's Supplies. "Catalog C."

The Horton Manufacturing Co., Painesville, Ohio.

HONESTY IS THE BEST POLICY.



S-S-S.

Every Brickmaker should insure himself against loss through poor machinery by taking out a policy NOW with the Arnold-Creager Company, and adopting one of their S-S-S all-iron-and-steel Brick machines. A perfect combination of Simplicity and Strength. Few parts, and all Automatic. Inside Press, exerting tremendous pressure, easily regulated. Twelve feet of tempering capacity, and can easily run 16 moulds per minute. Solid construction enables the working of very stiff clay, making the ideal brick. Front of Press fitted with stone doors when desired. A strictly first-class machine at a small price.

For complete catalog giving details of this, and other high grade machinery and the "1907—Grand-Automatic" address

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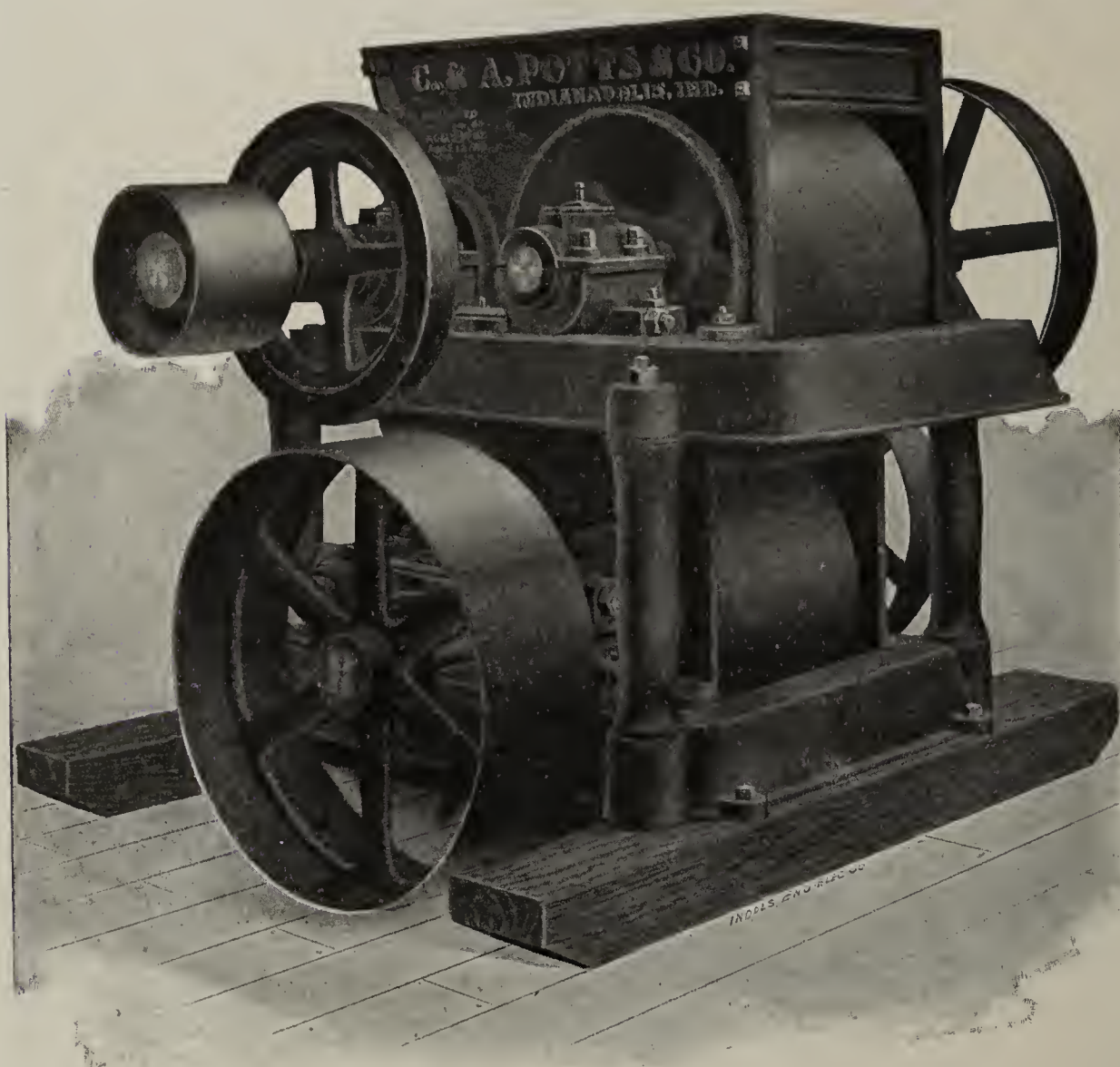
NEW LONDON, OHIO.

CINCINNATI, OHIO.

CABLE "AUTOMATIC".

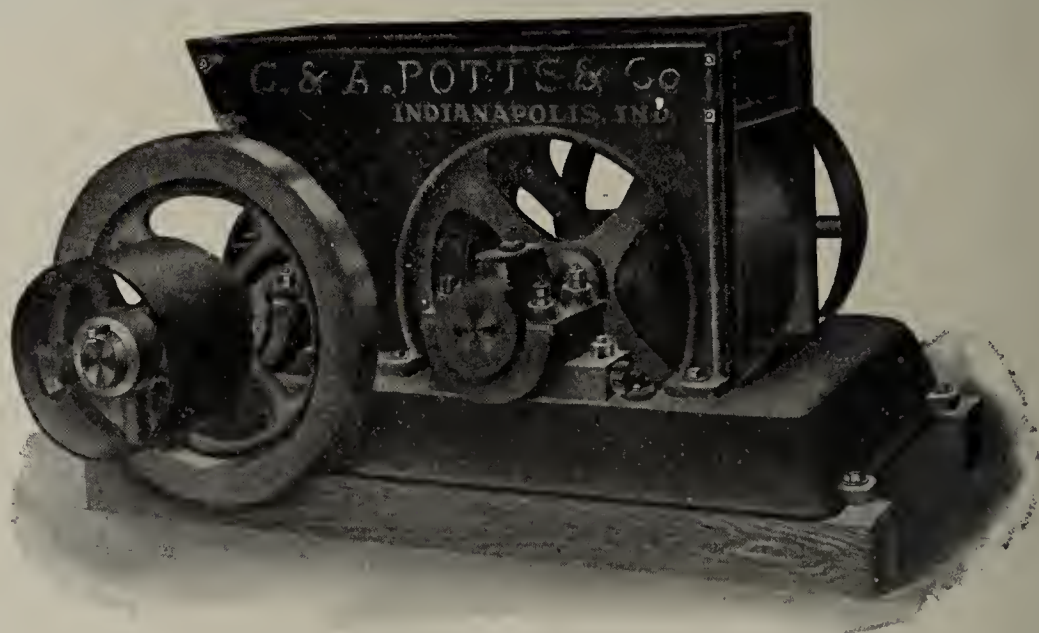
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DISINTEGRATORS AND COMPOUND DISINTEGRATORS AND CRUSHERS



COMPOUND DISINTEGRATOR AND ROLL CRUSHER.

Made in Six Sizes.
Capacity,
25M to 100M Brick.
Rolls Thoroughly Chilled,
Large Steel Shafts Running
in Ring-Oiling Bearings.



POTTS DISINTEGRATOR, STYLE "P."

NO BRICK OR TILEMAKER CAN BE SUCCESSFUL WITHOUT
THIS MACHINE; IT IS A MONEY-MAKER.

C. & A. Potts & Co., Indianapolis, Ind.

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C. & A. Potts & Co.,

Have a National Reputation as being

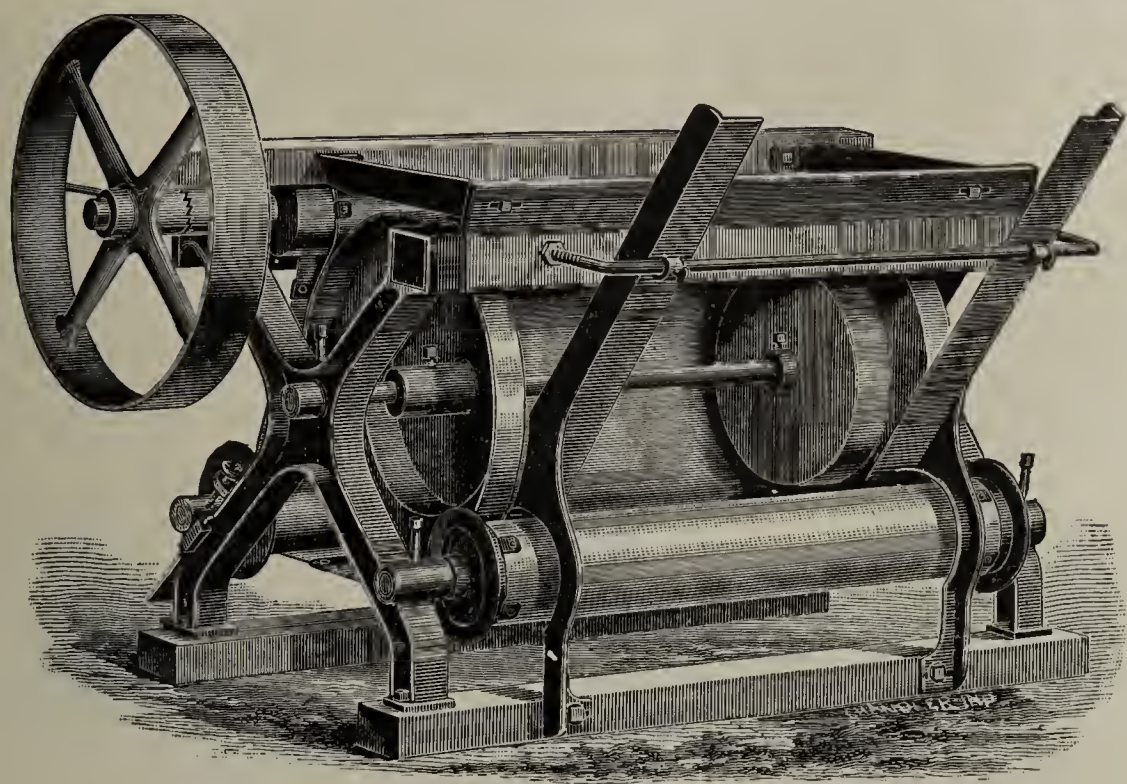
Standard Machines of
this Class.

You take no chance in
purchasing a

Potts Disintegrator.

Grinds the clay, leaving it in a loose, open condition; will not choke or clog from hard, dry or wet, sticky clays. Grinds the small stones so fine they will not show in or damage the work; separates the large stone.

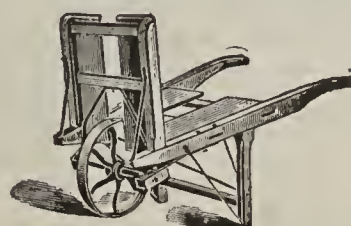
POTTS MOLD SANDER.



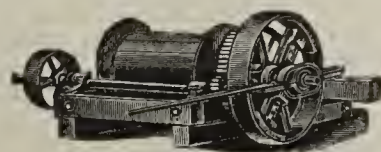
Simple in construction; sands the molds perfectly; does not waste or spill the sand.
A winner and a money-maker.



TRUCKS. SEVERAL STYLES,



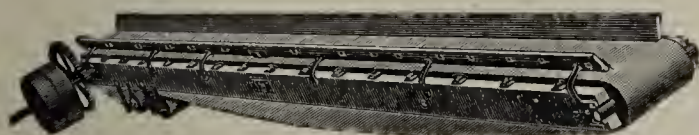
BARROWS. SEVERAL STYLES



WINDING DRUM, 2 STYLES;
EITHER SPUR OR BEVEL GEAR.

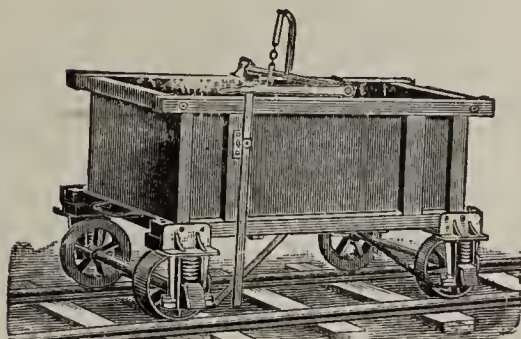


PUG MILLS. GRANULATORS ANY SIZE OR CAPACITY, SINGLE OR DOUBLE GEARED.

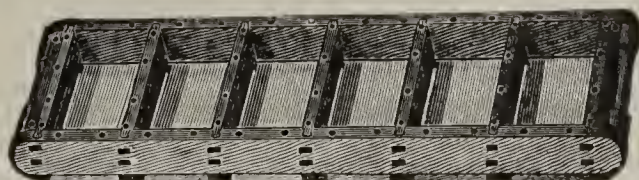


ELEVATORS ANY LENGTH.

Brickyard
supplies or
machinery
manufactured
by us
can be
depended
upon as being
well made
of best
material.



CLAY CARS. WELL BUILT, SIDE OR
BOTTOM DUMP.

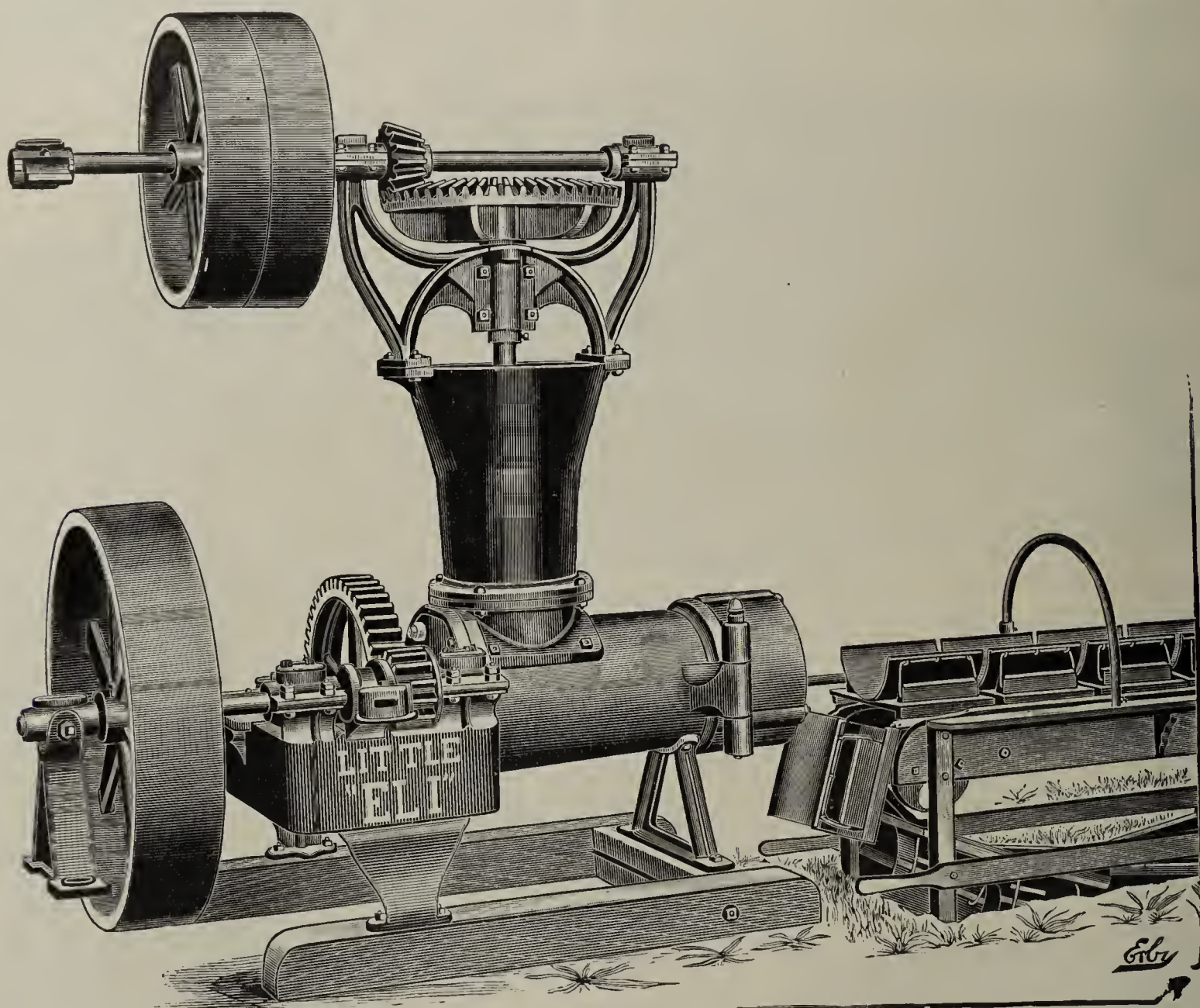


BRICK MOLDS, ALL CHERRY, STEEL BOUND,
MACHINE OR HAND.

We are prepared and equipped to erect Brickyards complete, including
Power, Machinery, and the best Brick Drying System,
taking the clay from the bank to the kiln.

C. & A. Potts & Co., Indianapolis, Ind.

A Small Machine With Large Capacity.



LITTLE "ELI" MACHINE.

Payne, Ohio, Nov. 27, 1905.

Michigan Brick & Tile Machine Co., Morenci, Mich.:

Gentlemen—I have been using your "Little Eli" machine for a year and find that it does perfect work, and really more than I expected. I have made in one day, with five hands, 10,000 brick, and could have made more, and from 6,000 to 8,000 tile. Too much cannot be said for the machine.

Yours truly,

GEORGE GARMROTH.

St. Cloud, Minn., Nov. 16, 1905.

Michigan Brick & Tile Machine Co., Morenci, Mich.:

Gentlemen—Concerning the No. 1-A Brick and Tile Machine we bought of you eleven years ago, would say that we have made two million brick a year with the machine, and all the repairing we have had in eleven years was a small gear. Of course we have had several sets of knives and three dies, but we do not call these repairs. We claim that we have the best cutting table that is made. We can make straight brick with your cutting table, which other makes will not do.

I will need a set of knives and a die in the spring, and I think the machine will last another eleven years, and then some.

Yours truly,

HENRY HESS.

Gotebo, Okla., Oct. 1, 1907.

Michigan Brick & Tile Machine Co., Morenci, Mich.:

Gentlemen—The machinery purchased from you in May last has been in constant use since being installed, and, while we have a very hard shale to work, yet the No. 1-A machine has worked fully up to our expectations.

Yours very truly,

GOTEBO OIL, GAS & PRESSED BRICK CO.

Napoleon, Ohio, Oct. 21, 1907.

Michigan Brick & Tile Machine Co., Morenci, Mich.:

Gentlemen—The machine I purchased from you several years ago is working all right. If it did not, I would take it out and put in one that would.

Yours respectfully,

D. B. YARNELL.

Cloverdale, Ohio, Sept. 24, 1907.

Michigan Brick & Tile Machine Co., Morenci, Mich.:

Gentlemen—In reply to yours of the 20th inst., will say that I am very much pleased with your No. 2 Machine with Upright Pug Mill. It gives satisfaction.

Very truly yours,

ALEX. LAUER.

Write for illustrated catalog and full particulars.

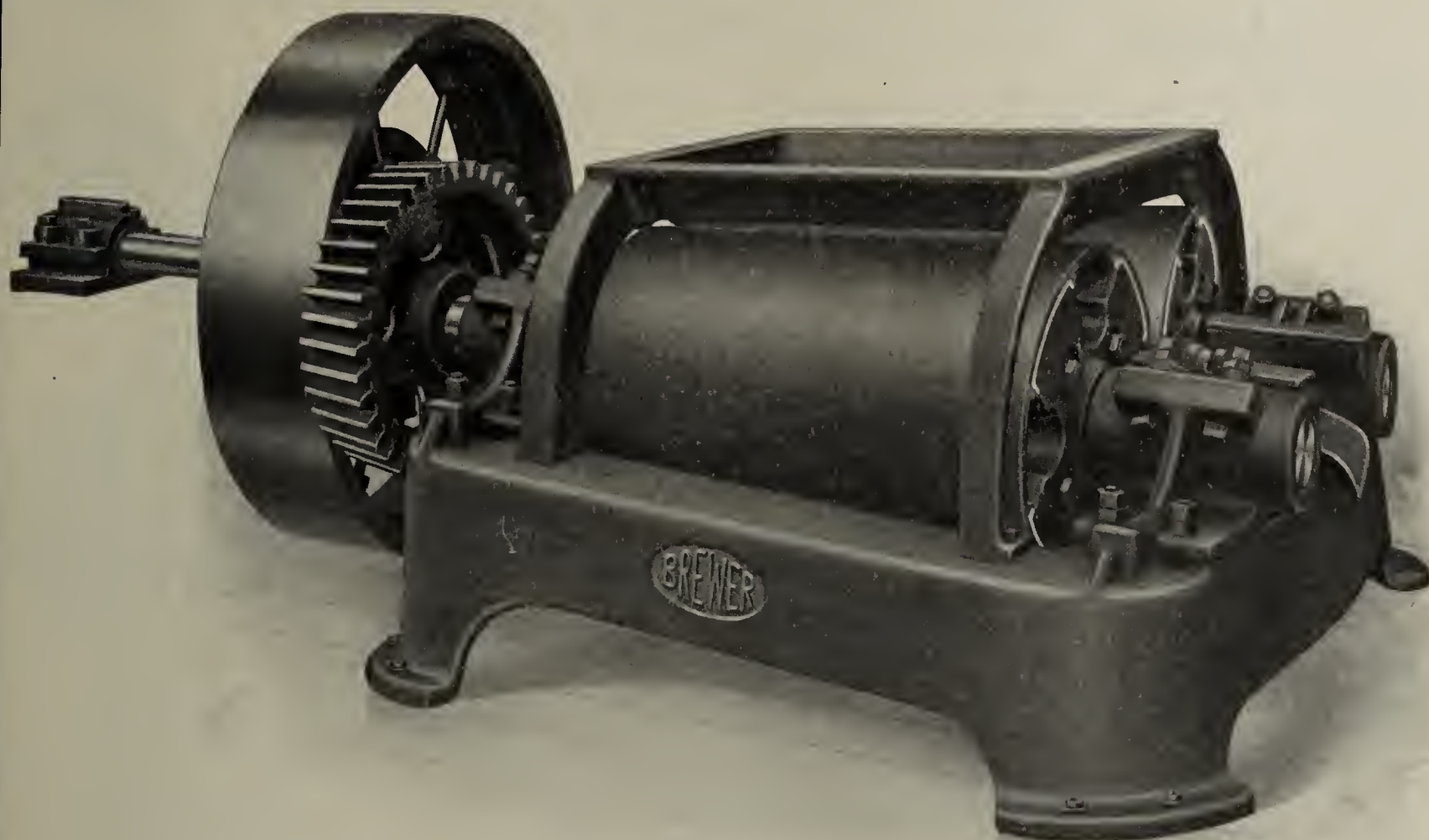
MICHIGAN BRICK AND TILE MACHINE CO.,

[ESTABLISHED 1856]

MORENCI, MICH., U. S. A.

CLAY CRUSHERS

We build Clay Crushers of several patterns. Conical Roll Crushers, Straight Roll Crushers, Disintegrators and Compound Disintegrator Crushers. We have large and small sizes of each. The designs are new and up-to-date. The construction is much better than is usually employed in clayworking machines.



The Brewer No. 21

Is a Conical Roll Crusher weighing 6,000 pounds. Rolls are 32 in. long, tapering from 22 to 18 in. diameter. A mighty good, large capacity machine where there are stones to be separated from the clay. The No. 59 is the same except smaller.

All Brewer Crushers and Disintegrators have removable white iron roll shells. When face of roll is worn the shell only has to be replaced.

Get our catalog and bulletins and see how we are building these machines.

If Marked



It's Good.

H. BREWER & CO.,

Tecumseh, Michigan.

If Marked



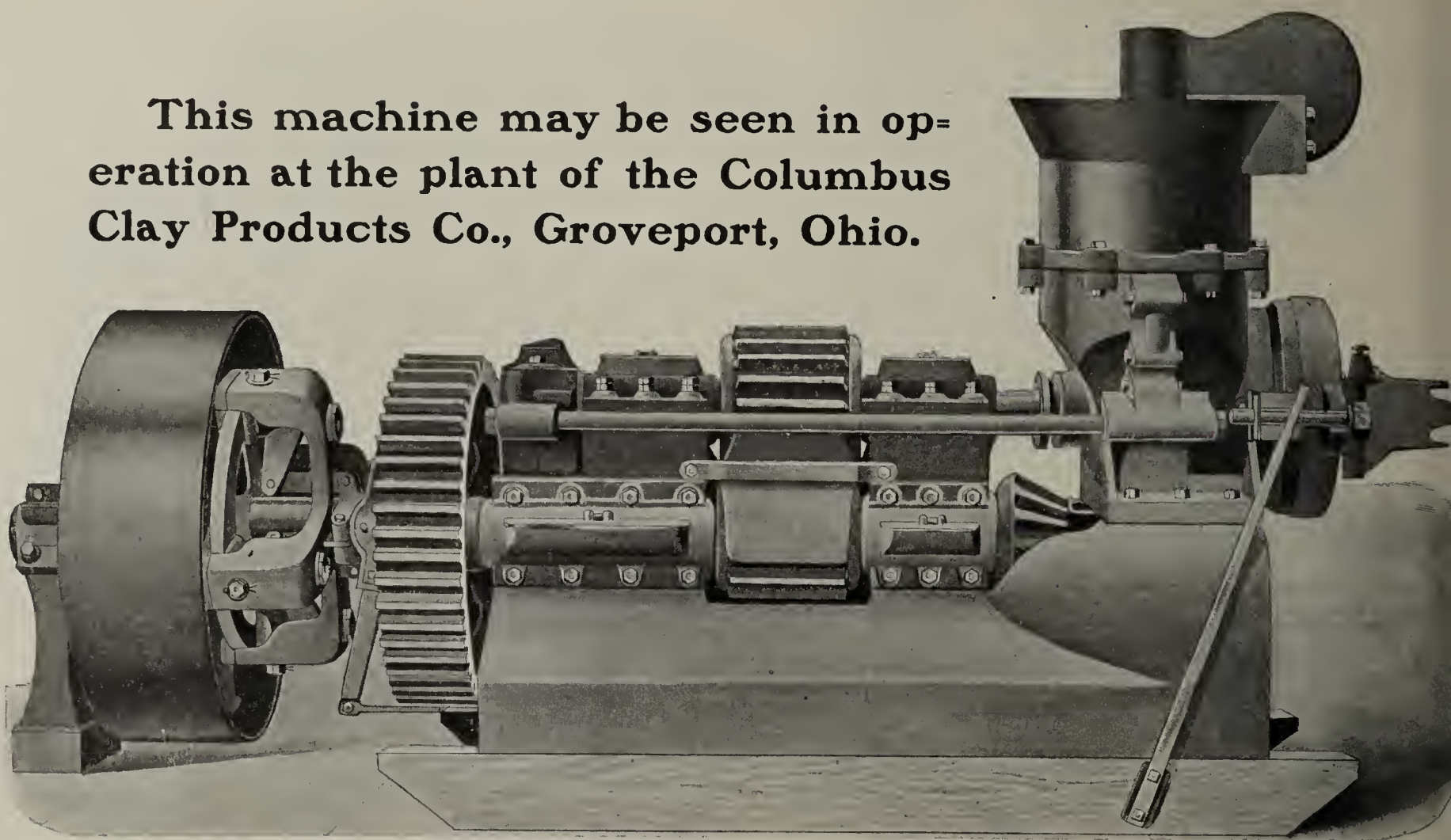
It's Good.



THE BIG WONDER.

The Brick and Tile Machine That
Does Not Laminate the Ware.

This machine may be seen in operation at the plant of the Columbus Clay Products Co., Groveport, Ohio.



No. 4 Wonder Brick and Tile Machine.

A Large Capacity Machine With an Unequaled
Record for Durability.

THE WALLACE

FRANKFORT,

Mention The Clay-Worker.

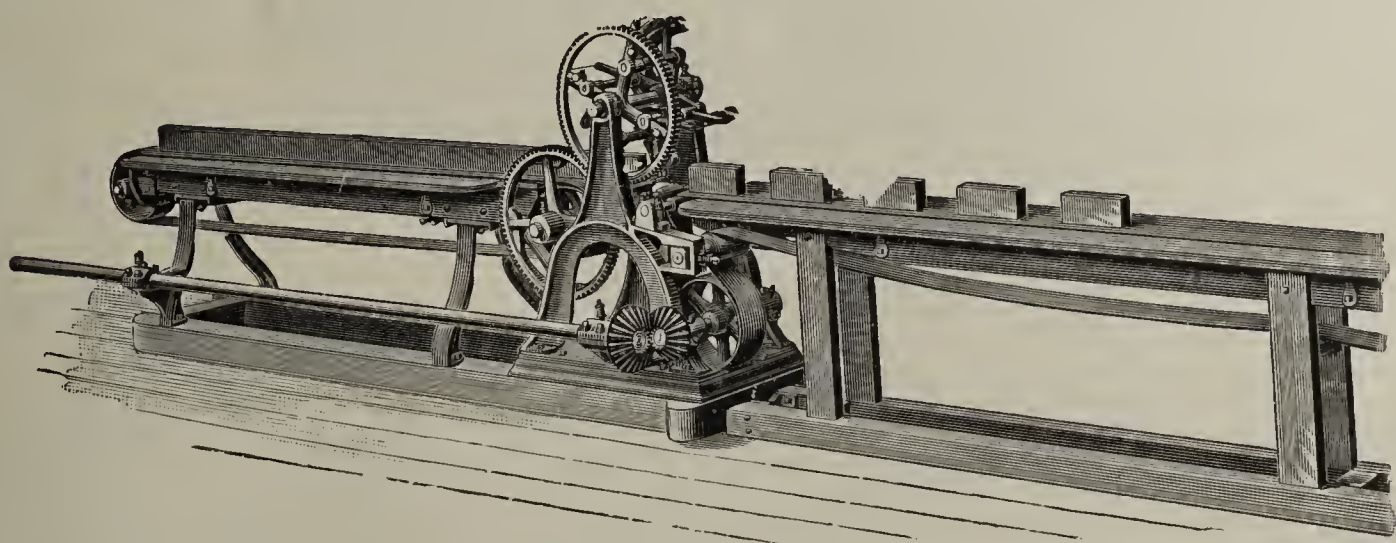




THE PROOF OF THE PUDDING:

See the Brick and Tile made on Wonder Machines exhibited at the N. B. M. A. Convention at Columbus, Ohio, February 3, 1908.

Our representatives will be there to tell you all about it.



Rotating Automatic End-Cut Brick Cutter.

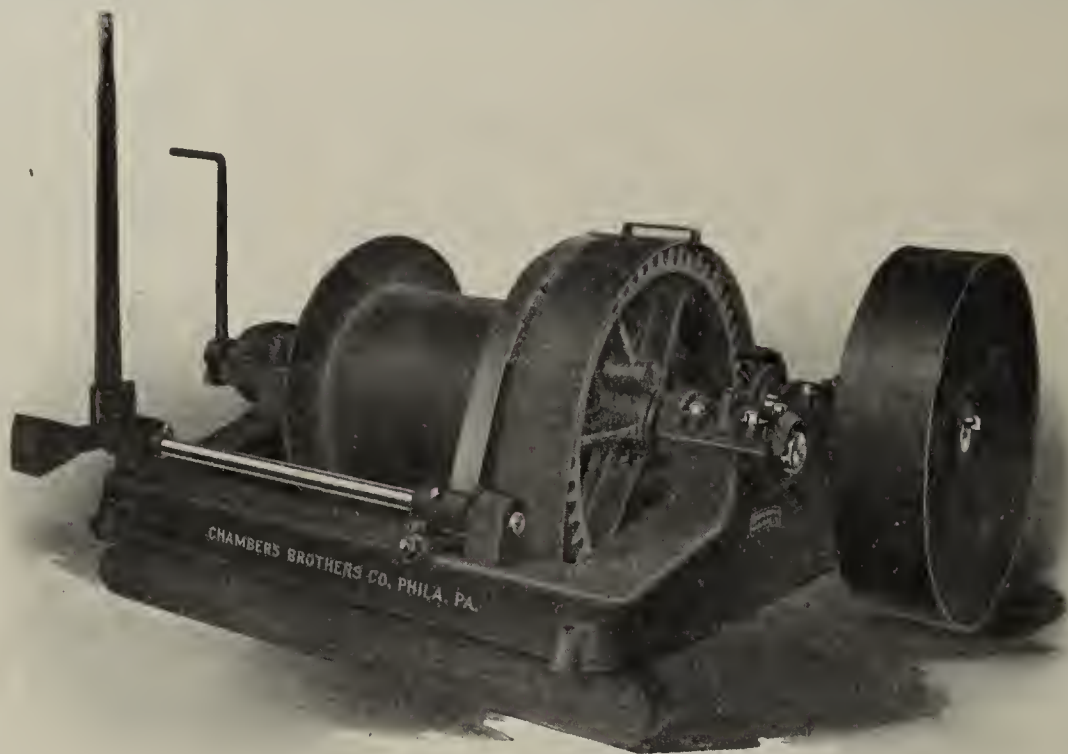
THIS IS THE TABLE OF CAPACITY—
Runs as regular as a clock. We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans and Disintegrators, Pug Mills and Granulators, Corrugated and smooth Roll Crushers.

Write for Catalog and prices.

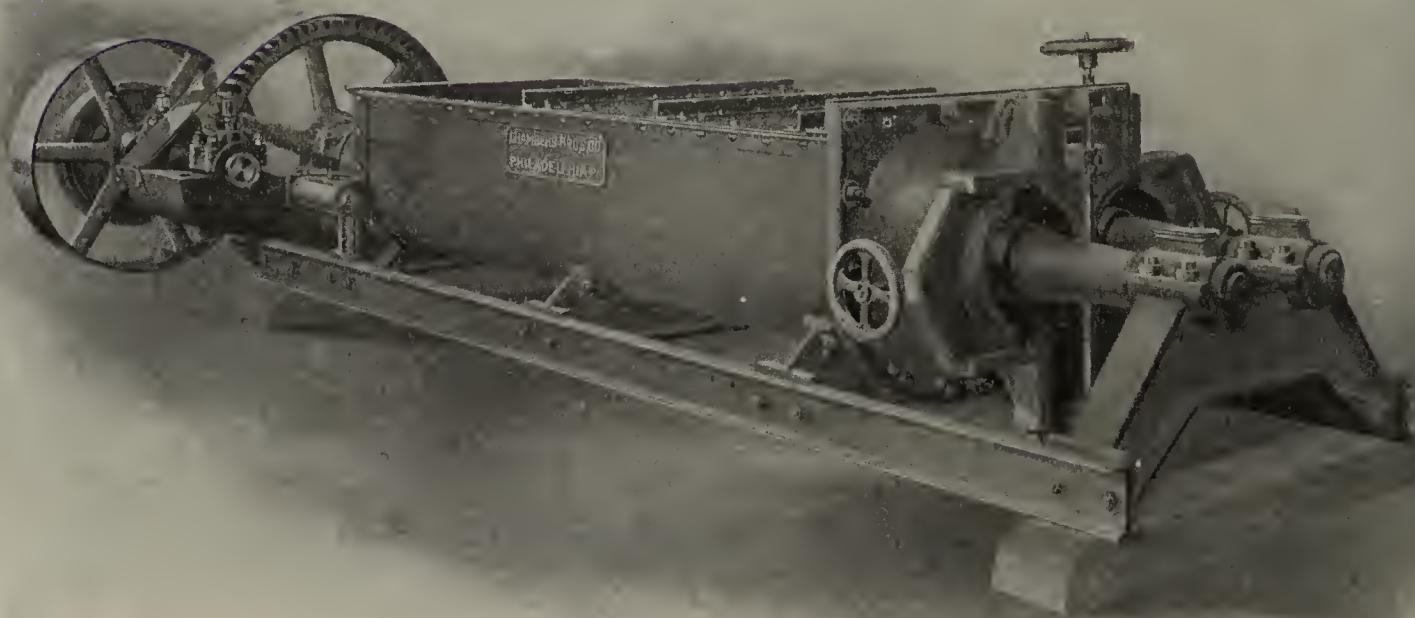
MFG. COMPANY,
INDIANA, U. S. A.



The Chambers Line of Clayworking Machines



No. 2 Size, Friction Hoist.



Double Shaft Mixing and Pugging Mill, No. 16.

GRANULATORS AND FEEDERS Save Labor, Secure Uniform Operation.
DISINTEGRATORS and FINE GRINDERS,
DRY PANS, ELEVATORS.

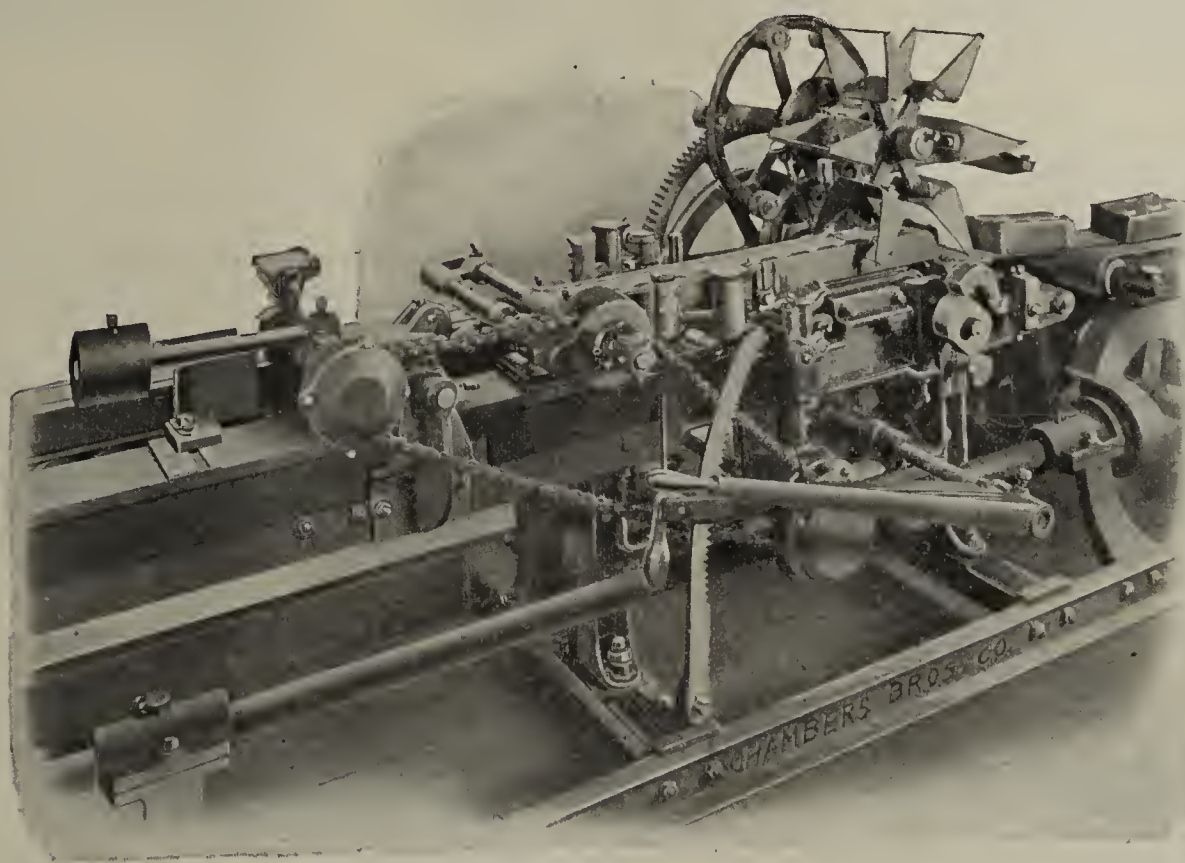
CHAMBERS BROTHERS COMPANY

Fifty-Second and Media Streets, PHILADELPHIA, PA., U. S. A.
59 West Jackson Boulevard, CHICAGO.

PAVING BRICK MACHINERY.



Round Corner Pavers Without Repressing.



The Round Corner Cutter Greatly Improved.

Ribbed brick with grooves for cement produced by the new Automatic Indenting Cutter.

CHAMBERS BROTHERS COMPANY

Fifty-Second and Media Streets, Philadelphia, Pa., U. S. A.

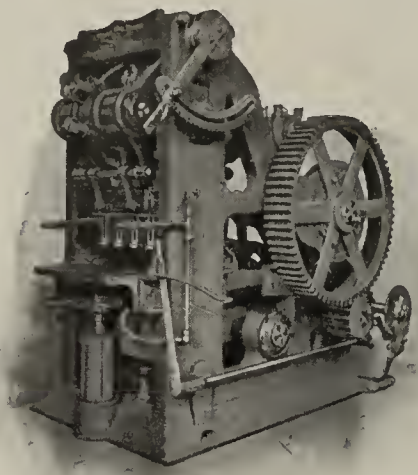
59 West Jackson Boulevard, Chicago.

SEE AD ON PAGE 3.

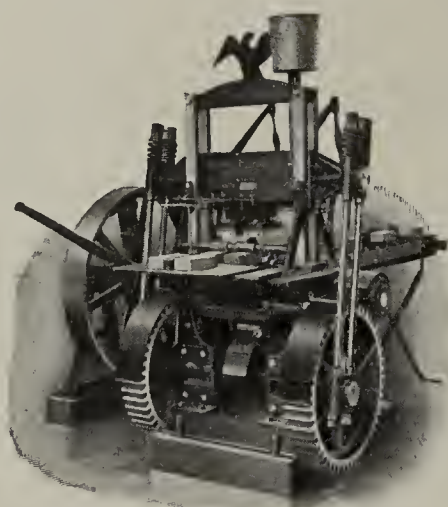
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

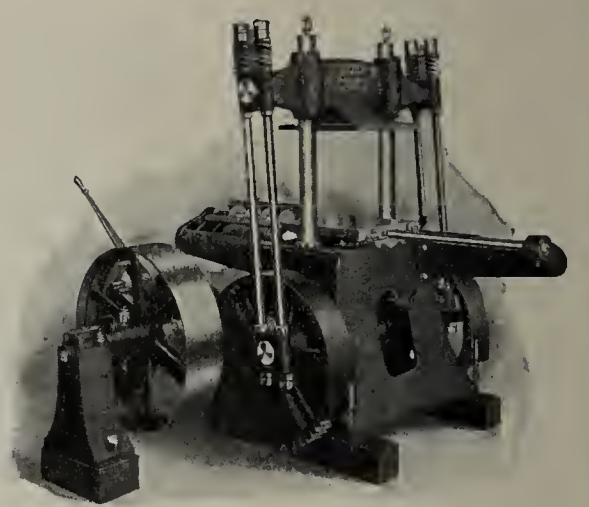
BUILT RIGHT RUN RIGHT



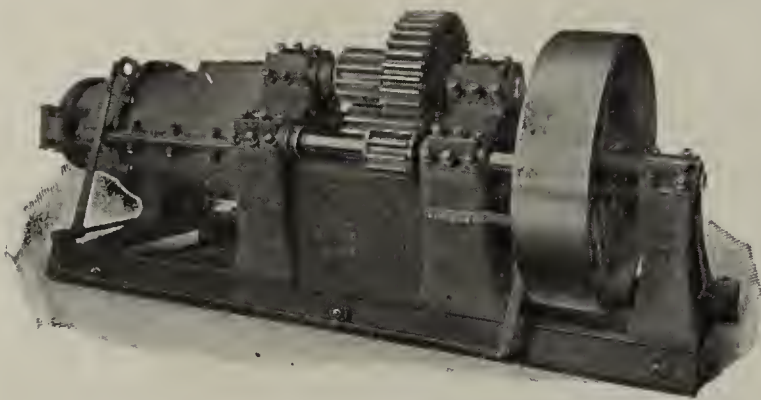
D-3 Dry Press



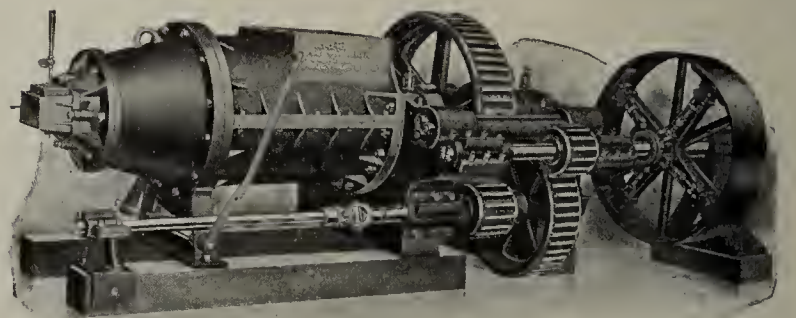
Eagle Reprass



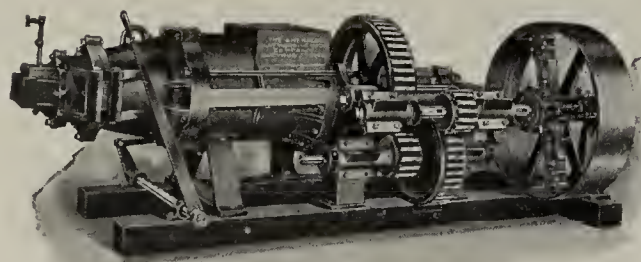
Roofing Tile Press



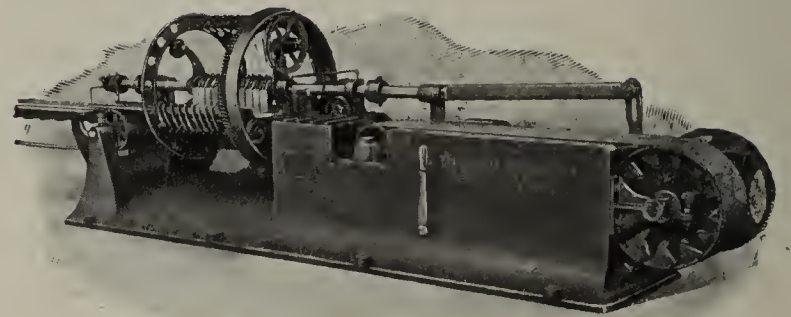
No. 65 Auger Brick Machine



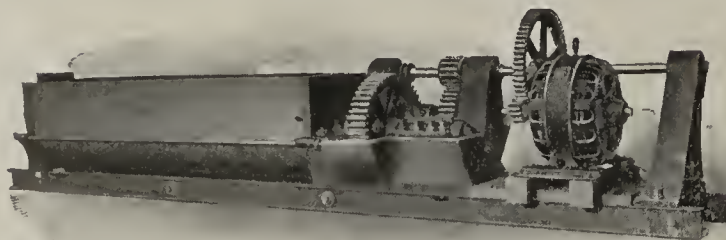
Special Giant Brick Machine



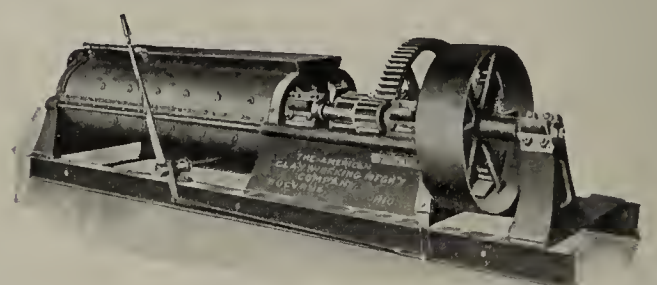
No. 2 Giant Brick Machine



No. 83 Automatic Cutter



No. 51 Electrical Driven Pug Mill



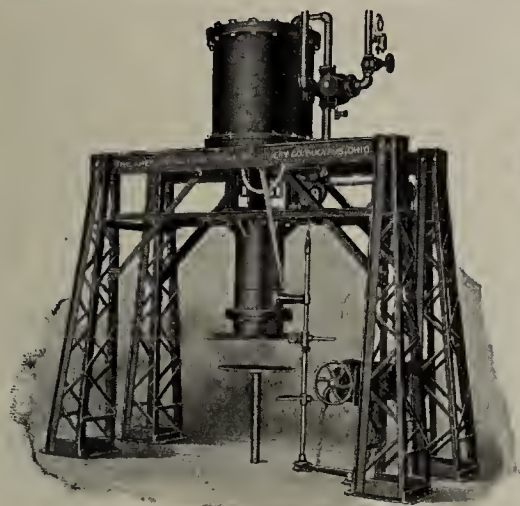
No. 38 Double Shaft Pug Mill

We Build Every Machine and Every Appliance Needed for the Manufacture of Every Class of Clay Products by Every Process.

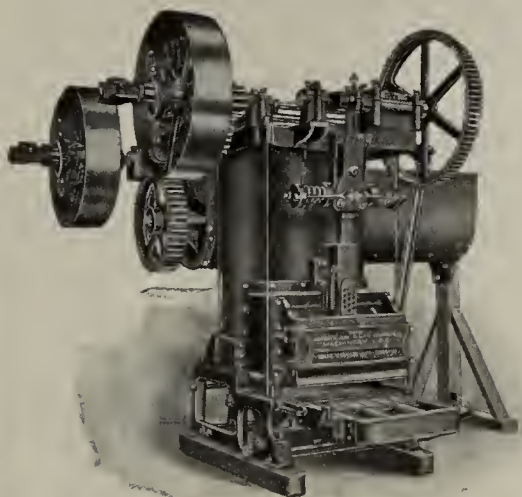
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

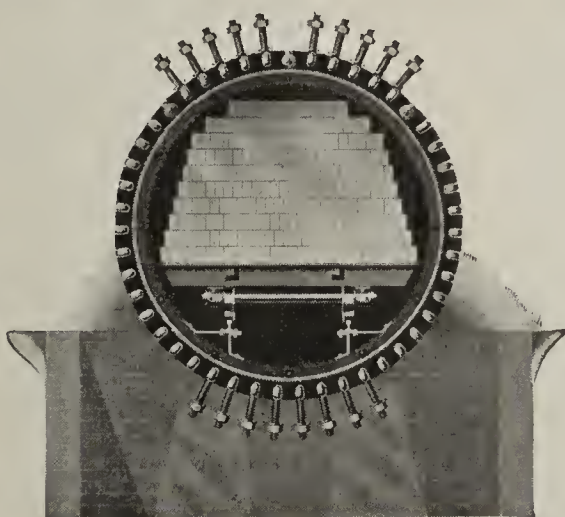
BUILT RIGHT RUN RIGHT



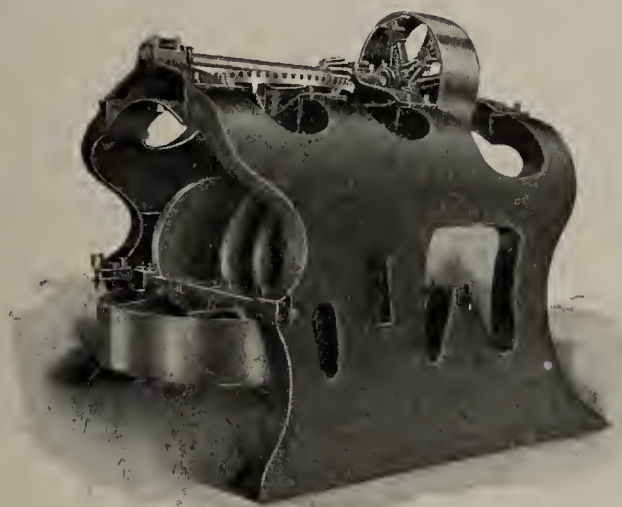
Sewer Pipe Machinery



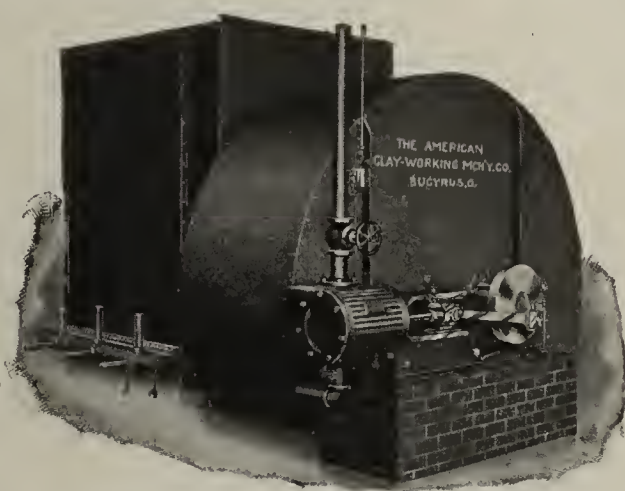
Upright Stock Brick Machine



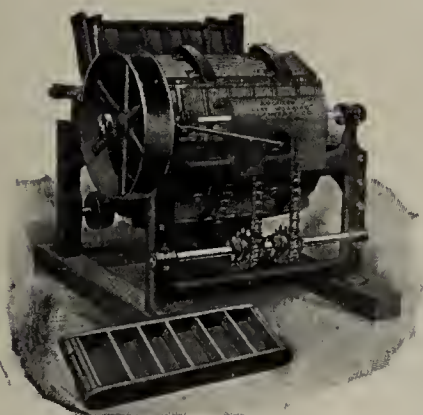
Sand-Lime Brick Machinery



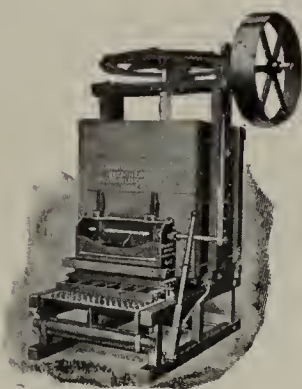
No. 64—9 Foot Wet Pan



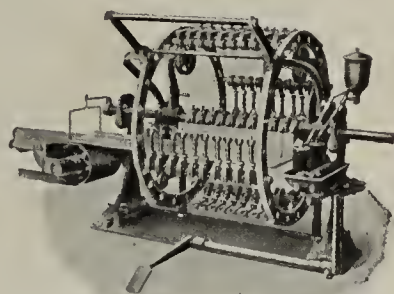
Blower Dryer Apparatus



Mold Sander



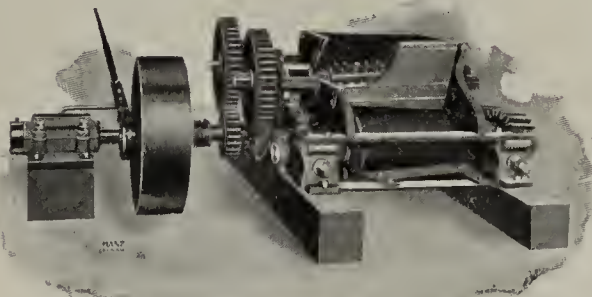
H. P. Brick Machine



No. 62 Hand Power Cutter



Dry Cars



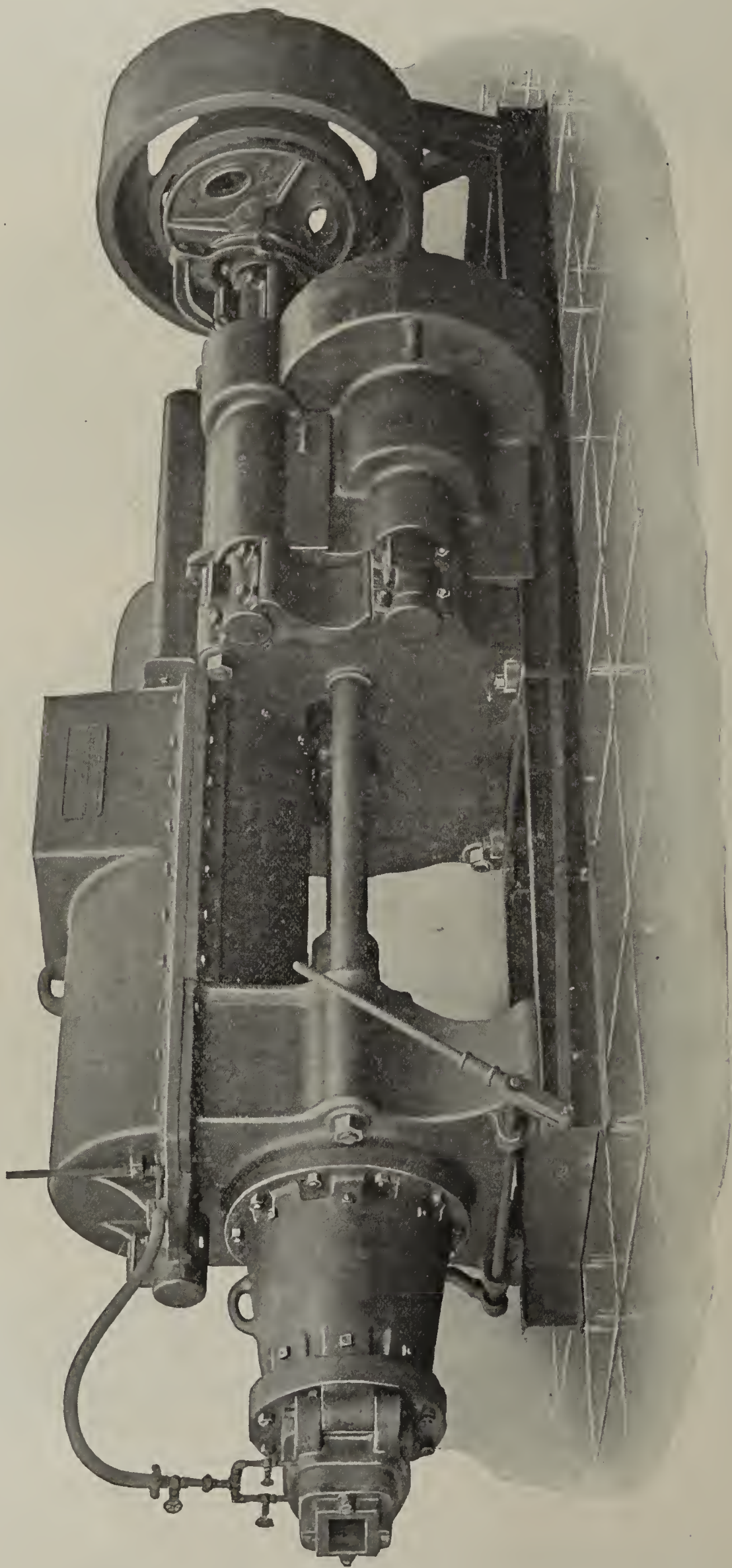
No. 25 Smooth Roll Crusher



Winding Drums

We Are Much the Largest and Much the Most Extensive Manufacturers of Much the Best Clay-working Machinery in the World.

Another Brick Machine.



This is a Brick Machine of massive proportions and of modern construction throughout, designed for large capacity and severe service. The gearing, shafting and other parts are very heavy. The gearing is protected by a removable dust and accident proof covering, hinged for convenient access to the interior. The feeding chamber is of ample diameter and length, and this result is obtained without excessive overhang of auger shaft. The auger shaft is supported by three journal bearings of sufficient distance apart to give it a substantial support. The part of the auger shaft in the clay chamber is about 4 feet in length, while the part outside is more than 9 feet long.

The machine is mounted on steel "I" beam sills between which are placed heavy cast iron spreaders with flanges, affording a substantial method of attaching the machine to its foundation. The outer end of the pulley shaft is supported by a rigid stand having an adjustable journal box.

Length of machine over all, 19 ft.

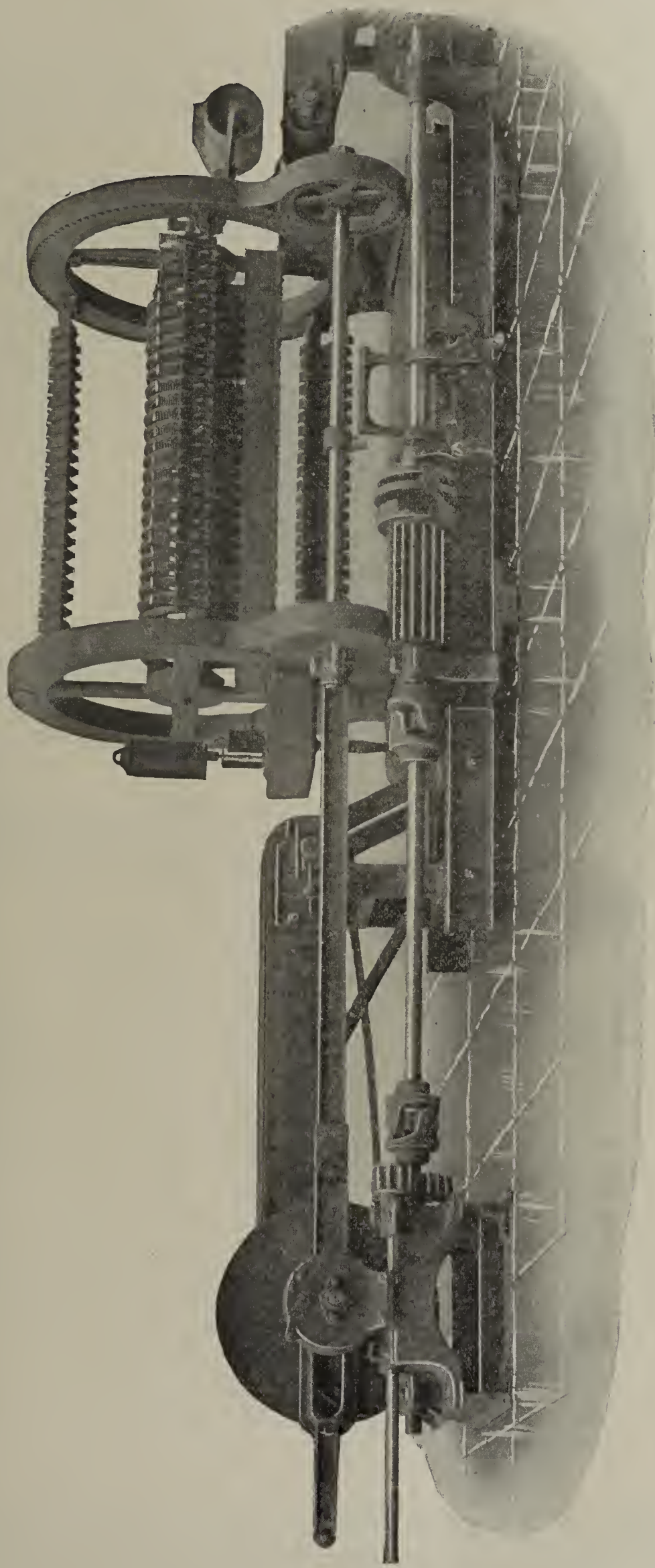
Height from floor to top of hopper, 5 ft. 8 in.

Weight of machine about 26,000 pounds.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

An Improved Rotating Automatic Cutter.



Our Rotating Automatic Cutters are the result of many years' constant hammering at a single type of Cutter. One of the three sizes we are building will suit your Stiff Mud Brick Machine.

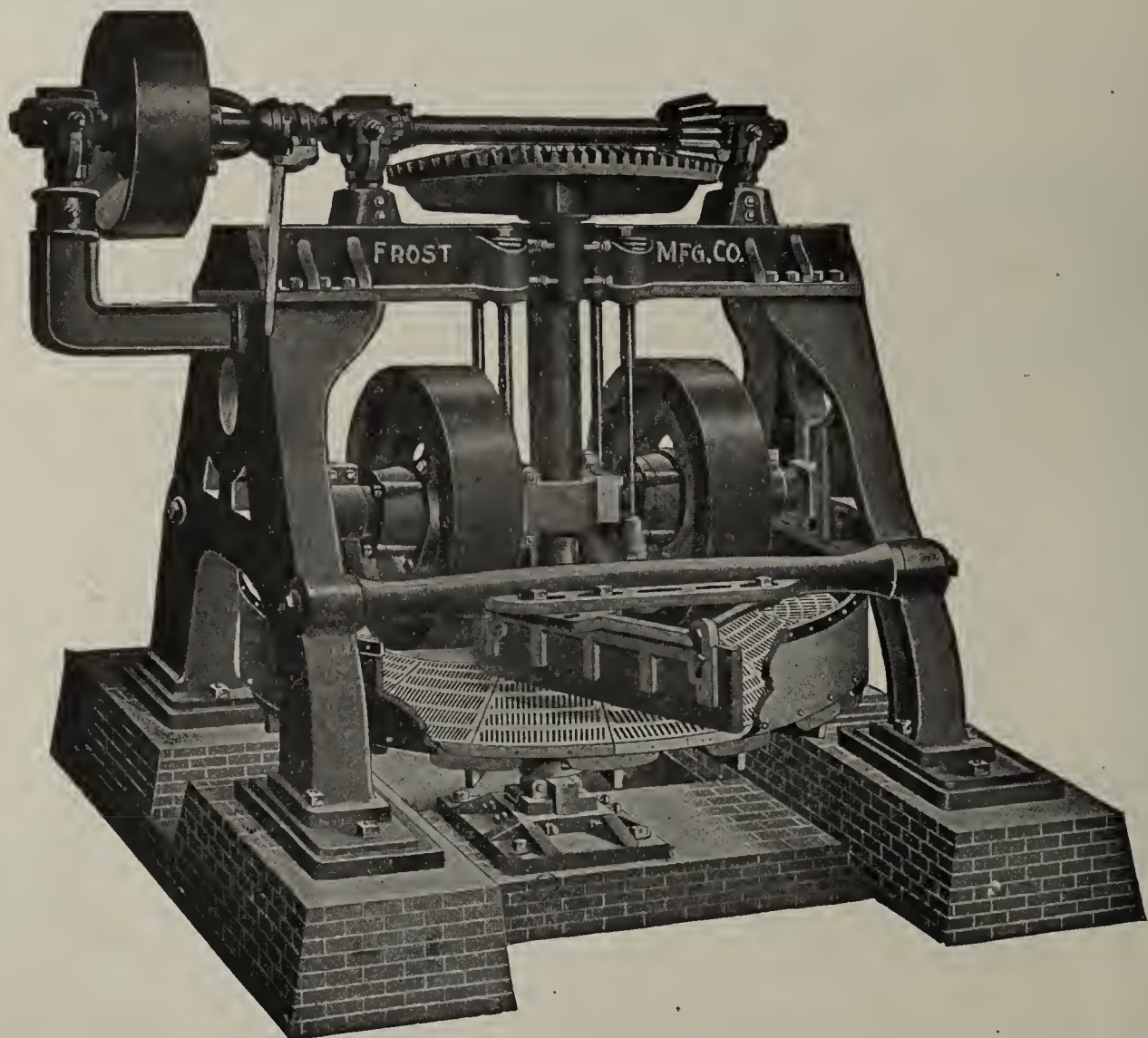
We ship on trial—YOU say whether our guarantee of "satisfactory operation" is fulfilled. If desired a man will be sent to arrange details of installation.

These Cutters will give you satisfaction when all others have failed.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

FROST DRY PAN



The FROST Pan is the BEST Pan. All Others Imitate but Never Equal.
A Few of Our Customers.

Purington Paving Brick Co., Galesburg, Ill.	16	Frost Pans	Choctaw Pressed Brick Co., Mansfield, Ark.	1	Frost Pan
Streator Paving Brick Co., Streator, Ill.	4	Frost Pans	Ardmore Coal and Power Co., Ardmore, I. T.	1	Frost Pan
National Brick Co., Chicago, Ill.	3	Frost Pans	Atlas Brick Co., Allegheny, Pa.	1	Frost Pan
Western Brick Co., Danville, Ill.	6	Frost Pans	Elk City Brick Co., Elk City, Kan.	1	Frost Pan
Amer. Steel Foundries Co., East St. Louis, Ill.	3	Frost Pans	Standard Brick Co., Milwaukee, Wis.	1	Frost Pan
Buffalo Brick Co., Buffalo, Kan.	3	Frost Pans	Standard Brick Co., Crawfordsville, Ind.	1	Frost Pan
Cherryvale Pressed Brick Co., Cherryvale, Kan.	2	Frost Pans	Bradley Brick Co., Mooresville, Ind.	1	Frost Pan
La Prairie Brick Co., La Prairie, Quebec	6	Frost Pans	Lincoln Brick and Tile Co., Lincoln, Neb.	1	Frost Pan
Twin City Brick Co., St. Paul, Minn.	2	Frost Pans	Kansas City Vitrified Brick Co., Kansas City, Mo.	1	Frost Pan
Hydraulic-Press Brick Co., St. Louis, Mo.	8	Frost Pans	Swoyer Bros. Brick Co., Allentown, Pa.	1	Frost Pan
Evans & Howard Fire Brick Co., St. Louis, Mo.	6	Frost Pans	Kingsland Brick Co., Kingsland, N. J.	1	Frost Pan
Jardin Brick Co., Philadelphia, Pa.	2	Frost Pans	Dallas County Brick and Tile Works, Adel, Iowa	1	Frost Pan
Michael Myers Brick Co., Dallas, Texas	2	Frost Pans	Whitehall Fire Clay Co., Whitehall, Ill.	1	Frost Pan
Palmer Pressed Brick Co., Palmer, Texas	2	Frost Pans	Denver Dry Pressed Brick Co., Denver, Colo.	1	Frost Pan
Thomas Pressed Brick Co., Peruque, Mo.	2	Frost Pans	Pioneer Fire Proofing Co., Ottawa, Ill.	1	Frost Pan
Globe Pressed Brick Co., Paris, Texas	2	Frost Pans	Columbus Clay Mfg. Co., Columbus, Ohio	1	Frost Pan
Johnsonburg Vitrified Brick Co., Johnsonburg, Pa.	2	Frost Pans	Ludowici Roofing Tile Co., Ludowici, Ga.	1	Frost Pan
Simons Brick Co., Los Angeles, Cal.	2	Frost Pans	The Alberta Portland Cement Co., Calgary, Can.	1	Frost Pan
Enid Vitrified Brick & Tile Co., Enid, Okla.	2	Frost Pans	Tulsa Brick Co., Tulsa, I. T.	1	Frost Pan
Phoenix Brick & Construction Co., St. Joseph, Mo.	2	Frost Pans	Stonington Brick Co., Stonington, Miss.	1	Frost Pan
Chickasha Shale Brick Co., Chickasha, I. T.	1	Frost Pan	Jackson Bros. & Squib, Carrollton, Texas	1	Frost Pan
Dallas Pressed Brick Co., Mesquite, Texas	1	Frost Pan	Toronto Pressed Brick and Terra Cotta Works, Milton, Canada	1	Frost Pan
South California Brick Co., Los Angeles, Cal.	1	Frost Pan	Globe Pressed Brick Co., Ferris, Texas	1	Frost Pan
Danville Brick and Tile Co., Danville, Ill.	1	Frost Pan	Winterset Brick, Tile & Material Co., Winterset, Pa	1	Frost Pan
Gainesville Brick & Tile Co., Gainesville, Texas	1	Frost Pan	Galvin Brick and Tile Co., Iowa Falls, Iowa	1	Frost Pan
N. Y. Hydraulic Pressed Brick Co., Rochester, N. Y.	1	Frost Pan	Terra Cotta Brick Co., Terra Cotta, Canada	1	Frost Pan
DeSota Brick and Tile Co., DeSota, Iowa	1	Frost Pan	Sphar Pressed Brick Co., Maysville, Ky.	1	Frost Pan
Dixon Wood Company, Pittsburg, Pa.	1	Frost Pan	Southern Tile and Brick Works, Gilmore, Tenn.	1	Frost Pan
			E. C. Allen, Albuquerque, N. M.	1	Frost Pan
			Glenview Brick Co., Glenview, Ill.	1	Frost Pan
			Edmonton Brick Co., Edmonton, Canada	1	Frost Pan

The Frost Manufacturing Co.

Works: GALESBURG, ILL.

SALES DEPARTMENT:

135 Adams St., CHICAGO, ILL.

Cable Address, "FROSTMANCO," Chicago.

THE HARRINGTON AND KING PERFORATING CO

PERFORATED METALS

OF EVERY DESCRIPTION

AND

FOR ALL PURPOSES

FOR SCREENS OF ALL KINDS

PERFORATED STEEL FOR CLAY SCREENS.

Samples or blue prints with prices furnished on request.

For Chute or Gravity Screens, Shaking or Vibrating Screens, Revolving Screens, Dry Pan Screens.

For Cleaning and Grading Clay, Shale, Sand, Cement, Coal, Stone, Etc.

For Pallets or Trays, Car Bottoms, Drying Floors, Conveyor Bottoms, Separators, Etc.

NEW YORK OFFICE
No. 114 Liberty St.

No. 231 North Union Street,

CHICAGO, ILL., U. S. A.

"A STRAIGHT TIP"

You wouldn't object to cutting the cost of manufacture of your product, would you, if you could do so without cutting the quality?

Well, our Mr. L. E. Rodgers, the most successful Waste Heat Brick Dryer Specialist in America, will give you

"A STRAIGHT TIP"

as to how you can cut the cost of drying your brick, if you are sufficiently interested in so doing to look him up and have a little talk with him at the Columbus Convention in February.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works, Engineers.

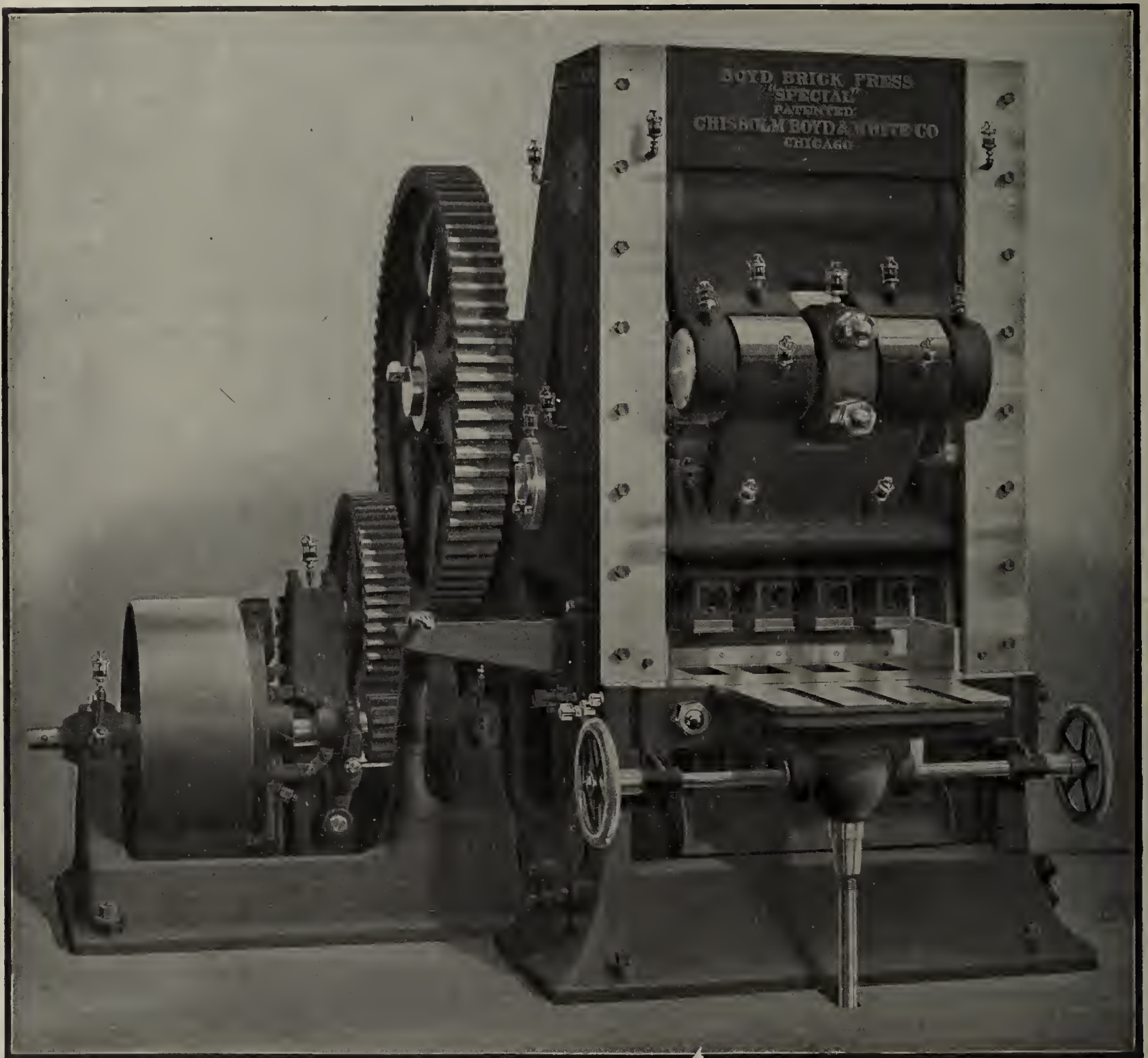
108 LA SALLE ST.

CHICAGO.



The Boyd Brick Press

Built in Two, Four and Six-Mold Sizes.



FOUR-MOLD SPECIAL.

BRICK PLANTS designed and complete machinery equipment furnished. Machinery and product guaranteed.

More Boyd Presses in use than all other Press Brick Machines combined.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 18 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

MILTON PRESSED BRICK Co.

Limited

DR. ROBERTSON,
President.
J. S. McCANNELL,
Vice-Pres. & Man. Dir.

Manufacturers of
High-Grade Pressed Bricks
and
Terra Cotta Mantels

All quotations are subject to change without notice. All agreements are contingent upon strikes or other delays beyond our control, and all contracts must be approved by the head office.

MILTON, ONT., November 15, 1907.

Messrs. Chisholm, Boyd & White Co.,
Chicago, U. S. A.

Dear Sirs:-

We are pleased to advise you that the new Four-Mold Boyd "Special" which we recently purchased from you arrived in good condition and is now in operation doing good work. We now have quite a family of Boyds.

It is now nearly 18 years since we installed the first Boyd Press. The second one was put in about two years later. We have operated these two presses all these years and they have never failed us and are still in good condition producing first-class brick. Up to about three years ago these presses ran continuously night and day. We operate our plant twelve months in the year, so that you can imagine the amount of work these presses have done since we installed them.

Five years ago we installed our first Improved Boyd, the Four-Mold "Special," and two years later we put in the second one, which with the one we have just started makes in all five Boyd Presses in our plant.

Each time we have received one of your presses we found many improvements over the preceding one, and the Boyd Press as you now build it, with all the improvements you have made from time to time, is stronger, more durable, and makes better brick than the original press built 17 or 18 years ago.

We take this opportunity of telling you that every time before buying your press we investigated presses of other makes, and the fact that we have bought five presses from you clearly shows the result of our investigation each time, and in our opinion your press has always been in the lead.

In conclusion, we beg to state that our Boyd Presses have given us entire and complete satisfaction in every respect, and for endurance and quality of product they have no equal.

Thanking you for the prompt shipment of the last press, we remain,

Yours truly,

Milton Pressed Brick Co., Limited,

J S M Cannell
Man'g Director.

The Grath Special Brick Press

Patented.

Made in Two, Three, Four and Five-Mold Sizes.

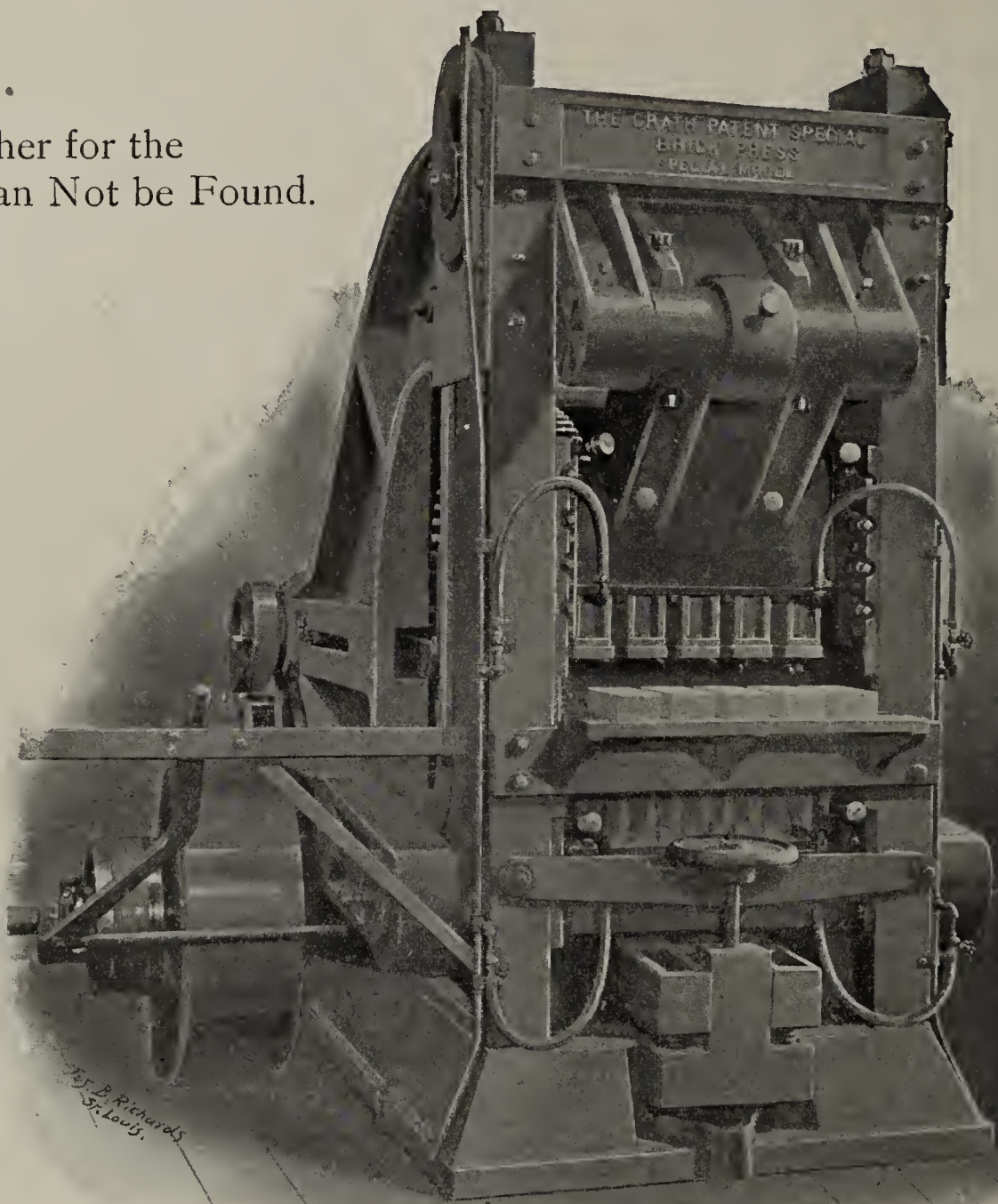
THE ONLY PERFECT BRICK PRESS

For SAND=LIME and DRY CLAY BRICK of Unequaled Quality.

FIVE MOULD MODEL.

Seek No Further for the
Equal Can Not be Found.

The Best
is the
Cheapest
for the
Manufact-
urer.
Do Not Buy
an
Out of Date
Press,
Same as
Built
Twenty
Years Ago.
Buy a
Modern
Press
And
Keep up
With
the
Times.



LATEST AND MOST MODERN PRESS.

Simplest Press Built.
This Means Less Parts to Wear and Smallest Repairs.
Adjustable at all Wearing Parts.
All Parts Above Floor Line.

THE PRESS OF TODAY.

THE ALBERTA PORTLAND CEMENT CO.

W. P. Grath, St. Louis, Mo.:

[Copy]

Sandstone, Alta., Sept. 26, 1907.

Dear Sir—Replying to your favor of recent date regarding Grath Special press purchased from you, would say that after working your press alongside another well-known make, your press has proved itself vastly superior in every way; it is stronger, simpler, easier of adjustment, makes more brick, and of much better quality.

After a long experience with presses, having operated five (5) different presses each of different makes, I consider yours "THE BEST YET," in short, "AN IDEAL PRESS."

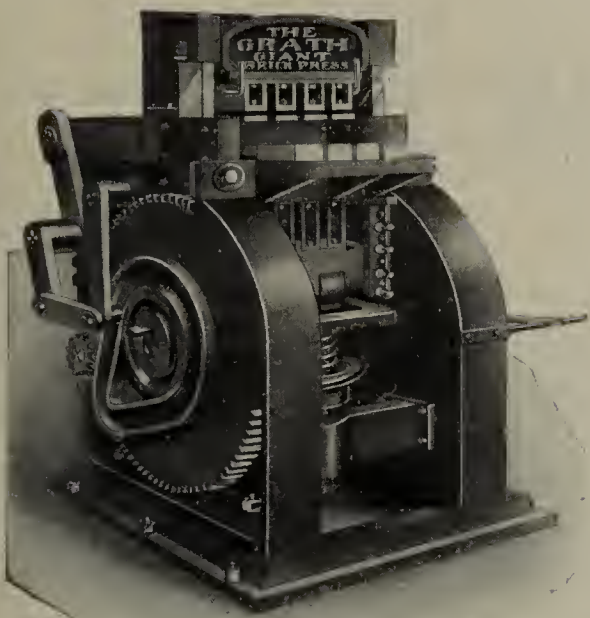
Wishing you the success your press merits

Yours truly, G. W. DELLER, SUPT.
Alberta Portland Cement Co., Limited.

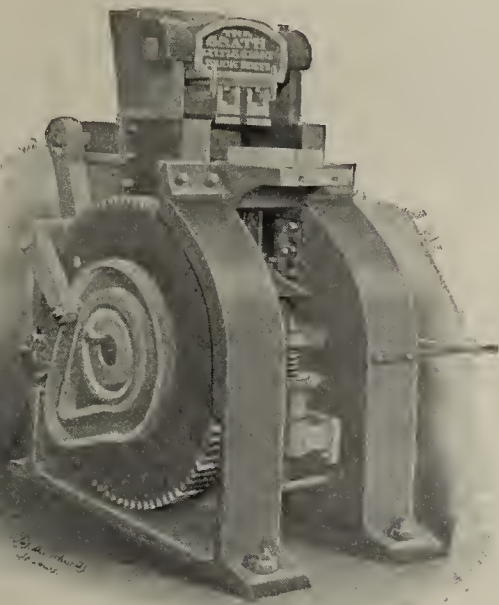
Illinois Supply & Construction Co.,

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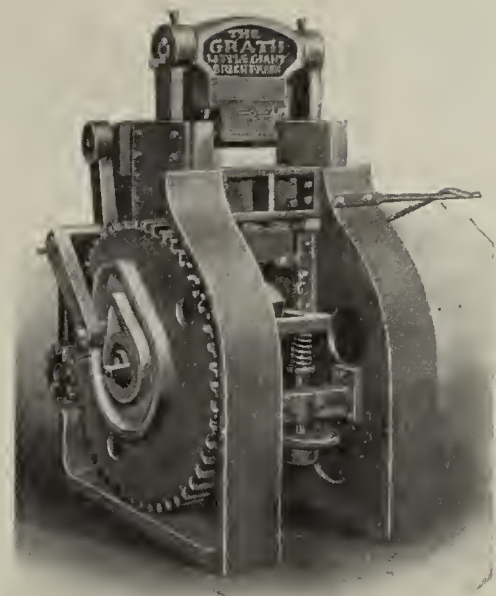
St. Louis, Mo., U. S. A.



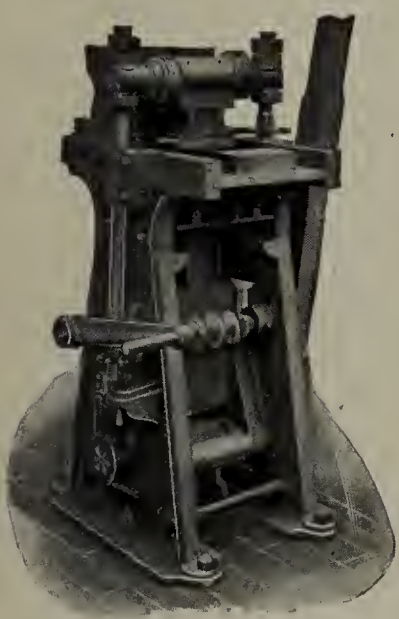
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BRICK PRESS**
For Fine Press Brick
From Dry Clay or Sand-Lime.



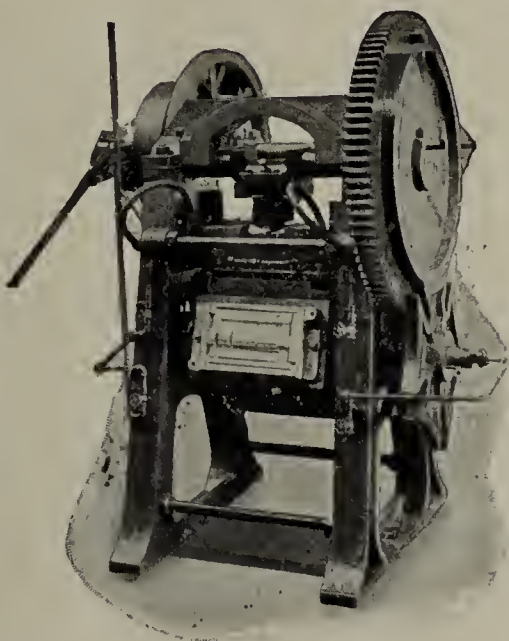
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MOLD BRICK PRESS**
For Fine Dry Press Brick.



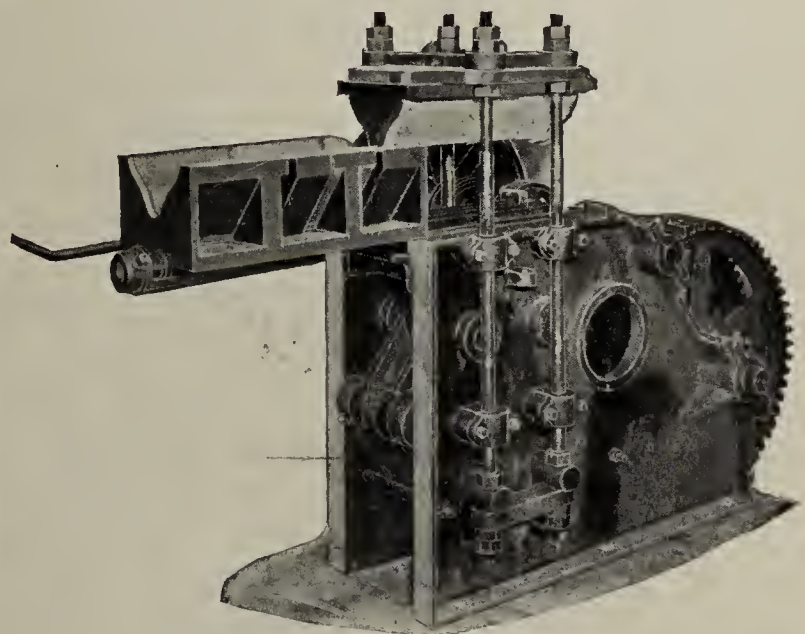
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For Perfect Sand-Lime or
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From Dry or Semi-Dry Clay or Sand-Lime
Guaranteed against breakage.

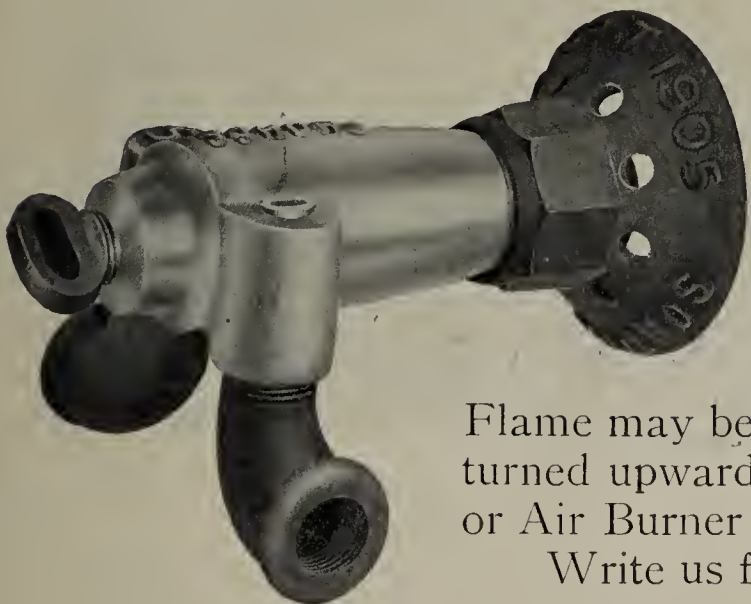


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Strongest and Simplest Made.
For Plaster or Metal Dies.
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No Roofing Tile Plant
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Especially designed for burning Brick, Tile, Terra
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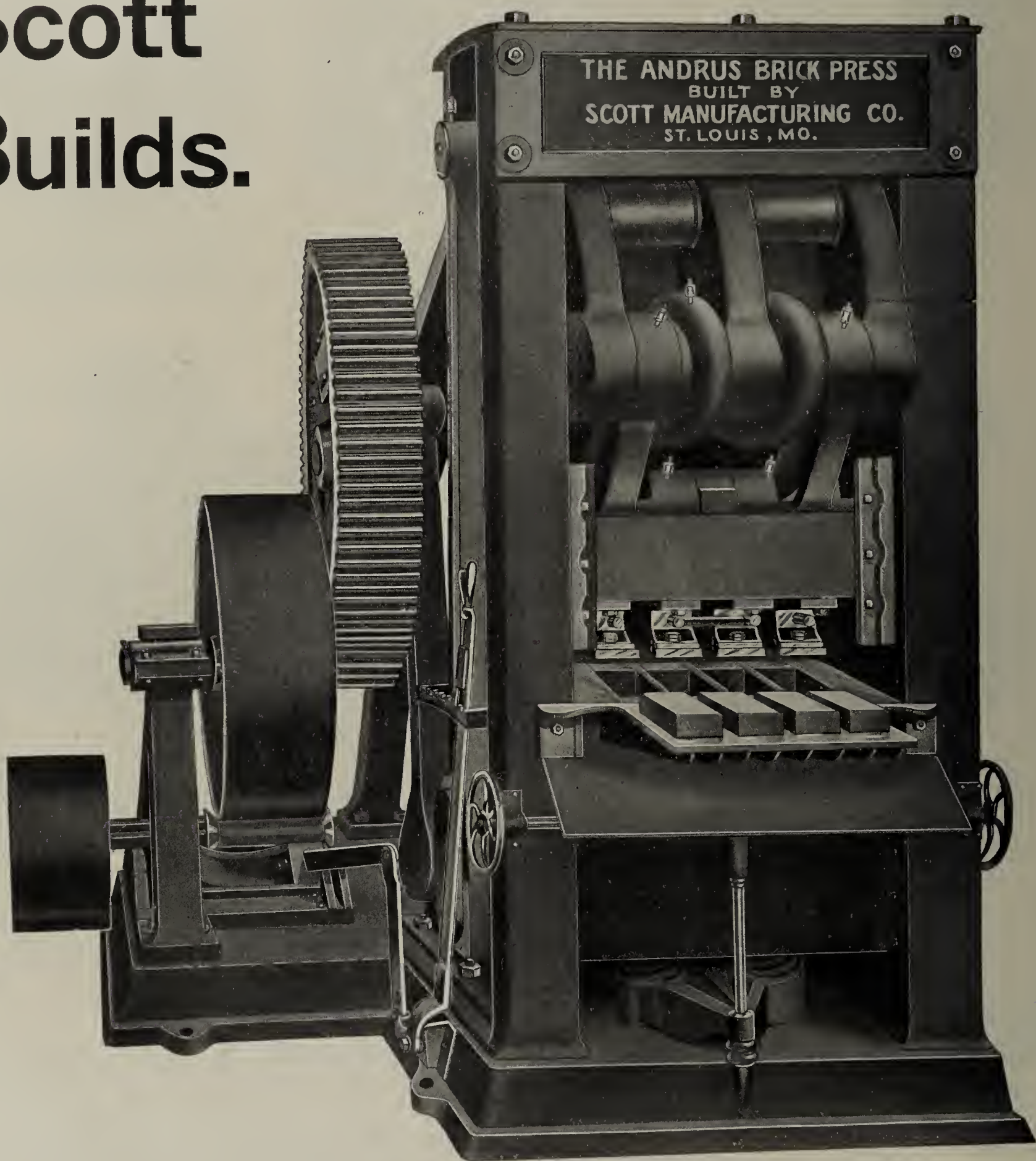
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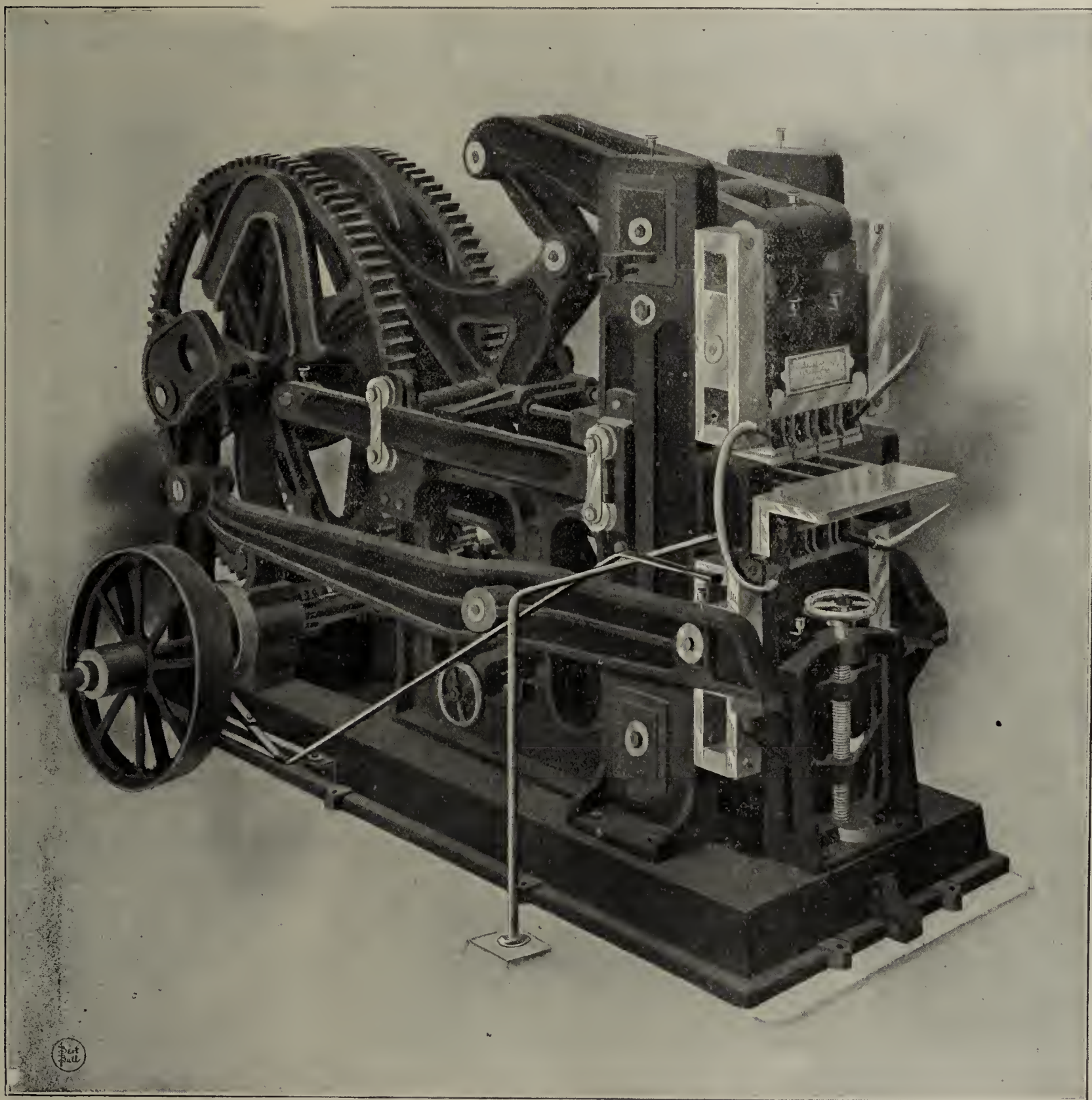
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The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.



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RESULTS—See this machine in action.

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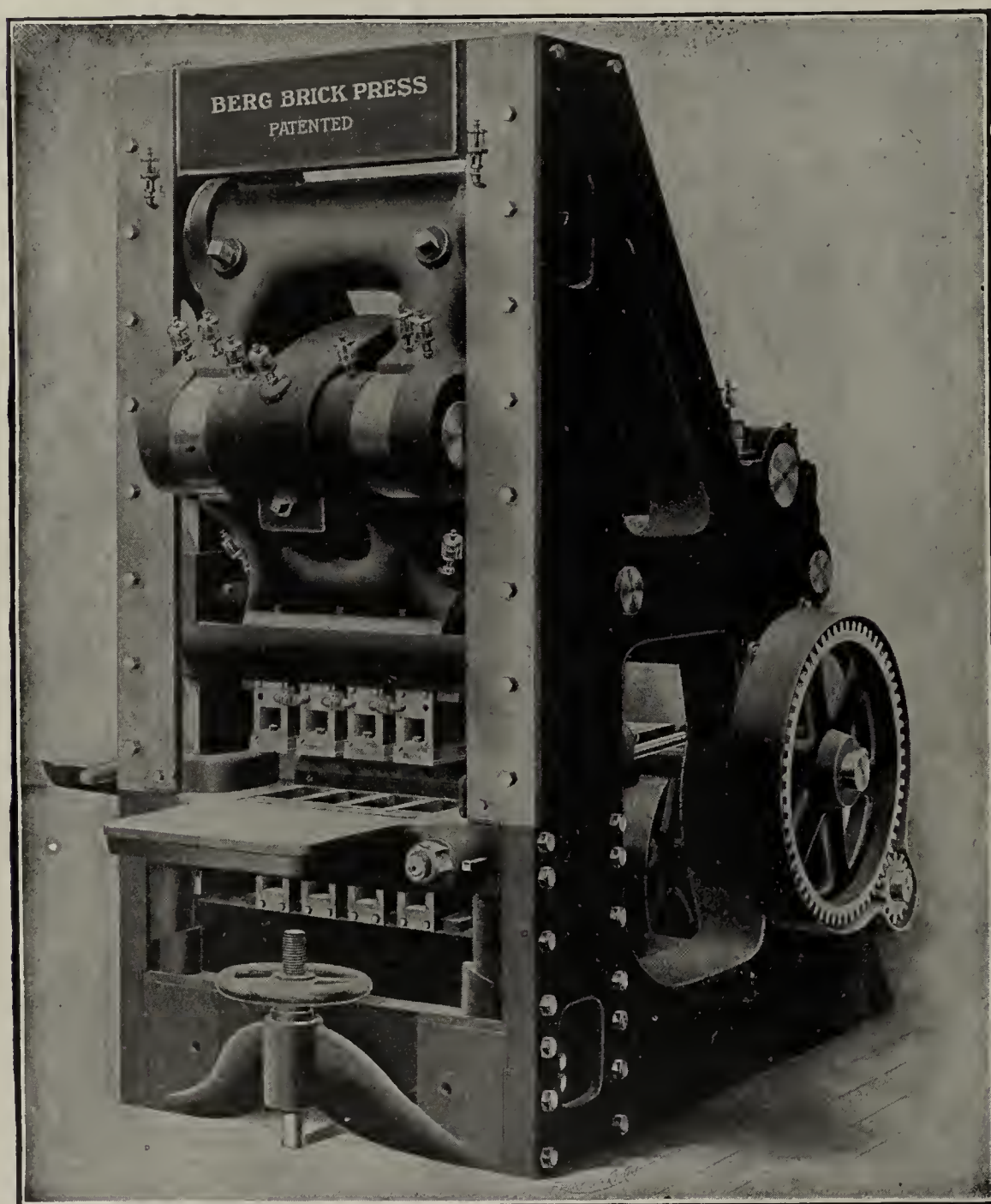
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The "Berg Press" is The Highest Development in The Art of Brickmaking Machinery, so Pronounced by The U. S. Government.



IMPROVED BERG BRICK PRESS.

THE BERG PRESS EXCELS
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Shale Pressed Brick.
Clay Pressed Brick.
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THE BERG PRESS
Gives THREE Distinct PRESSURES:
Result is,
No Granulated Centers.

THE BERG PRESS
HAS ALL WORKING PARTS ABOVE
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THE BERG PRESS
is fitted with "THE BERG PATENTED
MOLD BOX"—the DELIGHT of brick-
makers, and which many OTHERS
have tried to IMITATE.

All Sizes and Shapes
Can be Made.
Molds Can be Changed in a
Few Minutes,
Owing to the
SIMPLE MECHANICAL
CONSTRUCTION.

Cut Gearing, and many other steps forward in *Improvements*, and built of the *Highest Grade of Material and Workmanship. Fully Guaranteed* as to its *Success*.

Manufactured by its Inventor in Toronto, Canada, exclusively. Also all equipments for Pressed Brick Plants to make *Sand-Lime Brick, Sand-Cement Brick, Shale Brick, Clay Brick* and *Fire Brick*. Correspondence solicited.

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✧ FOR THE GARDEN ✧

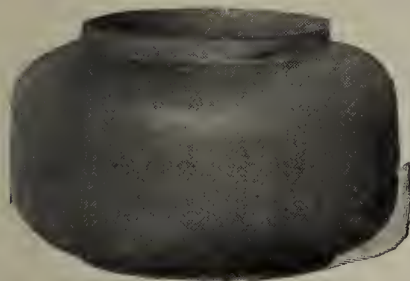


A-105
34-in. high, \$50.00.

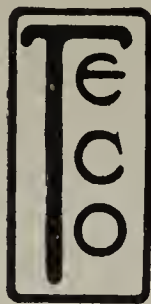
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Our booklet will be mailed upon request; also, name of our representative in your city where Teco Pottery can be procured.



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For potted trees, ferns, etc.,
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For bay trees, shrubs.
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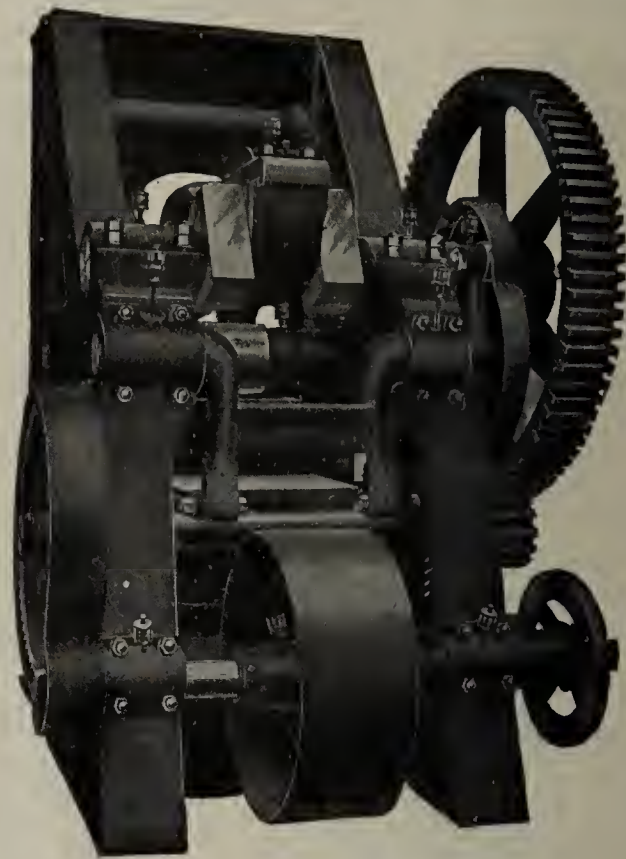
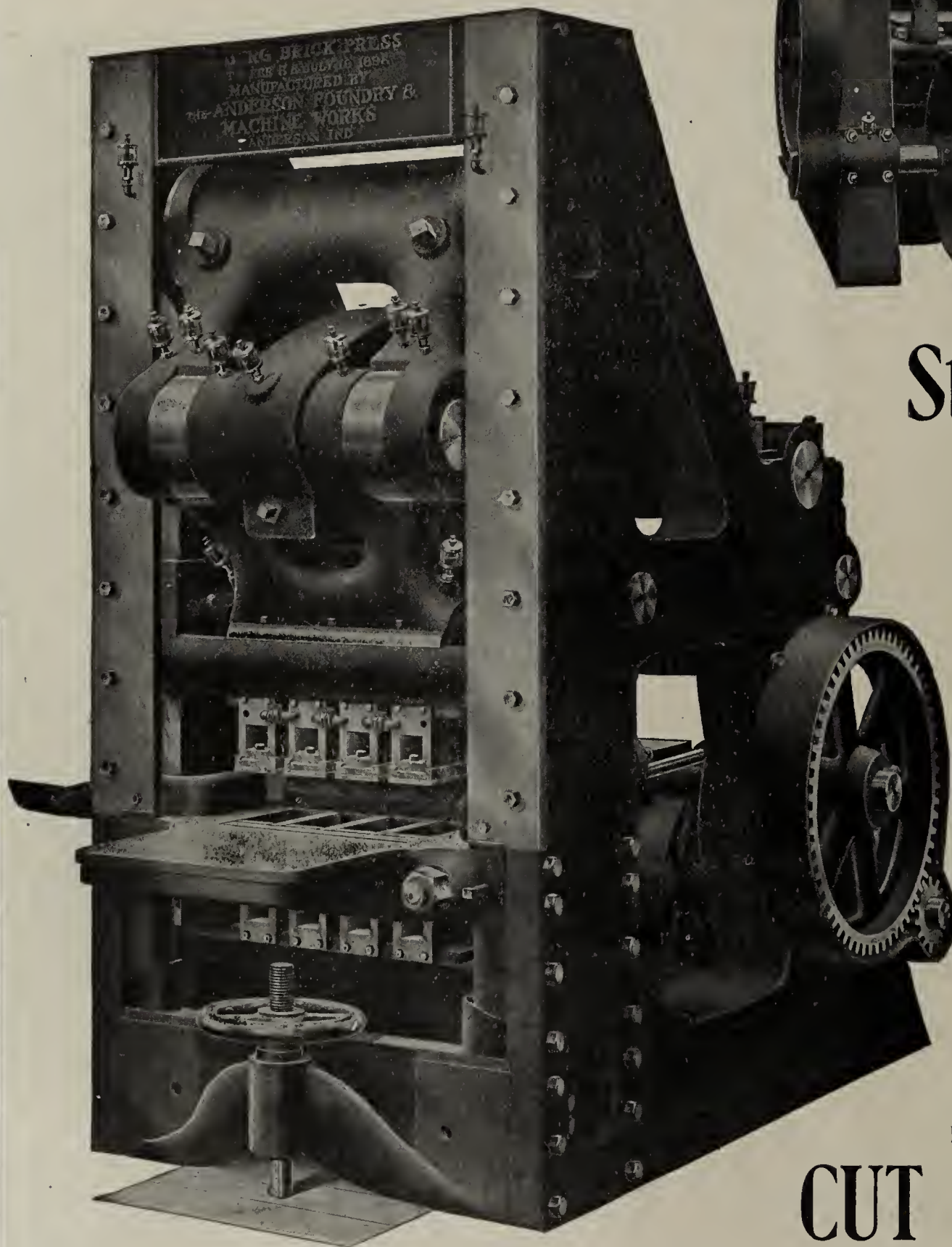


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For ornamental trees.
16-in. high, \$30.00.

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New Model Berg Brick Press



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Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact, and

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Complete Outfits for Dry Press Clay and Sand-Lime Brick Plants.



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Four, Five and Six-Mold Sizes.

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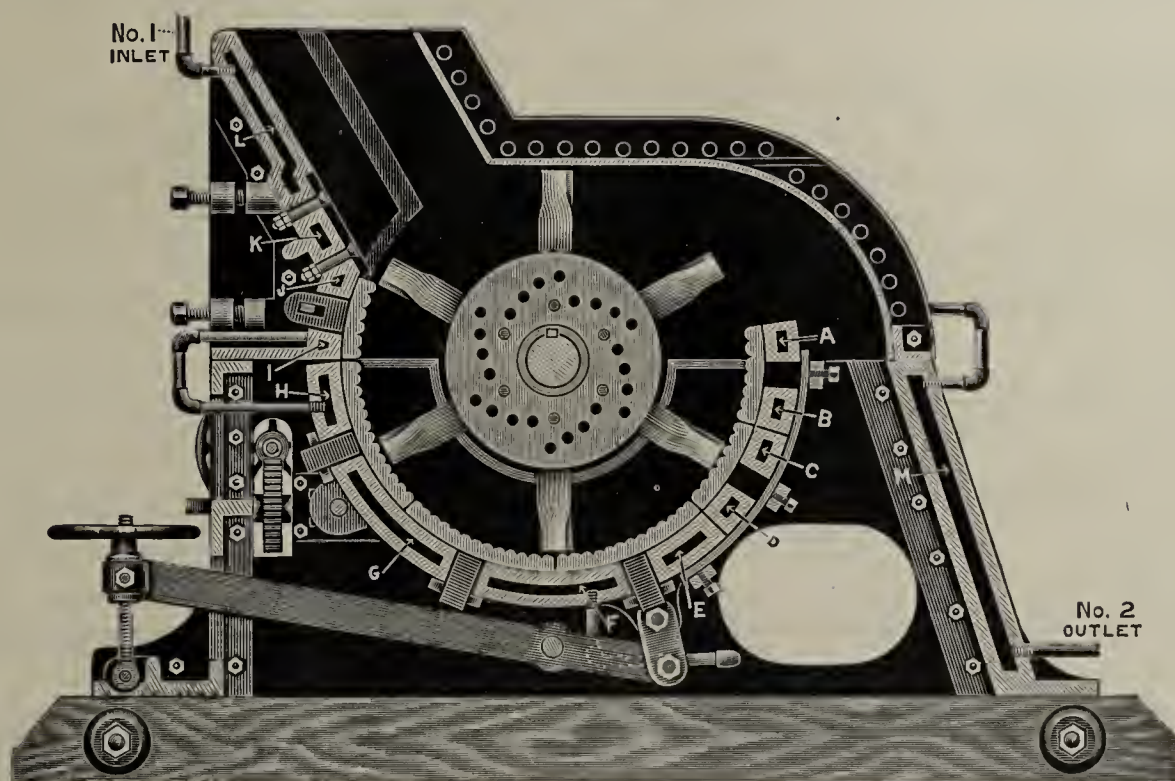
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Over 1300 machines in daily operation.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

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"A Directory of Manufacturers of Vitrified Brick."

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Street Paving **Brick and Block.**

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Vitrified Shale and Fire Clay Paving Bricks and Blocks.

Burned in Yates' Patent Kiln.

Samples and Prices on Application.

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THE COLLINWOOD-DECKMAN-DUTY COMPANY,

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Factories at Collinwood, Malvern and Carrollton, Ohio.

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Thurber Vitrified Paving Brick
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Is the largest and best equipped plant in the East for the manufacture of Paving Brick. All brick sold under a guarantee. Correspondence solicited.

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Manufacturers of the Unsurpassed

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SIX FACTORIES
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How to Properly Construct Brick Streets.

Drop us a postal and we will send you free of charge
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Successors to
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MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS,
"SPECIALS," for crossings on macadam streets, GUTTER BLOCKS,
COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

Our material has for nearly fifteen years successfully stood the
heaviest traffic of Indianapolis, Terre Haute, East St. Louis and
dozens of other large cities of Indiana and Illinois. We ask inves-
tigation and comparison by those seeking the best paving material.
Samples furnished on application.

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Clinton Paving Brick Company,

Manufacturers of the Highest Quality of

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Which are offered to the municipalities of the Cen-
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WE OWN AND OPERATE EXTENSIVE DE-
POSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kao-
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Have been in the business for TWENTY-FOUR
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An unexcelled repressed shale paver.

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The Purington Paving Brick Co.,

of GALESBURG, ILLINOIS,

HAS the largest and best equipped plant in the United States for the manufacture
of Paving and Sidewalk Brick. The Galesburg Paving Brick have a reputation
second to none, and this Company points with pride to its record for quality of
material and its methods of conducting its business.

Correspondence respectfully solicited.

They Say They Don't See How THE STANDARD DRIER Could be Improved Upon!

A letter from Mr. T. T. Hay, President
of the Raleigh Press Brick Co., Raleigh,
N. C., under date of January 16th, 1908:

"The drying outfit we purchased from you is satisfactory in every respect. We do not see, now, how it could be improved upon. It comes up in every particular to your guaranty and we are delighted with it. When we increase our capacity, it is our purpose to call on you again."



THE STANDARD DRIER successfully dries *all* natures of clays, and is more effective in the utilization of *exhaust steam* than any other Drier on the market. Its exceptional efficiency in this and other respects is due to the improved (and patented) arrangement of the New Standard Heating System, which is described and illustrated in our booklet "Money-Saving Drying." Sent on request.

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647 South Pennsylvania Street :: INDIANAPOLIS, INDIANA

Mention The Clay-Worker.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. XLIX.

INDIANAPOLIS, IND., FEBRUARY, 1908.

No. 2.



OFFICIAL REPORT OF THE TWENTY-SECOND ANNUAL CONVENTION OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION, HELD AT COLUMBUS, OHIO, FEBRUARY 5, 6, AND 7, 1908.

ALL N. B. M. A. RECORDS were broken at Columbus, and the same is true of the American Ceramic Society and the Paving Brick Manufacturers' Association. The meetings of each association were more largely attended than ever before, the hotels were crowded beyond their capacity, and while this resulted in some inconvenience, the spirit of good fellowship was too intense to permit any such minor details to mar an otherwise happy condition. The first numerical roster was issued Monday night, Will P. Blair, of Terre Haute, being the first to register. The sixth and last roster was issued Friday night, the 7th, the last one to register being Anton Berg, of Toronto, Canada, to whom number button 557 was given, thus beating the great St. Louis registration by nearly one hundred.

The attendance at all of the sessions was unusually large and earnest, the closest attention being paid to every paper. The discussions, while not long drawn out, were pointed, as the following record will show. It is quite evident that the growth of the N. B. M. A. makes it imperative that the best possible facilities in the way of convention hall and hotel accommodations be provided, and it seemed to be the general opinion that in the future meeting places should be selected with this in view. The local committee were unceasing in their efforts to render

the visitors every possible assistance, and the success of the convention is due in a very large measure to the efforts of the Columbus contingent. The final session at the Ohio State University was a radical departure from the usual procedure, and was well attended and characterized by so much enthusiasm that it was conceded to be the best final session in the history of the Association.

There were a number of papers and events of pleasing character that were not scheduled on the regular program. The theater party in lieu of the annual banquet proved a very pleasant occasion, while Prof. Orton's "personally conducted tour of the brick plants of the Columbus district" proved the hit of the convention. It was enlivened by the voices of a most excellent male quartette, which in turn gave way to social chat to the accompaniment of good cigars and punch bowls, the latter being much appreciated by the ladies, of whom there were in the neighborhood of one hundred present. The Entertainment Committee, under the direction of Chairman Charles H. Frank, and assisted by the local ladies, afforded the visiting ladies a series of pleasing entertainments, such as the luncheon at the Ohio Club, a matinee party, sightseeing trips, etc., and finally presented to each a beautiful souvenir, a dainty silver mounted china hat pin holder, for which there was a clamorous demand by many of the gentlemen who should have had their wives with them. For the benefit of the latter, be it stated that they can be secured through the Secretary at \$2.00 per.

As has been the case for a number of years, the Assistant Secretary's table was decorated with a beautiful bouquet of American Beauties, which came bearing the best wishes of D. V. Purington, now sojourning at his winter home at Ocean Springs, Miss. There were a number of other well known members conspicuous by their absence. When the convention was apprised of the fact that W. D. Gates was making a trip up the Nile, the Secretary was instructed to cable him, and the following message was sent, "Largest N. B. M. A. Convention ever sends loving greetings."

The spacious lobbies of the Southern were crowded both night and day, apparently, from Monday until Saturday, and the buttonhole talks, could they have been recorded, would



President Wm. Conway,
Philadelphia, Pa.

have made a volume much larger than the last report of the A. C. S.

FIRST SESSION.

Wednesday, 3:00 P. M., February 5, 1908.

President Conway: As has been our custom in past years, we will open the proceedings of this convention with prayer. I wish to introduce the Rev. George Cutten, of Columbus, who will perform that duty for us.

The Opening Prayer.

Rev. Geo. B. Cutten: Lord, thou has been our dwelling place, our abiding place, in all generations. We come to Thee at this time, with thanksgiving in our hearts, recognizing that all good and perfect gifts are from above, cometh from the Father of Life. We thank Thee, our Heavenly Father, for the revelations thou art giving of ourselves through commerce and business today. We thank Thee for the revelation which has come that the business man can only be permanently successful as he is an honest man, a man representing integrity. We ask Thee, our Father, that as this has increased their commerce, that larger and higher and greater ideals may be coupled with it. We pray Thy blessing on this convention, and as these men endeavor to

with, but we hope it will be better in the next few days. This is, I believe, the twenty-second annual meeting of this Association, and I want to congratulate you gentlemen on sticking together so long. It is surely very commendable and shows that the brick industry of this country is growing. I am glad to welcome you to a city of brick homes. I am told we have more brick homes in the city of Columbus than any other city of its size in the United States. Ohio leads all states in the clayworking industry and produces 20 per cent. of all the clay products of the United States. We have here one of the four ceramic schools in the United States at our Ohio State University, and we want to thank you for the support this Association has given this School of Ceramics in years past.

I am not a public speaker; in fact, I do not know why they elected me to this office. I do not know whether they expected me to welcome every convention that comes to this city or not. If I did, it would keep me very busy, as we average one convention a day for every day in the year. This is considered the convention city of the United States. Columbus is what is known as a "lid town," but if you have brought with you brick that are hard enough, you might crack it in spots. (Laughter and applause.) I will say this, however, if



President-elect M. E. Gregory,
Corning, N. Y.



First Vice-President Lemon Parker,
St. Louis, Mo.



Second Vice-President W. P. Blair,
Terre Haute, Ind.

reach Thy thought and find out the means which Thou hast given to govern the world, endeavor to do the things which Thou has given them to do, grant that they may be blest in their deliberations, and fresh revelations may come to them and make them consider themselves, as they really are in this business, co-workers together with Thee, and may they not neglect to look through the creation to the Creator. We ask it in Jesus name. Amen.

President Conway: Ladies and Gentlemen of the Convention—We meet in one of the most progressive cities of the Central West. No doubt you are looking forward to a very pleasant time. We certainly will have it, although the weather at the present time is not very propitious. I wish to introduce to you the Mayor of this city, the Hon. C. A. Bond, who will extend an official welcome to us. (Applause.)

Welcome to Columbus.

Mayor C. A. Bond, Columbus: Ladies and Members of the National Brick Manufacturers' Convention—It is my pleasure, as Mayor of the city, to welcome you to Columbus, and to turn our city over to you while you are staying here. We have not given you the very best of weather to start

any of you are arrested for cracking it in these spots, I will assure you that you will not be convicted. (Laughter.)

I want to see you enjoy yourselves, and I hope that while your stay in our city is only for a short time, that it will eventually bring some of you here to make this your future home. We think we have a very beautiful city—I will admit that it is not very beautiful today. (Laughter.) But it is a good city to live in. I thank you for your attention. I thank you very much for coming here. I hope you will come again, and that I may have the pleasure of welcoming you. (Loud applause.)

President Conway: It is very pleasant to receive such a warm welcome from the Mayor, and I will call upon Mr. M. E. Gregory, of Corning, N. Y., to respond to same.

MR. GREGORY'S RESPONSE TO MAYOR'S WELCOME.

Mr. President and His Honor, the Mayor:

In behalf of the clay manufacturers here assembled, I thank you for the most hearty welcome you have this day extended to us. We come to you realizing that this great State is the leading clayworking State in our Union, and it is to learn of you that we have assembled in your beautiful city. I wish to further say to you, and all here convened, that such an assemblage as this is the leading clayworking State of our Union is impressive from the fact that we have come together from nearly every State to

promote our interests as clay manufacturers, and study the best methods of improving our business. The vocation in which we are engaged is one fraught with many changes. The road to success is rough and uneven, and there are few beds of roses along our pathway. There is no calling which has more trouble to the square inch than ours. The successful manufacturer of clay products of today is not the illiterate man of yesterday, but he is a broad minded, deep thinking, conservative business man, who studies the details of his business with the same careful forethought and intelligent action as the successful banker does his. The business of a clay manufacturer has emerged in a few years from one of obscurity to one of the most honorable occupations of man.

The United States Census says there is \$250,000,000 invested in the business. There are 5,857 factories in the United States, and 125,000 workmen employed in same. These factories turned out \$161,032,722 worth of products last year.

This great industry and its development has demonstrated how necessary it is for those engaged therein to receive special training along scientific lines in order to achieve the greatest success. At the head of each business concern there should be a brain that has not only received the advantages of a broad education, but also scientific training in the manufacture of clay products. In this great State of Ohio, and the States of Illinois, New York and New Jersey, there have been established in colleges special courses for the study of ceramic science, and I predict that in a few years many of our most successful factories will be guided by men who have received their training in these schools. It is true, however, that many have been successful in carrying on business without these advantages, but no one will deny the fact that they have worked to great disadvantage, and that their success would have been greater and more easily accomplished had they enjoyed the superior advantages which these schools now afford. One may chop

Secretary Randall: The next in order is President Conway's annual address.

PRESIDENT CONWAY'S ANNUAL ADDRESS.

Gentlemen of the Convention:

We are meeting in our Twenty-Second Annual Convention, in the capital city of the State which ranks No. 1 in the manufacture of clay products; the great variety of clays found within its borders making it possible to manufacture almost anything that can be made from clay.

It may be interesting for you to know that the State of Ohio was organized and admitted to the Union in the year 1802, and this beautiful city was founded in the year 1812 and incorporated in 1816.

Although the city is not yet 100 years old, you will find a great many things here to interest you, among which, and perhaps the most interesting to us clayworkers, is the Ohio State University, with its famous Department of Ceramics in charge of our genial member, Prof. Orton; this school might almost be termed a trade school for the training of young men in the art of the treatment and manufacture of clays in all its varied forms. From it have graduated a number of students who are today looked upon as being among the brightest young men in the trade, and whose future prospects seem the best; and, while I am on the subject of trade schools, it gives me pleasure to say that from all the information I can gather, I believe the establishing of schools for the teaching of trades to young men is on the increase, and I am in hopes that before many years it will be a part of the regular public school system throughout the entire country.

It is very important that this should be, for, with the present opposition of the labor unions to the apprentice system, it is



Third Vice-President C. M. Crook,
Youngstown, Ohio.



Secretary Theo. A. Randall,
Indianapolis, Ind.



Treasurer John W. Sibley,
Birmingham, Ala.

the wood with a dull ax, but how much easier it would be for him to cut it if he had a sharp one.

We are living in the greatest age of the world's history, an age that demands beauty as well as utility. The people demand that their structures shall possess character and harmonize with the beauties of the works of nature. We have every reason to be proud of our business, and what we are accomplishing in beautifying the earth. Monuments are being erected with our products which will endure for centuries, and of us it can be truly said: "Our works live after us."

I trust no one has been put to sleep by my serious thoughts, and hope I am not like the long-winded country preacher, who, after having talked to his weary congregation for two hours, discovered that there was some one in the gallery very much awake; and looking up saw Johnnie, a deacon's young hopeful, throwing chestnuts at the good brothers and sisters. When he was about to reprove him, the boy bawled out: "You mind your preaching, I'll keep the folks awake." (Laughter and applause.)

Gentlemen, I can not touch upon the many phases of our occupation in the few moments at my command, but I do desire to call your attention to the thought that if a man does his work well and has enthusiasm and love for that work he must surely succeed. Enthusiasm is the power which impels men onward. He must also have confidence in his work, more confidence than the little boy who had been put to bed during a violent thunder storm. The poor little chap was scared half to death, but his mother assured him he need not be afraid, that God was with him and would take care of him. "Yes, I know," said the little fellow, "but why can't I go down stairs and stay with papa and you stay up here with God." (Laughter.) Now that boy lacked confidence. (Applause.)

almost impossible for a young man to learn a trade. We brick-makers should do all in our power to encourage and help establish in our respective districts, public schools for the teaching of trades, especially bricklaying. The increased use of concrete in the erection of buildings is caused principally by the scarcity of bricklayers, and, although many buildings have collapsed and disasters been caused by its use for purposes for which it is entirely unfit, it goes steadily on, and it is surprising to see what dangerous structures are being erected in some of our large cities.

President Roosevelt, in his last annual message, spoke about trade schools in the following language:

"Our school system is gravely defective in so far as it puts a premium upon mere literary training, and tends, therefore, to train the boy away from the farm and the workshop. Nothing is more needed than the best type of industrial school, the school for mechanical industries in the city, and the school for practically teaching agriculture in the country."

In accordance with your wishes, I appointed the following named gentlemen, viz.: Anthony Ittner, of St. Louis; J. M. Blair, of Cincinnati, and Geo. T. Dickover, of Wilkesbarre, as a committee to confer with Dr. S. C. Dickey, of the Winona Institute of Indianapolis, for the purpose of determining to what extent and in what way we may, as an organization, aid in the establishment of a department of bricklaying in that institution, and I hope we will have a report from the committee during the convention.

Since our last annual convention the country has passed through a severe financial disturbance, which has caused a great falling off in the building business in many parts of our country, seriously interfering with those of our members who manufacture building brick. This, I hope, will be only of short duration,

for, with the advent of an easier money market, many operations which were postponed will be taken up and pushed to completion. The paving brick industry does not seem to have suffered so severely, some of our members reporting that they have orders on their books which will keep them busy for several months to come.

Many theories have been advanced to account for the change which so suddenly came over business affairs, and the blame has been variously placed, some saying that it was caused by President Roosevelt, others that the bears in Wall Street were to blame. However this may be, at this time it is no longer a theory, but a condition which we have to meet, and the question of the hour is how best to overcome the trouble, and, if possible, provide remedies to prevent its recurrence.

There is one fact which is very pleasing to note at this time, which is, there have been very few failures among business men; this shows that the bone of the financial man is all right, and when we consider that the marrow in the bone, which is the farmer, never was in better condition, there is good reason to believe that before long we will be enjoying another period of prosperity.

A great deal of our success as a nation depends on ourselves, the business of this country, both at home and abroad, is growing so fast and business conditions change so quickly, it is necessary for us to select the ablest and brightest men in the country to represent us in Congress, and, also, more particularly now, as the time is fast approaching for the election of a new president, to use our best individual effort to help select the most capable man to that great office.

The midsummer meeting of our association, at the Jamestown Exposition, although not so well attended as I hoped it would be, was nevertheless a very enjoyable occasion. As we walked

Secretary Randall: Unless some of the members desire to say something in reply to the suggestions in the President's address, I want to state that we can congratulate ourselves on coming to Columbus. Our registry shows the largest attendance in the history of the convention up to the present time. (Applause.) I hardly hoped to reach the number we attained at St. Louis last year, which we then thought the high water mark, but, unless I am mistaken, our roster will show by tomorrow evening nearly one hundred more than were present last year—a very gratifying situation. Then next in order is the report of our Treasurer, Mr. John W. Sibley, of Birmingham, Ala. (Applause.)

TREASURER SIBLEY'S REPORT.

To the Officers and Members of the National Brick Manufacturers' Association:

Gentlemen—For the second time since I was first made treasurer it has become necessary for me to evolve a surplus out of a deficit at a Columbus Convention. Although there is something in the atmosphere of Ohio conducive to spellbinding, and the art of high finance, I fear my "oft told tale" will put you in the same frame of mind as the father-in-law of the famous old Missouri governor, Clairborne F. Jackson.

The story is told that Jackson married, one after another, five sisters. The thing is incredible, but it is a fact. When, for the fifth time, Claiborne Jackson broached a marital proposi-

MEMBERS OF COLUMBUS ENTERTAINMENT COMMITTEE



Charles H. Frank.



Mayor C. A. Bond.



Ellis Lovejoy.

about examining the beautiful and interesting exhibits of the products of every State in the Union, and many foreign countries, we were most agreeably surprised to find everything in perfect order and (with the exception of some of the foot walks around the grounds) ready to receive the expected crowds of visitors which did not come, and it was a great pity that they did not, for, in addition to the Exposition, Old Point Comfort, with its historical surroundings, is one of the most pleasant places in the country to spend a vacation, and those who have never been there should take advantage of the first opportunity to visit it, especially if they are fond of boating and fishing.

In addition to the many beautiful exhibits, one of the most interesting features was the many ways that brick were used in the erection of the principal buildings; great artistic skill was displayed in this, and the effect was most charming and alone worth the trip from an educational point of view.

I will not detain you longer than to conclude by saying that the social side of our annual meetings is one of the most enjoyable features, and I think the fact that many of our members bring with them their wives and daughters adds very much to the pleasure, and what could be more appropriate than that the men who furnish the chief material for the home builders should have with them the true home makers, their wives.

Ladies, it gives me pleasure to see so many of you here, and I hope you will enjoy yourselves as much as at any previous convention, and it seems likely you will, judging by the many features that have been provided by the committee of ladies and gentlemen having your comfort and pleasure in charge.

In closing, I wish to thank all our members for their kind consideration and cordial support during the past year. (Loud Applause.)

tion to his father-in-law, the old man was eighty and quite deaf. This is the conversation that ensued:

"I want Lizzie."

"Hey?"

"I want you to give me Elizabeth."

"O, you want me to give you Elizabeth, do you? What for?"

"For my wife."

"For your wife?"

"I—want—to—marry—Lizzie."

"O, yes, I hear you. You needn't rouse the neighborhood."

"Well, do you consent?"

"Yes, I consent," said the old man. He shook his head, and added slowly:

"Yes, you can have her. You've got 'em all now, my boy. But for goodness sake, if anything happens to that poor, misguided girl, don't come back here and ask me for the old woman." (Laughter and Applause.)

I am pleased to inform you, that despite the panic and the fact that our expenses for the past year were slightly in excess of our income, we still have in the treasury the snug balance of \$541.33. The following is a statement of the receipts and disbursements:

Receipts.

Balance in treasury, account 1906.....	\$ 587.17
Membership fees, 135 at \$5.00, account 1907	\$ 675.00
Membership fees, 494 at \$3.00, account 1907	1,482.00
Reports, pamphlets, etc., sold.....	4.50
	2,161.50
Total receipts.....	\$2,748.62

Disbursements.	
Paid for—	
Allowance for clerk hire, per voucher.....	\$ 300.00
Programs, mailing, etc., per voucher.....	121.20
Convention reports, mailing, etc., per voucher	308.45
Pocket list of members, per voucher.....	70.10
Numerical roster, register, etc., per voucher	64.35
Convention expenses, per voucher.....	66.25
Association pamphlets, per voucher.....	204.02
Miscellaneous printing, per voucher.....	139.95
State vice president's printing, per voucher	123.97
Ohio State University scholarship, per voucher	250.00
Postage, exchange, expressage, per voucher..	157.80
Cases for banners, per voucher.....	37.00
Engrossing certificates, per voucher.....	14.20
Assistant secretary, per voucher.....	100.00
Secretary's traveling expenses, per voucher..	250.00
Total expenditures.....	\$2,207.29
Balance in treasury.....	541.33
Grand total.....	\$2,748.62
Recapitulation.	
Balance, account 1906.....	\$587.12
Total expenses	\$2,207.29
Total receipts	2,161.50
Excess of expenses over revenue.....	45.79
Balance on hand in treasury.....	\$541.33

Respectfully submitted,

JOHN W. SIBLEY,

Treasurer.

(Applause.)

Mr. Ittner: I move that the Treasurer's report be ap-

by electing as President of this Association for the next year. (Applause.)

Mr. R. G. Eisenhart, Horseheads, N. Y.: I heartily endorse what the gentleman from the State of New Jersey has said. From a brickmakers' standpoint, Mr. Gregory is my nearest neighbor and my sharpest and keenest competitor, but it affords me great pleasure, Mr. Chairman, to second his nomination, and I move that the regular rules of the Association be suspended and the Secretary be instructed to cast the unanimous ballot for Mr. Gregory, that he may be declared the unanimous choice of this convention for President.

Motion seconded by Mr. Ittner and carried.

President Conway: Secretary Randall has cast the ballot. Mr. Gregory is therefore your President for the ensuing year. The nominations are now in order for the election of First Vice-President.

Chas. H. Bray, Helena, Mont.: I came two thousand miles to attend this convention, and I desire to place in nomination a gentleman well known to all of you, a gentleman well known to every member of this Association, and who I know will receive the unanimous support of this convention. I desire to nominate Mr. Lemon Parker, of St. Louis, for First Vice-President. (Applause.)

WHO WERE CONSPICUOUS CONVENTION WEEK.



L. G. Kilbourne.



W. D. Richardson.



Warren B. Ferris.

proved and placed on record. Seconded and carried.

President Conway: The next in order is the election of officers. I would like to hear some nominations for the office of President.

Election of Officers.

Mr. A. C. Bloomfield, Metuchen, N. J.: Mr. President, Ladies, and Gentlemen of the Convention—About forty years ago, in the State of New York, there came into existence a lump of clay, molded and modeled under the influence of a good mother, that noblest work of God and man's greatest blessing. This lump of clay in a few years became a young man, fully equipped to weather the battle of life. At first, like most young men, his position was a subordinate one, but with the principles that had been imbued in him by his parents, he so conducted himself that unknown to him he attracted the attention of men of wealth and of his neighbors, so that when the time came they turned over to him a large brick works in the Empire State. His course has been that of an upright, honorable gentleman, an honest competitor, a good brickmaker, and a good "brick," and I want to submit to you, for the office of President, the name of Mr. M. E. Gregory, of Corning, N. Y., whom I know you will delight to honor

R. F. Grady, St. Louis: I desire to second that nomination.

Mr. Bloomfield: I move the rules be suspended, the usual course be taken, and that the Secretary be instructed to cast the unanimous ballot for Mr. Lemon Parker.

Carl Cappel, Pittsburg: I second the motion.

President Conway: The Secretary has cast the ballot and Mr. Parker is duly elected. The nominations for Second Vice-President are now in order.

Jno. R. Copeland, Birmingham, Ala.: I, too, believe in promotion, and I am glad this convention recognizes faithful service, but, Mr. Chairman, this leads me to think that some day we may make a mistake in the promotion of our officers, and I am going to propose for our Second Vice President a stranger in a strange land, and ask you to help me pull him through, if you think I am correct. He has had some experience as a paving brick manufacturer, and in fact has told us in some of the literature our National Paving Brick Manufacturers' Association has been sending out something of the proper way to lay good brick in the streets. With this experience in mind, and not with a view of promotion, I ask that he be elected. I can vouch for his standing the rattler test, but, as some of you no doubt know, my native

city of Birmingham, Ala., has gone dry recently, and while it was our good pleasure to have this friend of mine visit our city very recently, I cannot vouch for his standing the absorption test. (Laughter.) I will risk him anyway, and it is indeed with a great deal of pleasure that I nominate for Second Vice-President of this Association, Mr. Will P. Blair, of Terre Haute, Ind. (Applause.)

R. D. Lindsay, Denver: I am glad to second this nomination.

President Conway: Unless there is some objection, the same course will be followed, and the Secretary will cast the unanimous ballot of the convention for Mr. Blair for Second Vice-President, and I declare it so cast. Nominations are now in order for Third Vice-President.

Alfred Yates, Shawmut, Pa.: It affords me great pleasure to submit to the gentlemen of this convention the name of a gentleman for whom you all have high respect. He is a man of sterling qualities, a practical clayworker. I nominate Mr. Charles M. Crook, of Youngstown, Ohio, for Third Vice-President.

W. S. Purington, Galesburg, Ill.: I second the nomination, and move that the same course be taken as with the other officers.

President Conway: I take it there are no objections, and the Secretary will cast the ballot of the convention for



W. S. Purington, Galesburg, Ill.

Mr. Charles M. Crook for Third Vice-President. Now, we are up against trouble. The next is the election of the Secretary. Are there any nominations for that office.

Wm. H. Hunt, Cleveland, Ohio: Mr. Chairman—The precedent having been established, I may not be out of order when I preface my remarks with a story. Two Irish workmen were observing a building faced with brick. One said to the other: "Casey, what is it that holds those brick together?" Said Casey, "It's the mortar, you fool." "You're another," said his companion, "It's the mortar that keeps them apart." (Laughter and applause.) Some twenty-two years ago, in Cincinnati, there was begun the construction of a building which we term the National Brick Manufacturers' Association. At that time, there was assembled "bricks" of every make, grade and size, gathered from the four quarters of our vast country. The problem was presented—how to build of this material a structure that would be enduring, that would stand the test of time and destructive elements. In your wisdom of that day, you chose as the mortar that which must ever be an inseparable and fundamental element with the brick that form this temple, dedicated to a great industry—Theodore A. Randall.

I have sometimes wondered of what substance this man is made, and have been lead to the conclusion that he has

been formed of the dust of the Campagna, and fired with the genius of a Roman. At any rate, to him we owe our phenomenal prosperity. Our structure has reached the silver fringe of the clouds, and higher and higher we will continue to grow, until we pierce the clear blue of the heavens above.

I have the very great pleasure, Mr. Chairman, to place in nomination for Secretary, Theodore A. Randall, of Indianapolis, a man whom we all love.

Seconded by several.

Mr. Bloomfield: I move that we suspend the rules and elect Mr. Randall by a rising vote.

President Conway: I think we can take that by consent. All in favor of electing Theodore A. Randall Secretary for another year stand, please. The convention rose en mass.

President Conway: It seems unanimous, so you have re-elected Mr. Randall. A short time ago you heard the report of our Treasurer. We have come to the time when we must elect a Treasurer. Nominations are now in order.

Mr. Lemon Parker: I would like to nominate a gentleman who has been connected with this Association for a great many years. I have been a member of this Association for nine years, and this gentleman was a member years before I became interested. He may have been a charter member for all I know. At any rate, he has served us faithfully in the capacity of Treasurer for many years. I nominate Mr. John W. Sibley, of Birmingham, Alabama.

Mr. J. W. Robb, Clinton, Ind.: I second the nomination.

President Conway: I think there will be no objection to following the same course as formerly, and requesting the Secretary to cast the ballot of the convention for Mr. John W. Sibley for Treasurer. Mr. Sibley is duly elected, and I will ask Secretary Randall to announce the next in order.

Secretary Randall: The next in order is the election of a member of the Committee on Technical Investigation. This year the term of Mr. W. D. Richardson, of Columbus, Ohio, expires. Mr. Richardson has missed very few of our conventions. He is absent today attending the funeral of his father. Prof. Orton has a telegram from him in which he says, "Tell Randall I will be with you Friday." I think there is an unbroken record in the election of the Committee on Technical Investigation, and I nominate Mr. W. D. Richardson, whose term expires today, to succeed himself.

Mr. Sibley: I second the nomination, and move the Secretary cast the ballot of the convention for Mr. Richardson.

Installation of Officers.

President Conway: We can take that by consent. The next is the installation of officers. I will appoint as a committee to escort our new President to the chair, Mr. Charles A. Bloomfield and Mr. Anthony Ittner.

The gentlemen named escorted Mr. Gregory to the platform, where he was greeted by President Conway and loudly applauded.

President Conway: In turning this gavel over to our new President, I feel that I am giving it to one of the most able men in our Association. It gives me great pleasure to introduce to you Mr. M. E. Gregory, your President-elect. (Applause.)

President Gregory: Ladies and gentlemen, I thank you for the honor you have seen fit to bestow upon me. It is an honor one may well feel proud of to preside over such a convention, composed of such men as we have in this convention. I hope you will feel that this convention is in your own hands, and that it will be what you make it. I shall do everything in my power to make this one of the most successful conventions we have ever had, but I cannot do it all. I feel that everybody has a work to perform, and if they want any information or want any points discussed that they will not hesitate to speak at the proper time. I have done quite a little talking today, in fact more than my share, and if I do

not stop talking, I will be a great deal like the minister Mark Twain tells of. The minister was talking on foreign missions, and Mr. Twain said after he had talked a reasonable length of time, he felt as though he would give them all he had if the basket were passed, but, he said, "The minister kept on talking, and I decided I would give \$100.00; but the minister kept on talking, and I dropped to \$75.00; he kept on talking and I dropped to \$50.00; he kept on and I got down to \$25.00; he kept on talking and finally when they passed the basket I actually stole ten cents." (Laughter and applause.)

President Conway: We will have the same committee escort to the chair our First Vice-President, Mr. Lemon Parker, whom I have the pleasure of introducing to you.

Vice President Lemon Parker: Ladies and gentlemen, I thank you for the honor you have conferred upon me. I have now been a member of this Association for nine years, and I feel that I am among those who have been steady in their attendance, I feel like an old member now, and it is only a short time ago that I considered myself a new member. I hope to be able to attend these conventions every year, and I assure you that I will do all I can to forward the interests and welfare of this organization. Again I thank you.

Vice-President Blair was then escorted to the platform by the same committee and introduced to the convention.

Vice-President Will P. Blair: Mr. President, Ladies and Gentlemen—I simply want to extend to this convention my sincere thanks for this step in the direction of the highest honor in this Association. I feel, however, that I ought not sit down in view of the remarks that have been made by my friend Copeland, without making just a little suggestion. If they have gone dry down south, how in the world does he know what I can absorb on a visit down there. (Laughter.)

The same committee escorted Mr. Charles M. Crook, the Third Vice-President, to the platform, where he was introduced to the convention.

Vice-President Charles M. Crook: Mr. President, Ladies and Gentlemen—I fancy that you do not look to the Third Vice-President to make you a speech, because, if you do, you make a mistake this time. My public appearance has been confined exclusively to caring for an audience as warden in the Episcopal Church, and helping take up the collection. (Applause.) If you elected me with the idea that I was going to resign, you make another mistake. Living in Ohio, we accept everything offered, and throw away nothing. I will say to you that if an intense interest is a qualification for this office, I am certainly qualified, because in no business that I have been engaged in have I ever been so interested, and never have I had so much enjoyment as in the National Association. I assure you that you can command me to the extent of my ability. I will always do what I can to further the interests of this Association. (Applause.)

President Gregory: This is the first time we have ever had a Crook on our Executive Committee. (Laughter.) Gentlemen, it gives me pleasure to introduce to you the man whom you have elected for Secretary, Theodore A. Randall, of Indianapolis.

Secretary Theo. A. Randall: Mr. President, Ladies and Gentlemen—There is a humorous paragraph going the rounds of the press, about a fellow who visited some section of the South—I do not think it was in the Birmingham district—and he found himself in a god-forsaken little place, and the first sign of life he saw was a lone individual leaning up against the fence, after asking a few commonplace questions he said to the stranger, "My friend, have you lived in this place all your life." The lone individual spit about ten feet at a corn cob, hit it, and said "Not yet." (Laughter.) I feel a little bit as though I might serve all my life as Secretary of this Association. It looks that way, and I may not have to live so very long, at that, for I hold in my hand a clipping from the daily press which contains the prophecy of a noted soothsayer who claims he prophesied the earthquake at San

Francisco, and if there is any calamity or evil which can come to human kind on this planet it is going to come this year. There will be railroad wrecks, famine and earthquakes and finally, along the latter part of the year, the world itself will come to an end. (Laughter.) In some sections of the country some men die with their boots on. Under the circumstances, if the world is coming to an end, I do not care if I do go with my official harness on. If the world does not come to an end I shall expect to see a still larger crowd in attendance at our next convention. I thank you one and all for your kindness to me, and I will try as best I can to serve you another year. (Applause.)

President Gregory: We will now hear from our new Treasurer, Mr. John W. Sibley, of Birmingham, Alabama.

Treasurer John W. Sibley: Mr. President, Ladies and Gentlemen of the Convention—Your continued kindness and courtesy is certainly very welcome and fills me with gratitude. I hardly know how to thank you, but I want to warn you that I may come to the conclusion that the office belongs to me by divine right. I am reminded of a story that is told of a protracted meeting the darkies were holding down south, and one good Methodist brother was exhorting the brethren to come forward and join the army of the Lord. He spied a young darkey sitting in the back seat and he said, "Come



W. H. Hunt, Cleveland, Ohio.

on up brother, and jine the army of the Lord!" "I done jined," replied the young brother. "Whar did you jine, my brother?" "T'se done jined the Baptist church." "Go 'long brudder, you didn't jine the army, you jined the navy." (Laughter and applause.)

Resolution Looking to the Promotion of Clay Products.

Mr. Bloomfield: I want to crave the courtesy of the Convention to digress a little from the usual routine of business to offer a resolution on a matter which I think you will admit is of great importance to the clay industries of this country.

Whereas, We deem that the matter of bringing to the attention of the general public the superior merits of burned clay as a building material in all forms of structural work to be of great importance, be it

Resolved, That a committee of five be appointed by the chair to consult with Architect Fitzpatrick, of Washington, D. C., to consider ways and means of securing this desired publicity in the most effective manner possible; that the President and Secretary of this Association be ex-officio members of said committee, and that the committee report to the executive committee with the view of securing action, if same seems desirable, at the earliest possible date practical.

Mr. Sibley: I move this resolution be referred to the Committee on Resolutions.

Seconded by Mr. Cushwa and carried.

Letters From Absent Members.

Secretary Randall: I have here a few letters from some of the faithful who are unable from one cause or another to be with us. In addition to the letters, this beautiful bouquet of American Beauty Roses which adorns the Assistant Secretary's desk comes from our old-time and much loved friend, D. V. Purington, who is spending the winter at his Southern home at Ocean Springs, Miss.

LETTERS FROM ABSENT MEMBERS.

LOS ANGELES, CAL., JANUARY 29, 1908.

Dear Friend Randall:

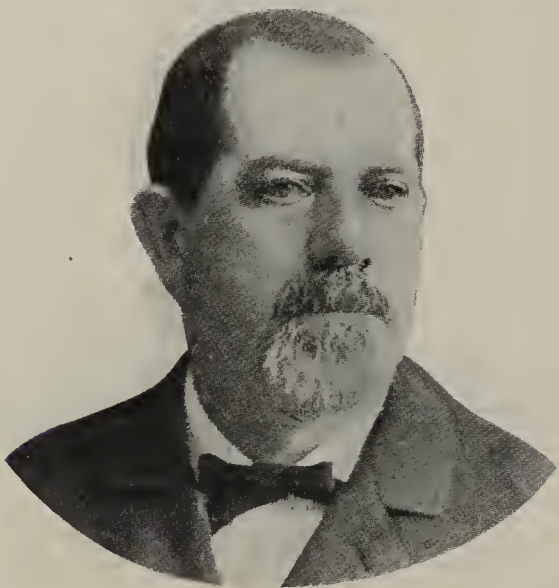
While Mrs. Hensley and myself are enjoying every inch of California, of the splendid climate and many beautiful sights around Los Angeles, we have not by any means forgotten the convention of this year, and regret very much that we will not be able to be with you at this meeting. As you remember, I have missed very few meetings in the last fifteen or twenty years, and have learned to look forward with a great deal of pleasure to meeting the fellow brickmakers and friends throughout the country once a year, and I wish you and every member of the association a splendid time this convention, I am,

Yours truly,
J. W. HENSLEY.

ST. LOUIS, MO., FEBRUARY 3, 1908.

Dear Mr. Secretary:

Inclosed, please find check for \$3.00 in payment for annual dues of N. B. M. A., for which please mail me receipt and emblems.



Victor Cushwa, Williamsport, Md.

I regret much that I am unable to attend the convention, just having returned from a trip through the east. Hoping that you all have the usual good time, I am,

Yours respectfully,
J. STOCKE, JR.

CINCINNATI, OHIO, FEBRUARY 4, 1908.

Friend Randall:

It was my intention to have left for Columbus today, but my doctor has announced that it would be dangerous to risk a trip from home at this time, as I have been "hors de combat" with la grippe the last two weeks, and he is afraid that it might develop into bronchial pneumonia. I am sorry to be unable to attend the convention and take part in the proceedings, but I presume it is necessary for me to be careful. Tell friend Ittner that I will endorse anything he may report at committee on trade schools.

Yours sincerely,
J. M. BLAIR,

TORONTO, ONT., FEB. 3, 1908.

Dear Mr. Randall:

I am very sorry to say that I will not be able to be with you this year. Had intended, up to a short time ago, to be with you, but we are making some extensive changes, and, at the last moment, I find it would be inconvenient for me to be away.

Hope that you may have the best and most successful convention yet held, as I am sure you will. I enclose membership renewal fee, and ask that you will forward, with your receipt, one of the membership badges.

Kind regards and congratulations to Mr. Randall, Jr., on assuming responsibilities, and the desire on the part of Mrs. Millar and myself to be remembered to Mrs. Randall, Miss Wallace and all the kind friends whom we have met and whose society we enjoyed so much last year.

Yours very truly,
JOHN B. MILLAR.

NORFOLK, VA., FEBRUARY 3, 1908.

T. A. Randall, Secretary:

Dear Sir—I did intend seeing you at Columbus today, but I have been a little under the weather for the last three weeks, and to go right into a cold place was a little too much, so I made up my mind not to make the trip. Hope you will all have a good time, and I wish I could be with you.

Yours truly,
F. W. DENNIS,

ERIE, PA., FEBRUARY 1, 1908.

Dear Mr. Secretary:

Owing to the severity of the weather, I am obliged to forego next week's convention, so enclose check for membership fee, receipt of which please acknowledge at your convenience. Trusting that you may have a large and profitable and pleasant time, and regretting my inability to participate, I remain,

Yours fraternally,
H. C. DUNN.

Secretary Randall: I also have a letter from the American Terra Cotta and Ceramic Company, of which our friend W. D. Gates is president, giving me in reply to a request for same, the address of Mr. Gates, who is making a trip up the Nile. I want to suggest the advisability of sending a brief cablegram to Mr. Gates assuring him of our best wishes for a pleasant journey. It was for that reason that I asked for the address.

Mr. Bloomfield: I move that the Secretary be instructed to send a suitable cablegram to our dear friend, Mr. W. D. Gates.

Motion seconded by Mr. Ittner and carried.

President Gregory: We will now take up our regular order of business, a paper entitled

THE OUTLOOK.

BY VICTOR CUSHWA, WILLIAMSPORT, MD.

Mr. President, Ladies and Gentlemen, Members of the National Brick Manufacturers' Association of the United States:

You will, I know, pardon and indulge me in a few prefatory and introductory remarks, ere beginning a short address on the subject selected for me to address you on—"The Outlook."

I am glad to be with you again as one of the survivors of the last convention held in the good old city of St. Louis a year ago. To those who met with us there and have since paid the last sad tribute to earth, we will say in devotion, "Requiescat in pace." At that, the Twenty-first Annual Convention, I made my debut, and acquired my majority and right of suffrage in your honorable and useful body. Therefore, as a young and somewhat modest man and young member, you will excuse me if I should blush before this learned assemblage, of the ladies particularly. As we all come from Mother Earth, to which we will all in our turn return, I remember in Mr. Hunt's response to the Honorable Mayor's welcome to St. Louis, he quoted Holy Writ, Genesis, Chapter 11, Verse 3: "And each one said to his neighbor, Come, let us make brick and bake them with fire, and they had brick instead of stones and slime instead of mortar." This was evidently preparatory to the building of the Tower of Babel. So we have been making and burning brick of all colors and varieties ever since, and will continue till the end of time, some soft, some medium, some hard, with a good percentage of bats.

THE OUTLOOK.

You have all seen and experienced with awe the dark and ominous cloud appear in the eastern horizon, and, as quickly as the wings of the wind could carry it, spreading havoc and consternation in its track. The lightning flashed and the thunder roared, then an All-guiding Hand, which rules the wind and waves, calmed the storm and the sun is coming out brighter than ever, and the birds of prosperity are singing more sweetly than ever, and all after being awe stricken. More happy than ever, at peace, and quiet being restored once more. During the recent storm in the money markets, which was felt all over the country, money though plenty, was, in the excitement, drawn from the places of deposit and hidden away, and stocks which had soared skyward to the extent of hundreds of per cent. above the real, or face value, tumbled to par and below, affecting all business, and shaking the confidence of all the money centers. Confidence is again being restored, and soon we will be on a safe and solid basis. When prices soar too high, like a balloon which exceeds its height, there is often a collapse. No country is so prosperous as the one whose prices maintain a healthy and uniform standard. This state of affairs is coming to us.

Forty years ago, when labor was 100 per cent. less than now, we sold common hand made brick at \$9.00 per thousand for building, or run of kiln, and for selected arch or red faced from \$10.00 to \$12.00. Lumber then and until ten years ago we bought for \$10.00 to \$12.00 per thousand feet for yellow pine. Today in our market it is bringing \$26.00 to \$50.00 per thousand feet. Better brick than were made forty years ago are selling from \$6.25 for common builders, and \$8.00 to \$10.00 for selected arch and red, and from \$12.00 to \$15.00 per thousand for pressed.

See the contrast? The same is proportionately true of earth's products, wheat and corn. We must have a levelling process, which is coming with an equitable margin on all products, and

then we will see better times. With our banks plethoric with currency and confidence coming, we expect to see good, prosperous times. It is coming and we shall have a demand for our brick and every other product at fair and remunerative prices. This is the sunshine after the storm which has just abated, and we trust the sunshine is coming to stay for quite a while.

I want to conclude my short address with a little verse composed by that learned writer, the Hon. Henry W. Grady. It was printed in the Atlanta Constitution in 1900, of which paper he was then editor, and shortly before he died.

KEEP A GOIN'.

If you strike a thorn or rose,
Keep a goin'.
If it hails or if it snows,
Keep a goin'.
'Taint no use to sit and whine
When the fish ain't on your line,
Bait your hook and keep on tryin',
Keep a goin'.

When the weather kills your crop,
Keep on goin'.
When you tumble from the top,
Keep on goin'.
S'pose you are out of every dime,
Gettin' broke ain't any crime,
Tell the world you're feelin' fine,
Keep on goin'.

When it looks like all was up,
Keep a goin'.
Drain the sweetness from the cup,
Keep on goin'.
See the wild birds on the wing,
Hear the bells which sweetly ring,
When you feel like singin', sing
Keep on goin'.
(Applause.)

President Gregory: The discussion of this paper is to be led by Mr. C. N. Adams, Alexandria, Ia.

Secretary Randall: It was Mr. Adams' intention to be with us. He is unable to do so, but has sent his contribution, which I will present for him.

THE OUTLOOK.

BY C. N. ADAMS, ALEXANDRIA, I.A.

Mr. President, Ladies and Gentlemen:

When I received the program and found that I was booked to respond to Mr. Cushwa's address, I was surprised and pleased both, for I was counting on being with you and enjoying this and subsequent sessions, as I have done in past years, but to my regret I find I will not be able to come to Columbus. An old enemy, rheumatism, has put me to the bad, so I will not be able to leave home convention week.

However, I can tell you briefly that the outlook for the brick and building industries of this section of the country is very good, due to a combination of causes, not the least of which is the fact that, following the example of the N. B. M. A., the brickmakers of Louisiana have formed a state association, and we meet now annually, and, by concerted action, are able to do some things of benefit to all of us that we were not able to do when we acted singly and alone.

For instance, we have brought about a reform in the matter of size of brick. In years past, every brickmaker was a law unto himself in this connection, and scarcely any two yards turned out brick of the same size. During the past year or two, we have reformed in this matter, and adopted the standard size of brick as recommended by the N. B. M. A., and there are but few yards in this section now that turn out standard sized brick.

So, you see, the seeds sown by the N. B. M. A. have borne fruit. This is only one of the benefits we are realizing down here in Louisiana from our state organization. Organization is the keynote of industrial advancement. Indeed, it is the secret of success in any undertaking today, whether it be in the moral, political, educational, or industrial world. If the forces which are behind the movement are closely organized, and work harmoniously, they can accomplish almost anything in the bounds of reason, while the same forces loosely organized, or working independently, will, in the same time, accomplish almost nothing.

It used to be said that competition was the life of trade, but we have grown wiser in these later years, and have learned that competition beyond reason is the death of profits, and that a friendly combining of forces within certain limits and for legitimate purposes is necessary for the successful development of any great enterprise.

This is forcefully seen in any of the great industrial plants in great manufacturing centers. You see a great factory, with its thousands of employes, running like a clock, every department fitting into every other department, without friction, and without loss of time or energy. It is because there is organization there. The heads of the different departments of the factory get together often and discuss the best ways of making these departments fit into each other, and over it all is a master mind guiding and directing it all.

It is seen in the organization of a great army. It is what makes the difference between a mob and an army. Each company is under the command of its officers. These officers are, in turn,

responsible to other officers, and, at the head of it all is the commanding general, who, from his tent, gives directions to the whole army. The secret of Napoleon's great success was his almost marvelous power of organizing men.

Man is so constituted that he wants companionship and will have it, and must have it if he is to do his best work, and the most natural thing is for men in the same line of business, or working toward the same ideals to come together, drawn and bound by ties stronger than ties of blood often times.

There is no more important manufacturing business than ours, for, of the product of our yards are to be built our cities, our great public buildings that are to stand as monuments of this age long after the men who made the brick are dead; our court houses, where justice is to make her abiding home; our stores, where the busy throngs are to exchange the products of their labors; our churches, whose spires are to point men to "that city whose buildings are not made with hands," and more enduring than mansions built of brick or granite; our school houses, where our children are to learn their first steps in wisdom's ways, and our universities, where our sons and daughters are to drink at wisdom's fountains. Let every brickmaker remember that this is a great work, one that will abide for many years after we are gone, if in that work we put our best and honest endeavor. (Applause.)

President Gregory: Is there any miscellaneous business to be taken up at this time?

Trade Schools for American Boys.

Secretary Randall: I was in hopes we might have a few words at this time from Dr. S. C. Dickey, Dean of the Winona Technical Institute, of Indianapolis, on trade schools. If Dr.



R. D. Lindsay, Denver, Colo.

Dickey is present, I hope he will come forward and say a few words on this subject of such great interest to all of us. It is the hope and ambition of those who have given this matter thought that we might establish a school for bricklayers at the Winona Technical Institute of Indianapolis. They have there a number of classes in a number of manufacturing lines doing great work in the way of teaching trades. I know you will be pleased to again hear Dr. Dickey.

Dr. S. C. Dickey, Indianapolis, Ind.: Mr. President, Ladies and Gentlemen—I feel it is not wise for me to take much of your valuable time, for you granted me such a splendid hearing last year at St. Louis. We know that you are all concerned in regard to this movement, and decisive action is what we want today. I am happy to report that the past year has been one of great progress. For those of you who were not present at St. Louis, and do not know what we are doing, I may state that the Winona Technical Institute, so called, is a trade school which has an open gate. I know we are accustomed to hear of the open shop, but I always talk of the open gate, a gate which swings open for any boy, black or white, Catholic or Protestant, Jew or Gentile. He can open that gate—we call it the "Gateway of Opportunity." When I first started in this work, from the standpoint always of the boy, I realized that the boys of America, the boys who are to come after you and me, have not the chances you and

I had. While the apprentice system exists in some shops, or trade, the places are few in number where the boy can come and learn a trade. Sad but true, and I want to impress that fact upon you this afternoon.

Germany, I think we all agree, has the best trade school system in the world, and France is not far behind her. If we had as many trade schools in Indiana, for instance, in proportion to the population, as they have in Germany, we would have 1,500 trade schools, which will give you some idea of what Germany is doing. They have not, as some suppose, supplanted the public school system. It is a combination of the two.

As I have said, we have made great progress the past year. The American Trade Association at their convention at Boston adopted us, and as a result we have had \$20,000 worth of machinery coming through our gates. The National Foundrymen completed their building, and we have thirty-four boys at work in that department. The National Foundrymen's Association have taught us the problem of making this department in part self sustaining. They have secured us orders from some ten or twelve manufacturers in Indianapolis, by which we are enabled to keep these boys at work, and they have turned out from \$2,000 to \$4,000 worth of castings a month. The boy knows the product of his labor has



Dr. S. C. Dickey, Indianapolis.

been sold, and if the casting is poor and the manufacturer refuses to receive it, it comes back to the boy who made it. We are able to pay the boys \$4.50 a week out of the proceeds of the sales from the foundry. The boy is advanced from time to time until he is able to take entire charge of the foundry. We are very grateful to the National Foundrymen's Committee for what they have done for us. We would like to have such a committee as this from the different organizations all over the country to work with us and send us boys that can be taught. A boy came to me the other night and asked if I could loan him a lantern. I asked him what he wanted of the lantern, and he said Mr. Smith had given him permission to cut down some of the dead trees on the grounds. I loaned him the lantern and he went to work on those trees and chopped up twenty-seven cords of wood, and when I heard that boy chopping away hour after hour by the light of the lantern, I could not help but feel that there was a boy who would be heard from sometime in the future.

In our tile department we have received a boy from the Juvenile Court of Salt Lake City. He had a stepfather, a saloon keeper, who had said, "Send him away from me so far that I will never see him again." Judge Wheeler sent him to us, and he made such progress that his stepfather was willing to pay all bills that might have been incurred in teach-

ing the boy his trade, and he paid his way back home, and that boy is now earning \$3.00 a day in Salt Lake City.

I hope you will understand the spirit in which I speak, for I know I am speaking to friends. You yourselves sometimes serve the god of money, but there are men today who are serving the god of occupation. If I could pile all the gems up here, all the precious jewels of Scotland and England, and bring them all here, we would all fight our way to see these gems, but my Master took up a little boy and he put that boy beside those jewels and said he is worth more than all of them, for "What shall it profit a man if he gain the whole world and lose his own soul."

Standing on the roof of a livery stable in the slums of Chicago recently with Mr. Taylor, who has been doing such magnificent work in connection with the Hull settlement work in Chicago, he pointed out a man and said, "That man has four boys, and will not permit one of them to learn his own trade. He is afraid of competition. When you talk to him in regard to it, he says, 'No, my boys shall not learn a trade that will put them in competition with me.'" You will find that condition exists all over this country. I was talking with a representative of the Typographical Union recently, and I said, "I am happy to know you have a school for printers. Who can attend this school? Can any boy join that school?" He said, "That school is just for members of the union." I said, "Are you not interested in the boys?" He replied, "This school is organized by the union for men interested in the union." I said, "Can you point me to a school where a boy can learn to be a printer? Are you not interested in the boy?" He said, "No, there are more loafers now than there ought to be." It is just such ignorance as that which stands in the way of the American boy. We have great problems to solve. The places that know you and me will know us no more before they have been solved, but the greatest problem we have to solve is what to do for the American boy. I stand before you today ready to give you the opportunity to help in this great work. A friend of mine said recently, "I lost \$125,000 in an investment I made not long since." I said, "Don't you wish you had put that money in boys." And he looked like he would like to kick me off the earth. If you will invest your money in boys there will come a time when you will realize that you made a wise investment.

I have talked longer than I expected, but I want to say we are trying to establish at Indianapolis a school for bricklayers. We have been wonderfully surprised and delighted by the interest shown by this Association. We have the building ready; it is of brick and about 120 feet long and 50 feet wide. The second floor is occupied by the metal trade school. The lower floor we have planned to devote to the new department, which we hope to open February 24th. I am standing here today pleading for scholarships, and if you can give us sixty scholarships—my good friend Penfield here says we ought to have one hundred—the movement will be a success. I tell you what I could do, I could raise a million dollars today in this audience if you will give it. (Laughter.) I do not put a limit on your giving, but if you will give sixty scholarships, it will put sixty boys at work in that school, and in three months—some of our committees say two months, but I will say three months—sixty boys will have learned the bricklayers trade, and these sixty boys can be succeeded by sixty more.

Our property over there consists of 300 acres¹ of ground without one dollar of mortgage on it, and together with our buildings is worth \$1,000,000. It is the property of the boys. Any boy that you will find and send there will have an opportunity to come in there and earn his living. He will not stay long if he is not in earnest, but if he is in earnest and wants to learn a trade, he will find friends and help.

Again I thank you for this opportunity of presenting this

matter to you, but I beg of you to help us and we will help you. (Loud applause.)

President Gregory: This subject is open for discussion. We would like to hear from Mr. Howard Chambers on this question.

Discussion of School for Bricklayers.

J. H. Chambers, Philadelphia, Pa.: I did not expect to be called on this afternoon. I had the pleasure of hearing Dr. Dickey talk this morning on the same subject, and I am heartily in accord with any movement that is made to further the interest that he has at heart, and I think the clayworkers and the manufacturers of clayworking machinery cannot do a better work than to put their shoulders to the wheel, and each one of us subscribe for as many scholarships for bricklayers as we can afford. So far as I am personally concerned, I signified my intention this morning, and I expect to stand by it, and I expect to get some other men that I know to come and do likewise. (Applause.)

President Gregory: We will be glad to hear from Mr. Raymond Penfield. I believe he has given some attention to this subject.

Raymond C. Penfield, Bucyrus, Ohio: Mr. President, having heard the very eloquent speech of Dr. Dickey, it seems entirely out of place to call on a layman like myself to speak to an audience of this size. Dr. Dickey has spoken about the boy, I just want to say a word about ourselves. He has put this matter upon the ground of the good we can do for the boy. That is all very good. He has fully represented that side of it, but I want to put it on the ground of what the boy can do for you. The fact of the case is the bricklayers have such a close union that the cost of laying brick in the wall is about twice the cost of making them, and the fact is that we are restricted in the use of brick by the cost of laying them, and the inability to get the labor to lay them. Cement is taking the place of brick on that account, and no other, and it is absolutely necessary for the association to take some means of increasing the number of bricklayers, and, in that way, reducing the price of wages and the cost of laying the brick. Clayworkers can not make a better investment than to take one of these scholarships. Representing our own concern, we have agreed to take five, that means \$300. That means that every year they can turn this over and put five new men in the field. If everyone else would take the same number of scholarships, instead of 60 boys, we might have 100, and next year there would be 100 more. I have agreed that if Dr. Dickey will come to New York, I will put him in touch with the Builders' Association, that has had so much trouble with their bricklayers, and see if we can not get a number of scholarships from that association. We ought to have 1,000 boys learning the trade, and we have this million dollar equipment at our disposal and a man to run it, and all we have to do is to chip in \$60, and give this movement a good, big lift. (Applause.)

Secretary Randall: I do not think there is a man here but admits the advisability of taking action on this matter. We have a Committee on Trade Schools, composed of Mr. Anthony Ittner, J. M. Blair, and George T. Dickover, and I would like to have those present who are interested see one of the members of that committee today, and signify their willingness to subscribe for one or more scholarships. Mr. Ittner takes three scholarships, Mr. Bloomfield takes one, I will take one, and this committee will be pleased to meet any other members who want to subscribe.

Mr. Eudaly: There is really no need for me to make a speech, but I want to say that this is one of the greatest moves we have ever made, and right now is the time to clinch this matter. If our secretary will take the names of the gentlemen who want to subscribe for the scholarships, and then turn the subscriptions over to Dr. Dickey, I think we can raise the desired number. We raised twenty this

morning in our little machinery manufacturers meeting in five minutes, and there were men there who stand behind twenty more. I am just sure that this Association can easily subscribe 100 of these scholarships, and do it very quickly. I feel greatly in earnest about this. I know about this institution, and know the men who are connected with it, and we want to settle this matter and settle it at once. I would like to have the gentlemen in this audience who will subscribe one or more scholarships rise, and announce their names, that the Assistant Secretary may take them down. (A number of the members subscribed for scholarships.)

Anthony Ittner: I love the spirit Mr. Eudaly has manifested in this matter. I am interested in trade schools generally, whether for bricklayers, or foundrymen, carpenters, or for any trade or craft known to human ingenuity. I have been engaged in this work for seventeen years, when I first tried to get a trade school at St. Louis. The movement was defeated and two years ago I took the matter up again, and people came to me and told me they were in sympathy with the movement and hoped it would succeed; that they were willing to subscribe to the fund for the trade school, if they could do so without their names being known, that they were afraid of the unions. This last effort was about to fail, and that, after I had spent about \$300 in getting out



J. H. Chambers, Philadelphia, Pa.

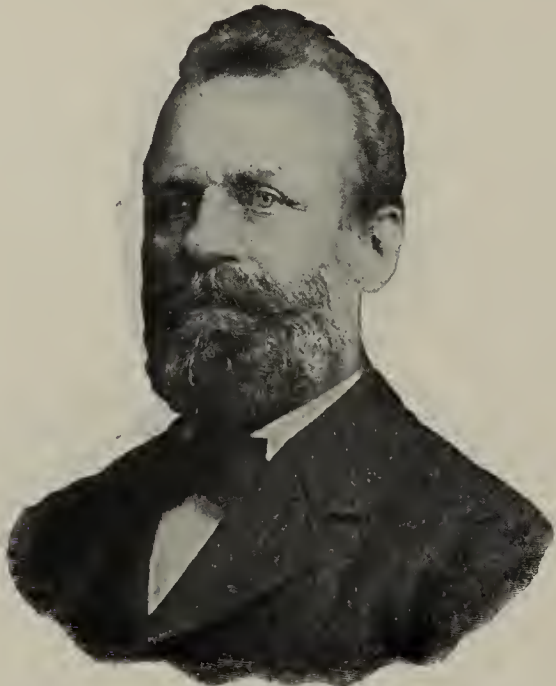
a pamphlet and other literature, setting forth the former trade school movement and the need for trade schools, when Mr. David Rankin, Jr., came to me and told me he was interested in the work I had been doing, and said he wanted me to read his last will and testament, in which he had bequeathed his immense fortune of \$700,000, with the exception of some \$6,000, for the founding of a trade school in the city of St. Louis. I have been much interested in this Winona Technical Institute, ever since Dr. Dickey told us of it at St. Louis last year, and I have said to him, and to our Secretary a number of times, that I hoped we could establish at least 60 scholarships. I said I would give one scholarship, and, later on, I told them if it were necessary that I would take three, and I stand ready to do so now. There is no reason why this movement should not succeed. Our membership numbers over 500, or 600, and it seems to me strange that we can not raise more than 60 scholarships. Dr. Dickey tells me that in no single case has a boy gone out of that school, after having given his note for \$20, or \$100, as the case may be, to pay back the scholarship money, not a boy has failed to make good. I say, in view of this, that is one of the greatest recommendations in favor of the institute, that these young men should show their appreciation for the scholarship and the school, that could pos-

sibly be given. Brother Eudaly has made this seem like an old-fashioned Methodist revival meeting, and I hope those who desire to subscribe will do so now, and not wait for the members of the Trade School Committee to go after them. I, for one, do not want to approach any member and ask him to subscribe to this movement. I hope it will be settled now.

Mr. Eudaly: I think some of the members do not understand these cards that have been sent out. The cards are wrong. Sixty dollars paid now for one scholarship settles the matter for all time to come, but the card would indicate something else.

Mr. Penfield: I wrote Mr. Randall a few weeks ago and told him if the other members would subscribe 60 memberships that my concern would stand for five, and I am willing to stand by that. I do not see how any manufacturer of brick can refuse to go into such a splendid moneymaking scheme for himself. It is absolutely important and essential that this thing should succeed now.

W. Siwart Smit, St. Paul, Minn.: I think most of us are in favor of industrial schools from the point of the aid to the boy, but looked at from a selfish point of view, many of the manufacturers do not understand what it means not to have enough bricklayers to lay their brick. Many of the



Anthony Ittner, St. Louis, Mo.

orders we have in the cities to the north of us have this contingency: "Ship the brick to us as soon as you can send us bricklayers to lay them." We can not send them the bricklayers, and so we are compelled to hold the brick. In the cities of St. Paul and Minneapolis—about half a mile apart—there are only twelve or fourteen bricklayer apprentices today. You can sell your brick, but you can not get bricklayers enough to lay them. We must have more bricklayers.

Mr. Wm. H. Hunt: I think it takes a great deal of courage for any one to voice any sentiments on this subject, following what has been said, but I feel very deeply with Mr. Penfield and others who have spoken on this subject. Some one has said that the best time to make a man is when he is a boy. Unmistakably, that is true. Reference has been made to the trade schools of Germany. I had the privilege and pleasure this winter of visiting twenty-four of the chief cities of Europe. I visited every important city in Germany, south of Berlin. I uniformly asked of the counsels and ambassadors what was the secret of the remarkable progress Germany was making industrially, and the reply in every instance was "trade education." Germany leads the world in what is termed trade education. I have

an idea, and I am sure that my opinion is shared by many, that the two great movements that will sweep this country in a short time, are recreation for the boy, and trade education. As an illustration of what is being done in Chicago alone, in the way of recreation for the boy, I was told only yesterday by the son of the leader of this recreation movement in that city, that \$11,000,000 had been spent to provide recreation largely for the boy. We have heard a great deal of the problems of the employer and his men, and many of us know the difficulties there are, notably in the brick-laying trade, and how difficult it is for a boy to enter that trade, and it suggests to me a placard I saw above a temple in India which read: "Christians and Mohammedans not admitted." Some wag came along and wrote beneath this sign these words. "No man can tell what they see, who slip through the gates of hell." I want to give my hearty support to this work of helping the boy. In this great wave of trade education, I would like to see our Association in the very front. All that has been asked of us is 60 subscriptions, and I would like to see this number given without any hesitancy. I join with those who have spoken before in this appeal to raise the necessary number before we adjourn.

William Conway: I feel that I should not let this opportunity pass without saying a word in behalf of this cause. I am heartily in favor of this trade education movement to educate the boy. I think there is also a broader field. I tried to impress on you in my address that I think this matter should be taken home with each one of us, and every man try to establish in his own community trade schools. Some people talk about Philadelphia being slow, but when it comes to matters of this sort, you will find Philadelphia away ahead. Three years ago, Mr. Murrill Dobbins, a brick manufacturer, was elected a member of the Board of Education, and it was there and through his efforts that public trade schools were established in Philadelphia. In Philadelphia, away back in 1776, freedom was declared for the nation, and freedom has again been declared in Philadelphia, this time from the yoke of organized labor, and I hope the movement will sweep this whole country, and it will not be long until we will have trade schools everywhere. (Applause.)

W. S. Purington: I would like to say one word in favor of this proposition, and give a little experience we have had. We employ about fifteen masons the year through, and have for the last seventeen years. For a few years previous to that, I was connected with another concern, and some of these masons who had worked for me, followed me when I went to Galesburg, and nearly all of them have grown gray in the service. There are no young brickmasons in Galesburg. How these men learned their trade I do not know, but where are we going to get masons to take their places, unless the boys are given a chance in these trade schools.

C. P. Mayer, Bridgeville, Pa.: I have been sitting here with folded hands, listening to each of the gentlemen who have spoken on this subject, and I feel it my duty to stand up here and state my case and my reason for not subscribing, and it is simply one word, "self." If I understand this right, it is to educate boys in the trade of bricklaying first, that the boy may have a trade. The time is coming when people who can not be lawyers and preachers will have to be tradesmen. The second fact here is self. You can not get away from the fact that our industry is embarrassed, for the simple reason that we can not get men to lay the brick, so we get together and propose to teach the boys bricklaying. If you had this trade school Dr. Dickey speaks of at Pittsburg, where I could send boys from my community, I would take five scholarships, but I can not send them to Indianapolis, simply because if I did they would not do me any good. I am going home and talk trade schools, and if we can

arrange it I am going to start an agitation for a trade school in the city of Pittsburg.

President Gregory: It is the idea that boys can be sent to this school at Indianapolis from all sections of the country.

Secretary Randall: Mr. Mayer is under a misapprehension; there is no reason why half a dozen boys from Pittsburg should not attend this school at Indianapolis. I will pledge myself another \$60 for such a school at Pittsburg, if it is started, if Mr. Mayer will pledge \$60 for this brick-laying school at Indianapolis. (Applause.)

Mr. Mayer: I am equal to the occasion. Your offer is accepted, and you can put me down for a scholarship. (Applause.) I intended all I said in a friendly, and not an antagonistic spirit, as some of the members may have thought. I am with this movement, heart and soul, but I would like to see it come a little closer home.

Secretary Randall: I rather think this concludes the discussion on this subject. There is no doubt but that this movement will be a success, and that we will get the desired number of scholarships. I desire to make an announcement in regard to the entertainment for tonight. There will given in this room tonight, "A Personally Conducted Tour of the Clayworking Plants of the Columbus District," in charge of Prof. Edward Orton, Jr. After Prof. Orton's lecture, which will be illustrated with stereopticon views, there will be an informal reception, or social hour, with punch for the ladies, and cigars for the gentlemen. We hope you will all enjoy it.

President Gregory: The convention stands adjourned until tomorrow morning.

WEDNESDAY EVENING.

Illustrated Lecture on "Clay Industries of Central Ohio."

BY PROFESSOR EDWARD ORTON, JR.

This lecture was delivered in the convention hall, Wednesday evening. The speaker first explained the reason for giving the lecture, dwelling on the inconvenience and expense attached to making an actual visit to the clay plants during the winter season, and the fact that most of the industries were shut down at that time, and stating that the credit for the idea of bringing the plants to the convention, by means of the stereopticon, belonged entirely to Mr. T. A. Randall, Secretary, whose fertile brain had devised this plan of entertaining the delegates and instructing them as well. To Mr. James E. Randall, the work of photographing the plants had been intrusted, and, during his visits to the numerous plants of this entire district, he had secured large numbers of photographs, from which the slides used in the lecture had been prepared. The work of the lecturer had merely been to put together such descriptive matter concerning the various views shown, as would make them intelligible to the audience.

The speaker first showed a map of the State of Ohio, on which the important centers of the clay industries were indicated by shaded areas: —the Cincinnati district, the Portsmouth-Ironton district, the East Liverpool-Steubenville district, the Canton-Dover district, the Cleveland-Akron district, and lastly and most important, the great central district, taking in the Hocking Valley, Sunday Creek Valley, and Zanesville, Columbus and Delaware.

The total product of the State for 1906 amounted to over thirty-one million dollars, of which over seventeen millions represented brick and construction materials, and almost fourteen millions represented pottery. The bulk of the fourteen millions' worth of pottery came from the East Liverpool-Steubenville district, although there are important pottery interests in Akron, Canton, Zanesville, Crooksville and Cincinnati. The collective output of all five of these localities

would not, however, approach the total of the one great pottery center at East Liverpool.

The distribution of the seventeen million dollars' worth of brick, sewer pipe, roofing tile, fireproofing, and other clay construction materials, falls more equally between the different districts, but the large central area, with about eighty plants, produces undoubtedly the largest aggregate output of any single portion of the State. Besides these areas, in which the clay industries are massed in relatively close order, the common brick and the drain tile industries are scattered over every county in the entire State. These plants supply the local demand for these two products, and, while very few, if any, of them are large industries, yet they represent in the aggregate a large valuation, from their great number.

The second view showed in colors the distribution of the geological formations in the Columbus area, viz.: The Devonian limestones on the west, then the Devonian shales, the sandstones of the sub-carboniferous Waverly group, and lastly, the coal measure formations on the east. These formations formed roughly parallel bands, running north and south across the map. On top of these formations, the glacial drift had been deposited in a considerable portion of the territory, its extreme southeastern margin forming an oblique line across the map from northeast to southwest.



Prof. Edward Orton, Jr., Columbus, Ohio.

The speaker then pointed out the fact that the clay plants of the central area were grouped in two bands: one on the Devonian shales, and the other on the coal measures; the limestone area on the west, and the sandstone area in the center of the map, were almost barren, showing scarcely a single large plant, while the shale areas on either side showed fifteen or twenty plants in one and sixty or more in the other. The few plants outside of the shale areas were usually established on beds of the glacial clays, which occur without reference to the kind of rocks underneath, and which in some local spots afford very nice plastic red burning materials, free from lime or pebbles.

The third slide showed a map of the same territory, with its railroad and trolley lines. On this map, the position of the various plants was indicated and their kind of output indicated by symbols.

Using Map No. 3 as a basis, the speaker then invited his audience to accompany him by a special train on an excursion through the central Ohio district. On the map, from time to time, the exact route followed was traced out, and the position of the plants was shown. At each stopping point, the features of especial interest were selected and illustrated with one or more views.

The following list gives the names and locations of the

plants from which illustrations were shown, and will give some idea of the scope of the lecture:

Groveport.—One view of the plant of the Columbus Clay Product Company was shown, the special feature being the regenerator, by which the heat from both the cooling kilns and the burning kilns is used for heating the air for the dryer. The use of the waste heat from cooling kilns for this purpose is very common, but plants equipped to use the waste heat of the combustion gases for this purpose are very rare. The regenerator at this plant is unique and not to be seen elsewhere.

Logan.—At Logan, three plants are shown. First, that of the Logan Clay Product Company, manufacturing sewer pipe and salt-glazed brick. Five pictures were shown here, briefly illustrating the mode of receiving and dumping the clay, which is received on wagons from the clay pits, about three miles distant. The wagonbed entire is lifted and dumped by an overhead travelling crane immediately in front of the dry pan, or on the stock pile, as may be desired.

One view of the stoneware factory of the Logan Pottery Company was next shown, with its tidy, well-built buildings, its center stack, down-draft kilns, and its yard full of beautiful white glazed crocks.

The Logan Brick Manufacturing Company has two com-



J. E. Randall, Indianapolis, Ind.

plete plants, flanking the Hocking Valley Railroad on either side. The ground plan of the works showed the outline of the buildings, the dryers, and the location of the kilns, of which there are fifty. A general view, taken from the adjoining hill, gave an excellent idea of the appearance of this mammoth establishment.

Next followed views on the hilltop, two miles back in the country, from which the clay is taken. It showed the opening of a new clay pit, with the steam shovel loading a train of cars. Then followed a view of the two little locomotives, each bringing their train loads of clay around the winding "horseshoe bend", on their way down to the works. Then in rapid succession followed views of the incline leading up to the chutes where the clay is dumped, the dry pan and screen house, the mammoth brick machine, said to be the largest in the State of Ohio, the cutoff table, a view up through the center of the repress room, a view at the lower end of the dryer, with cars standing ready for the transfer track, a view on the roof dryer, showing the 11-foot exhaust fan, and a view in the kiln yard, in which the kilns streaked away in perspective like rows of houses in the street.

Union Furnace.—The Columbus Brick and Terra Cotta Company is the only plant located here. It has, however, numerous interesting features, of which only a few were

illustrated. The first was a map of their clay mine, said to be the finest in the State. Several views inside the mine were also shown, illustrating the amount of clay blown down by one blast, and the way that it is loaded and hauled out. Coming out of the mine, the next views were: First, the ground plan of the works; in the kiln, where brick are being set; a view of one of their kilns, undergoing repairs, and a view of the little railroad station, which is a sample of the architectural effects obtainable with their products.

Nelsonville.—Crossing from Union Furnace, back to the main line, the next stop was at Nelsonville, where three plants were shown. The Nelsonville Brick Company is a large new paving brick plant. At this plant, the system of electric underground haulage for their clay mine and coal mine was of interest. Also, the use of an electric transfer car for carrying the brick from the dryer to the kilns, saving the use of horse or man power.

The Nelsonville Sewer Pipe Company, owned and controlled by the same company, is the next plant. A view of its dry house was shown and explained. Also, a view of the neat brick cottages of its employees.

Next below was the plant of the Hocking Valley Fire Clay Company, a new industry still in process of construction. Its large building is of the type used for sewer pipe plants, its overhead trestleway, connecting the building with the side hill from which the clay and coal come, and its kilns surrounding the factory building, made an interesting picture.

New Straitsville.—The only picture given was of the plant of the Straitsville Impervious Face Brick Company, showing its kilns, buildings, and the trestle connecting the top floor of the building with the clay mine on the side hill.

Shawnee.—The first plant here was that of the Iron Clay Brick Company, built on a spur of the Baltimore & Ohio Railway, about half way between Shawnee and New Straitsville. Some very interesting views were obtained at this plant. First, a surveying party at work underground in the clay mine; next a couple of men engaged in mining coal; third, the dry pan room at which the clay is pulverized; fourth, the beautiful press room, with five large dry press machines in a row; fifth, the grading and storing sheds; sixth, a birdseye view or perspective of the whole plant. The product of this company is high-grade flash brick, to which they confine their whole attention.

In the center of Shawnee, the Shawnee Flash Brick Company is located. It is a side hill plant, the clay being taken in at the top, and carried down hill successfully through all stages to the brick machinery at the bottom. They make flash brick by the dry press process.

The Ohio Mining and Manufacturing Company, at Shawnee, has one large plant and another building. The one now in operation was illustrated with a view of the top of the shaft leading to the clay pit, which is located deep underground; next the tipple at which the clay is dumped to the crusher; the cars carrying the crushed clay to the ageing pile for weathering; another car for automatically loading and carrying the weathered clay to the brick machinery. The process of preparation of clay at this plant is unusually thoroughly worked out, and was shown in fairly complete detail. The new plant will use a continuous kiln, of the Youngren type, but no views of it were shown.

New Lexington.—Ten views of the Ludowici-Celadon Roofing Tile Company, at New Lexington, were shown, beginning with the clay pit, where the shale is quarried by hand; cars of clay running down the incline to the stock room by gravity; two press room scenes; the covered transfer track, leading from the dryer to the kilns, which was beautifully covered with roofing tile; a view of the interior of the kiln, showing the mode of setting roofing tile to prevent its crushing, etc.; of a group of ornamental pieces of roofing tile, such as finials, crests, and ridges; and lastly, an interesting experi-

ment, which is now being made at that plant, viz.: burning their kilns with pulverized coal dust, using a central combustion chamber for making the heat and a flue system to carry the heat to the various kilns as may be needed.

Next came the plant of the New Lexington High Voltage Insulator Company, engaged in the manufacture of insulators for high voltage transmission lines. This plant is one of only three or four engaged in this specialty in the United States. It comprises some very unusual features. Views were given of the clayworking room, the kiln house, the ware in the stock shed, and the testing room, in which the insulators are exposed to the enormous figure of 135,000 volts, or about three times what they are ever expected to carry in practice in the highest tension lines.

Crooksville.—At Crooksville, a number of plants were briefly shown. First, the Crooksville Paving Brick Company, with views of its Eudaly kiln, side by side with its center stack, down draft.

Next came the Star Stoneware Company, showing views of its yard, full of beautiful black and white glazed stoneware. Then the old Crooksville Stoneware Company, as it appeared fifteen years ago, showing the wonderful improvement in the grade of stoneware which has been made in that short time.

The works of the Crooksville China Company were carefully shown in a series of eight slides. First, a view in the slip room, showing the potters' clay washing machinery; next the operation of jiggering cups; third, the operation of turning cups on the lathe; fourth, the kiln shed, showing the benches and mode of handling the ware; fifth, a view in the biscuit stock room, with a party of girls cleaning and brushing the ware; next, the decorating kiln, where the decorations are burned in; next, the stockrooms, with the ware piled to the ceiling, and lastly, the packing room, where the orders are gotten out. This series of views beautifully illustrates the workings of a white ware pottery.

Beside these, a few other exterior views of Crooksville potteries were given, among them being the Black Diamond Stoneware Company, and the A. E. Hull Pottery Company.

Roseville.—In this ancient clayworking village three works were illustrated. First, the art pottery of the J. C. McCoy Company, which manufactures jardinières, umbrella stands, pedestals, and similar faience. Views were shown of their kiln room, their sample room, and in the artists' studios, with artists at work in decorating the ware.

The Ransbottom Brothers Stoneware Company, located on the north edge of Roseville, contributed a beautiful set of views of the old fashioned and beautiful art of "throwing." This process is often improperly called "turning" in this country, but historically, it is known as "throwing." The first view shows the potter beginning with a huge shapeless lump of clay on the wheel; in the second, he has formed the bottom; in the third, he has begun to form the slides; in the fourth, the piece is two-thirds of its full height; in the cast, he is truing up the top of the finished piece. In this instance, the potter was making a ten gallon stoneware crock. This one set of views very inadequately represents the work done in the Ransbottom factory, which is one of the most up-to-date plants in the district, but it is a very complete and artistic lot of pictures of a rare phase of clayworking.

Close by the Ransbottom plant are the works of the Hydraulic Press Brick Company, of the Zanesville branch. Only one picture was shown of this plant, viz.: a group of O. S. U. ceramic students surrounding a kiln, and pretending to fire it. Of course, they were not actually doing so.

Zanesville.—Zanesville is, without doubt, the greatest clayworking city, except East Liverpool, in the State, and alone would furnish material for several such lectures. Nothing

could be done to adequately set it forth at this time; only five plants were illustrated, and they but hastily.

Slide No. 84, a view in the suburbs, illustrating the close distribution of clay plants. In one view is shown the J. B. Owens Company, manufacturing art pottery; the Zanesville Tile Company, manufacturing floor tile; the Mosaic Tile Company, manufacturing floor and glazed wall tile; the Arc-en-ciel Pottery, manufacturing decorative specialties, and the Ohio Pottery Company, manufacturing stoneware. Nothing further of these plants was shown, except the kiln room of the Mosaic Tile Company.

Slide No. 86 showed the hilltop plant of the Harris Brick Company, the peculiarity being the fact that a local bed of glacial clay had been utilized by this company as the basis of their industry. This outlying patch of glacial clay is almost twenty miles from the nearest edge of the glacial formation, and constitutes one of the curiosities of Ohio geology.

Five views of the Fischer Veneer Tile Company were shown. They are manufacturing a new kind of tile, which is put up on the wall and clinched fast to wooden slips, making an easily laid and handsome glazed veneered surface.

The Weller Pottery was illustrated with six slides, showing some interesting features. First, the sagger department, where the clay boxes are made, in which the wares are sub-



O. N. Townsend, Zanesville, Ohio.

sequently fired; second, the mold room, in which the plaster molds are prepared; third, a series of parts of a single master-mold, and the molds which are made from it; fourth, a large jardiniere and pedestal of clay in its mold, a portion of the enclosing wall having been removed to show the clay inside; fifth, a view of the decorating room, with the artists at work, and sixth, a view in the celebrated "French" room, where the lustre pottery is kept. This ware was made by two expert workmen from France, and has all of the colors of the rainbow in its iridescent surfaces.

Hanover.—Leaving Zanesville on the return trip, we pass the Hanover Press Brick Company, showing in two views the plant and the shale clay pit, the latter a very pretty opening.

Summit Station.—The plant of the Columbus Contractors' Supply gives a series of six interesting views, showing the clay pit; the dryer; setting the brick in an up-draft kiln; the system of the natural gas burners applied to the up-draft kiln firing; the system of flues used in their round down-draft kilns, and lastly, a general birdseye view of the plant.

Delaware.—The plant of the Delaware Clay Manufacturing Company, owned by Dennison Brothers, possesses an originality and boldness of design not equaled by any other establishment in the State of Ohio, and probably not in the country.

A series of eight pictures gives some idea of the unique features. First, is the clay pit, which is about the worst on record. No one looking at the boulder pile left where they have been taking out the clay, would believe it possible that a plant could exist with so poor a raw material. They have made it not only exist, but flourish. The next view shows the single end horizontal steam press, by which a considerable proportion of their ware is formed; next their vertical steam press, on which anything from hollow brick to sewer pipe is made; next their periodic kiln and dryer system, six kilns being built in a large stonewalled, fireproof floored building, with three stories of dryers on top. The ware is taken by elevator and set on these dryer floors, where it is dried with waste heat from the exterior of the kilns in the basement floor. The products of combustion are carried out through stacks, so that only the heat ordinarily absolutely lost is utilized for drying. The next slide shows the fireproof construction in the kiln room.

The last three slides show their unique continuous kiln, with a covered building on its top, containing a link chain, moving pallet dryer system, by which the ware is taken from the cutoff belts and loaded direct on pallets, which pass by within easy reach of offbearers. These pallets are attached to link chain, which carry them up into a narrow structure



J. W. Candler, Collinwood, Ohio.

on the top of the continuous kiln; here they pass back and forth for twenty-four hours or more, drying as they go. They come back to the starting point, where the pallet is unloaded by the wheelers to the kiln, and is refilled the next moment by the hacker. The only heat used is the radiated heat from the exterior of the most economic type of kiln in existence, together with a little auxiliary heat from the steam cylinders of their presses.

From Delaware, the excursion train was headed back to Columbus once more, and the audience was discharged in their seats in the convention hall. Notwithstanding the fact that they had made a trip of 150 miles, and had inspected some twenty-five or more factories, the audience still seemed to have life enough to enter with pleasure into the succeeding portions of the evening's program.

SECOND SESSION.

Thursday Morning, February 6, 1908.

President Gregory: Gentlemen, the convention will come to order. Let us settle down and apply ourselves to good, hard work. I will ask Secretary Randall to announce the first order of business.

Secretary Randall: The first number on our program this

morning is a paper by Mr. Lambert Haigh on "Electricity as a Power for Clayworking Manufactories." But while Mr. Haigh is coming forward, I wish to say that we have virtually passed the 500 mark on our register, and that we have the largest attendance of any convention in the history of the association. (Applause.)

ELECTRICITY AS A POWER FOR CLAYWORKERS.

BY LAMBERT HAIGH.

Mr. President and Gentlemen of the Convention:

Your honorable secretary has requested me to read a paper on "Electricity as a Power for Clayworkers." I might add that I have been engaged in the electrical and brick business for nearly ten years, the larger portion of the time in the electrical business, and your secretary, knowing this, has seized the opportunity of placing my name on the program for a paper.

This is my first appearance at one of these conventions, but I hope it will not be the last, and if I can give you any hint on the subject which will be of benefit to you in any way, I shall be quite satisfied.

I do not intend to go into the design of electrical apparatus very deeply, but to try and show wherein clayworkers can use electricity to advantage. All are aware that the greatest cost of our brick plants is taken by salaries, employes wages, and fuel used in the different branches of this business, and even though we do not require the power that a large steel works does, we must not overlook the fact that it is to our advantage to bring down, to as low a figure as possible, the cost of running our plant, and to do that is to have the most economical method of driving.

At the present day, steel works, cement works, cotton factories, and a large number of other industries, have adopted the electric drive instead of the mechanical drive, and have proven it to be quite a success, and, in looking over the method of driving our brick machinery, I find that a brick plant is about one of the best plants for economical driving by electric drive that is to be found. This is on account of having to have, with mechanical transmission, such a large amount of shafting, due to the machinery and other appliances being so widely separated. It is this great amount of shafting which is the cause of our large friction losses in the mechanical transmission. I am sorry I have no results of tests showing the exact amount of friction losses in a brick plant, but various tests which have been taken of other kinds of plant show losses to be on an average of 50 per cent., and this figure is also a very conservative one for a brick works, for it is only where we have the advantage of short shaftings and proper alignment of shaftings and bearings, and great attention given to the bearings, that we can get below that figure, and in most of the brick plants we do not get much below that.

It is not my intention to dwell on the friction losses of the mechanical drive, as most of you are fully aware of these losses, but to show you where we can advantageously use the electric drive.

We will take for supposition that we require 200 horse power to drive our brick machinery. The largest motors would be those for the brick machine, pug mill, pans and presses, and at the present day electrical manufacturers have brought the electrical machinery up to such a high state of excellency, that they would guarantee 90 per cent. efficiency for motors of a horse power that we would require for those machines. For the smaller motors for conveyors, etc., we would get 82 per cent. efficiency, and motors for pumps and blowers 86 per cent. efficiency, making an over-all efficiency of 86 per cent. This means, to get 200 horse power work out of our motors, we would require 233 horse power at the motor terminals, and, allowing two per cent. loss in line to the various machines required to be run, our generator would have to give out 238 horse power, or equal to 180 kilowatts. Any electrical company would guarantee us an efficiency of at least 90 per cent. for a generator of that capacity, which shows our engine would have to develop 265 horse power, being a loss of 25 per cent., or an over-all efficiency of 75 per cent. This is placing everything at a moderate efficiency, and I do not doubt but what this could be somewhat improved upon, but it is having all the plant direct motor driven. I find, on closer observation, that it is necessary in some plants to have some shafting. Take a plant which has a large number of pans for grinding shale or granulators for clay, then it is advisable to have our motor direct coupled or belted to a counter shaft, and to run those pans or granulators from that shaft. This will increase our losses, due to the friction of that shafting, and will increase our horse power output from the engine, making it approximately 280 horse power instead of 265 horse power. This is quite a saving compared to the horse power our engine would have to give out, if we had the mechanical drive, and if we base our transmission losses in the mechanical drive as low as 40 per cent., it is in this case a loss of 53 horse power greater than the loss by electric drive. Assuming it requires five pounds of coal per horse power per hour, which is a low estimate for the average noncondensing steam engine in a brick plant, it is a saving of 265 pounds of coal per hour, or 2,650 pounds of coal for a ten-hour day.

In most brickyards our losses are that of the average shafting transmission, 50 per cent., and if we assume the same amount of coal per horse power as before, we would require to get 200 horse power work out of our machinery, 6,000 pounds of coal more than we would require by the electric drive. This is basing everything on the machinery being run continuously at full load, which is generally done in most of our up-to-date plants. For the benefit of those whose plants require only about 100 horse

power in shafting transmission, the electrical apparatus required would be rather less efficient than the larger apparatus, but 80 horse power with the electrical drive would be all that is necessary, a saving compared to the shafting transmission of 900 pounds of coal per day.

This, I think, is well worth investigating, as the electrical companies would guarantee to us the efficiencies previously mentioned. The writer himself has tested a large number of motors which have shown high efficiencies, and most of the motors required in a fairly large-sized brick works would be large enough to demand a good efficiency. Let us look into the other advantages to be gained by using electricity.

No. 1.—Maintenance. The cost of maintenance is brought down to as low a figure as it is possible to get, and will prove quite a saving compared to that of the shafting transmission. This is easily seen by having done away with a large amount of shafting and belts which are always needing repairs and renewals, and which, if not kept in good condition, increase the friction losses to a large extent, and which, I pointed out before in this paper, would increase to a large extent our coal consumption. I might also say we have practically no danger of shutdown through breaking or slipping belts, and a decrease of the danger of belt driving to all men working near the machines is greatly eliminated, and this also adds to the comfort and appearance of the plant in general.

No. 2.—The ability to shut down any part of the plant without interfering with any other is of great advantage. This is due to the subdivision of the applied power, which is very applicable in a brick works, as all motors required are of a fairly large size and group driving can not be successfully used, and if any machine breaks down, or any motor burns out—for the electric motor is not quite infallible in this respect—we have, by subdividing our power, in no way interfered with the working of any part of the plant, and this leads me to again mention our friction losses.

Suppose we have to shut down our brick machine, pug mill or presses for repairs or alterations. In the present condition with shafting transmission, we simply throw our belt on a loose pulley, but we have not stopped the belt or shafting, which shows us our losses are constant, just as long as the engine is running; whereas, if we had electric power, when we shut down any machine we cut off all power required for that machine, which shows that the loss in this method is a percentage of actual power used.

No. 3.—The cost of running, which, in the mechanical drive, is seldom thought of, can easily be found out in the electric drive. A few inexpensive instruments placed on a small switchboard will show to us just how much power any certain machine is taking at any time, and records of same can be kept for future reference; or, if it is desired, all the power can be recorded on the same instruments, thus making it easy to determine the cost of running by the amount of coal consumed, compared to the electrical units shown on the instruments. If anything goes wrong with any machine, this can easily be found out by the abnormal load shown on these instruments.

No. 4.—Electric drive has great flexibility for extending the plant without any alteration whatever to the existing machinery, and in conveniently and economically supplying any amount of power to any part of the plant. There are instances of this in our brick works, many having to have another engine put in to run various machines, such as a blower for utilizing waste heat from the kiln for drying purposes. A few are using blowers for draught for the kiln instead of a chimney, and, as quite a number of clay and shale banks have to be kept dry by pumping, anyone who has experienced carrying long lengths of steam pipe will readily see the advantage of an electric driven pump. Further, any machine required for hauling or drawing shale or clay, no matter at what angle the incline should be placed, can easily be run from the same source of power.

No. 5.—Lighting. The plant can be lighted by incandescent or arc lamp from the same supply, without any increase of capacity beyond that required for the power used.

No. 6.—The location of the power plant need not be considered, but can be placed in the most convenient place, whether near the works or not. Having experienced what the aforementioned items mean to be driven, as they generally are at the present time, I particularly draw your attention to them.

In the electric drive we have two classes to choose from—that of the alternating current or the direct current system. In the alternating current we have a system of electric drive very applicable to the brick plant on account of being able to use induction motors, with squirrel cage rotors, which, being built of a rugged type, the rotor, or revolving part, being no more than copper bars embedded in an iron core and connected together by end rings. The stator winding or stationary part being well protected by the motor frame, we have a motor exactly suitable for driving blowers and conveyors, and, as this motor has no slip rings, it needs very little attention, only occasionally see that the self-oiling rings are working properly.

This type of motor is a very superior one where a constant speed is needed, and as it is to be continually running, as for blowers for drawing waste heat for dryer or for draught for kiln, and it is capable of taking 100 per cent. overload momentarily and 25 per cent. overload for two or three hours. It also has the advantage of a high efficiency at full load, which blowers and conveyors are generally run at. Dust, which in some yards is a source of annoyance, can not materially affect this motor, it being well protected.

For the brick machine, pug mill, or presses, an induction motor, with a wire-wound rotor and controller for starting, is needed. This motor is also ruggedly built and it has the advantage of the squirrel cage type in the large starting torque, which it can exert and which is a necessity on account of the uneven load

on brick machines and pug mills, which often happens, due to the unevenness of pugging. It can also be arranged that different speeds can be gotten by using resistances, but our brick machinery when once installed is very seldom changed, and generally run all the season at the same speed. For the pans or granulators we have our choice as to which motor we install, and in this the writer prefers the squirrel cage type.

In the direct current system we have to use commutator motors, and these are the kind mostly used in driving plants at the present day. These motors have one great advantage in that we are able to get 25 to 40 per cent. change of speed very easily, by inserting in the field of the motor, a rheostat, commonly called resistance. This change of speed though, is not of much advantage on a brickyard, but is of great importance in other works, and whatever change of speed we do require can easily be gotten by changing pulleys.

This class of motor is now being brought up to a high stage of excellency, and is now being designed to suit all classes of machinery, and to run under any condition which is in any way reasonable. The writer, though, is in favor of the alternating current motor for a brick plant, it being so ruggedly built and needs so little attention paid to it, but does, on no account, cast any reflections on the direct current system.

Coming to our source of power, we have what is known as a heavy and light load, i. e., much more power is needed in the day than at night. The only power required at night being just sufficient to keep the blowers running and the lighting of the plant. It is needless in this instance to keep a large engine running for this small amount of power, and it is as economical to have the power subdivided, have two engines and generators, and, by so doing, one can be a large set, so as to maintain all the day load, the other being large enough to take care of the load at night. You can have two equal sets, both running during the day, and each one shut down every alternating night. I might mention here that any one contemplating starting a plant should



Lambert Haigh, Catskill, N. Y.

always take into account whether the plant be mechanically or electrically driven, that he should allow, when figuring out, size of engine, sufficient power for alteration or addition, unless that addition is so large as to demand another engine, for nothing is more injurious to machinery than to be constantly running overloaded.

A few words in conclusion to the user or those contemplating using electric power. If the plant is near a large town or city where electricity is supplied for power purposes, he can, if he so desires, take all his power from the electric company's mains. These power companies, which nearly every large city now has the advantage of, can, by supplying power in bulk, give it to the user at a very small cost. Columbus, the Convention City, has a rate of five cents per kilowatt hour; St. Louis, three cents per kilowatt hour; Rochester, three cents, and the Cataract and Conduit Company, at Buffalo, has a rate for block power of two cents per kilowatt hour, for 1,000 hours or less per month. They also have a sliding scale down to less than one cent per kilowatt hour for 80,000 hours per month. By using power from one of these numerous companies, you have a saving in first cost, no engine, boiler, or generator is needed, and the power is always at your service night and day. You can always make arrangements for a special rate, based on the amount of power used per month or three months, and you will find that it is nearly as cheap, and in some cases quite as cheap, as if you had your own generating station. Prices such as are here quoted bring electricity within the reach of clayworkers, and, in my opinion, is deserving of your attention. I thank you, gentlemen, for your attention. (Applause.)

General Discussion.

President Gregory: Gentlemen, this paper is now open for discussion.

J. Parker B. Fiske, New York City: I have been very

much interested in this paper because I have had some experience in using electricity on the brickyard, and I endorse very heartily what the author of this paper has said. His figures in regard to efficiency are very conservative indeed. I think probably even a higher efficiency might be obtained. I know in many instances where mechanical drives have been thrown out in printing establishments and similar plants, and electricity has been installed instead—it has been a saving of over one-half of the power. I know of one case, that of the Rand-McNally plant, in Chicago, where over two-thirds of the power was saved by the use of electricity. There is one item of great importance in operating a brickyard which I wish to mention, and that is the freedom from shut downs. Everybody knows how annoying and expensive it is to have to shut down the plant to tighten a belt, or something of that sort. In using electricity in operating a brick plant the shut downs are not so numerous, and the shut down of an electrically driven plant is very much less than that of a mechanical driven plant. With our plant at Dover Point, we started in with four motors. We gradually threw out the mechanical drives for the distant parts of the plant and supplemented them with electric drives, and in every case we made a great improvement, the number of shut downs was decreased, and the general efficiency increased until we had



Joe P. Fulcher, Nashville, Tenn.

about twelve motors. If I were to build another brick plant, I would have electric drives throughout, as I believe it is the best and most efficient and satisfactory arrangement.

There is another point which appeals to me very strongly, and that is the operation of the shovel for digging the clay by electricity. All of you who use shovels know the trouble in the winter time comes from the freezing of the water pipes, etc. In my own experience, the trouble of getting the water to the shovel in the winter time was very great, and I regretted that at the beginning that we did not have the shovel equipped with motors. The point of two sets, one large set for day use and one small set for night is, I think, well taken. In our plant we carried out that idea, we had 200 horse power for day time and about 75 horse power at night, and it was very convenient to be able to shut down the big engine and continue the operation of the fans during the night with the power from the small engines.

Mr. Haigh has referred to the introduction of electricity in steel work, and, of course, you are all familiar in a general way with that. I was very much impressed about nine months ago in talking with an officer of the Carnegie Steel Works, whom I had known in the early days of electric motors, when we threw out the steam motors and installed the electric motors, and he told me that all the steam motors

had been thrown out and electric motors were being used altogether. We discussed the anxiety with which we had discussed about ten years previously the advisability of operating those enormous rolls by electric motors. My friend said: "At last we have accomplished that, and we look back now and think of the ten years' time we have wasted in operating by steam when we might have been operating them so much better by electricity. (Applause.)"

President Gregory: If there is no further discussion of this paper, we will take up the next paper on "The Advantages of Forced Draft over Natural Draft in Burning Up-Draft Kilns," by Mr. Joe P. Fulcher. I will ask Mr. Fulcher to come forward.

Secretary Randall: I would like to call your attention to the fact that the young man who has come forward to read the paper is not the Mr. Joe P. Fulcher on the program, but is his son. The senior editor of THE CLAY-WORKER is not the only one who is calling on the younger generation to shoulder responsibilities. (Applause.)

THE ADVANTAGES OF FORCED DRAFT OVER NATURAL DRAFT IN BURNING UP-DRAFT KILNS.

BY JOE P. FULCHER, NASHVILLE, TENN.

Mr. President and Gentlemen of the Convention:

I have been requested to say something to you upon the subject of "Burning Brick with Forced Draft."

Understanding the great object of each brickmaker to be the making of the very best brick at the least possible cost, I take it for granted that the experience of each member of the convention may be of interest. The first object of these conventions is to help each other by the exchange of experiences in making brick. The story of these experiences tells of rough and rugged ways, as well as of smooth and pleasant paths. Many problems have been solved here, many remain to be solved, and our successors will have long forgotten us before the last of the knotty problems is cleared away.

I fear our genial secretary expected too much of me when he called upon me to prepare a paper upon this subject—the great problem engaging the serious thought of every brickmaker. Having received so much benefit out of the papers and discussions of my fellow brickmakers, I feel impelled to give them the results of my efforts and experience in burning brick with forced draft, or air under pressure.

For about 25 years I have been making both press brick and stiff mud common brick from river bottom clay. I realize as, probably never before, what the problem is, and how difficult it is for each seeker after the true way to discover more than a little of the secret. Our clay makes a very dense brick, and requires hard firing to secure the desired color. For press brick we use down-draft kilns; for common brick we use up-draft kilns. Until three years ago, we burnt brick with natural draft. At that time we adopted the "Boss System," which is, as you may know, forced draft, or air under pressure, and built a battery of five kilns. Since adopting this system, we have used it exclusively in burning our common brick.

Our kilns have about sixteen arches, 21 feet wide, and from 12 to 14 feet apart. They are the usual up-draft kilns, with permanent walls. A duct 24 inches in diameter runs at right angles with these kilns and connects with the fan; leading from this main duct down the side of each kiln we have a 12-inch duct, and from this 12-inch duct a 3-inch pipe leads to each burner. These burners are about six inches wide and two feet long, containing fourteen spaces five and one-half inches long and one-eighth of an inch wide through which the air passes. These burners are used instead of grate bars, being placed in the fireboxes level with the kiln floor. The fireboxes are 18 inches wide, and similar to those used in the regular up-draft kiln.

The fan is 4 feet 6 inches in diameter, driven by a six or eight horse power engine. This fan forces the air through the ducts into the kiln and furnishes an ample supply of air for burning three or four kilns at the same time. We regulate the draft entirely by the speed of the fan, the pressure being indicated by the difference in the height of a water column in a "U" shaped tube.

The brick are set in the kiln about 42 courses high, and in the usual way customary in up-draft kilns. Two courses of platen are used; the first about one inch apart, and the top course set tight.

When the kiln is full we begin water smoking. We start the fan, so as to have about an inch or an inch and a quarter pressure. We then get a barrow load of live coals from the boiler or one of the adjoining kilns, and by putting a small shovel full to each arch and adding a small amount of slack coal, within ten minutes one man can have all the fires burning uniformly, with sufficient heat to commence water smoking. With natural draft, using wood for water smoking, several hours were required to accomplish the same results. During the time of water smoking, the doors are left open, and the top course of platen pulled up to allow the dampness to escape. When the dampness has practically disappeared, we have from one inch and three quarters to two inches pressure. We fire about every eight minutes, using about half of a small shovel full of slack coal to each fire. In about two days, or as soon as

the fire is through, we tighten the platen. At this stage we fire about every ten minutes, using the same amount of slack coal. This firing is continued until a settle of about eight or ten inches is obtained.

We find the time required for water smoking and burning is from six to seven days, and it results in a product of about 80 or 85 per cent. hard brick. Upon some kilns on which we have kept a record, six and a half bushels of slack coal per thousand brick were used for the entire burn, including water smoking.

We regard this system as making a saving of about 40 per cent. of the cost of fuel, and about 25 per cent. of labor.

The advantages of forced draft, or air under pressure, may be summed up as follows:

First—Less coal required, and cheaper grade can be used.

Second—Time and labor saved, and no wood required for water smoking.

Third—Larger per cent. of hard brick, and better arch brick.

Fourth—The doors being tight and easy to handle, and, having no ash pit, the amount of cold air which rushes in to cool the burning brick has been reduced to minimum.

Fifth—The air forced by the fan makes a pressure throughout the kiln, spreads and distributes the heat and equalizes it. (Applause.)

General Discussion.

President Gregory: Is there any discussion on this paper which has been so ably presented?

Mr. Lemon Parker: I would like to ask if there are any means taken to heat the air before it reaches the fire.

Mr. Fulcher: No, sir.

Mr. Parker: It seems to me there would be quite a saving if the air were heated before it reached the flames.

Mr. Fulcher: The air is put through the fuel, you know, and we have just air enough to burn the fuel.

Mr. Parker: I have had experience in the direction of continuous kilns with producer gas, and we have preheated air to burn our fuel with. The air is preheated before it reaches the fire.

President Gregory: The next will be "Setting Brick by Machinery," by Mr. W. G. Buckles, of Coffeyville, Kans.

Secretary Randall: Mr. Buckles's paper is to be illustrated with lantern slides, and, with the President's permission, I want to introduce Mr. Buckles before the lights are turned out. (Applause.)

SETTING BRICK BY MACHINERY.

BY W. G. BUCKLES, COFFEYVILLE, KANS.

To the Members of the National Brick Manufacturers' Association:

It has become common, at least among the Kansas brickmakers, to speak of the passing of hand labor on the brickyard. And when you hear such an expression from the lips of an old-time brickmaker, it is always an expression of respect. Because he knows that hand labor, with its natural handicaps, has produced all that machinery so easily accomplishes now. The world used far more brick before the advent of machinery than it has since, and all those millions of rectangles were produced by human hands, scarcely aided by tools.

But particularly with the expansion of the iron and steel industry, hand labor has been passing fast, one after another of its strongholds being invaded, until today the average hand labor upon brick yards is less than ten hours to the thousand brick produced. In astounding succession have come the steam shovel, the modern shale and clay grinding machines, the elevators and carriers, the steel pug mill, the auger, the cutter, the represses, and leviathan dry presses. Lately, too, I read of motor propelled brick and shale cars. Besides these there are a lot of new fangled things, rumors of which had not yet reached the Kansas border when we came away.

All this has been accomplished, but the man who piles the brick in the kilns, the brick setter, "we always have with us." In the midst of all the changes and revolutions his position has remained unassailed. In the year 1908 B. C. the dark Egyptians were pitching brick from one to another and piling them up for baking or burning in just the same manner precisely as the white Americans, 1908 A. D., are passing the brick from one another and piling them up for burning. Two thousand years of civilization before Christ and two thousand years of civilization since, have waged and clashed about the human brick setter, and unscathed today, he maintains his position all unchanged, and calmly lights his pipe and argues his political preferences, while the machine gang insanely demands room in the dryers, while the machinery closes down, and the superintendent loses his mind and his soul. (Laughter.)

My mission here today, my friends, is to tell you that the human brick setter is very soon to be a thing of the past. I assure you, in the most solemn and certain manner, that practical brick setting by machinery is an accomplished and complete fact. For ten months, in the city of Cherryvale, Kans., at the plant of the Coffeyville Vitriified Brick and Tile Company, a machine has been setting all of the dry press face brick from two Simpson dry presses, about 40,000 per ten hours, by the use of only two men,

and those two men have been waiting upon the presses about two-thirds of their time. This machine during that time has handled these tender green dry press brick so well and so perfectly that there has been an increase in value of about 25 per cent. in the finished product, and a reduction of about 60 per cent. in the amount of off-grade brick. Understand, this is the very highest grade of dry press facing brick, and during these ten months, the setting of these brick has cost just 25 per cent. of hand setting.

Mr. Wm. H. Francis, superintendent of the Cherryvale plant of the Coffeyville Vitriified Brick and Tile Company conceived the idea of the system and machine in the summer of the year 1906, and since then he and his brother, Chas. Francis, superintendent of the Independence plant of the same company, have ably worked out the practical details, until today the system is perfect and complete.

My words may mean little to you. You may soon forget them. As a rule, a Populist from Kansas talks so much that his talk is below par value. So we arranged for some negatives to be taken of the machine while in operation, and Mr. Randall was kind enough to furnish the stereoscope for showing them here.

In the first picture here, you see the pressman piling the fresh pressed brick upon the form. This is a four sided affair, on which the pressman may pile as many as four bunches of brick for the carrier without stopping the dry press, in case the carrier may be delayed for any reason. When he gets the side closest to him piled full, he turns this form on its central shaft, and an empty side is then presented to him, without moving from his tracks. At this identical moment he seems to be completing a bunch of brick for the lower bench of the kiln. This bench is necessarily broken into by the arches, but you see they manage this all right by projecting the brick out at the top on each side of this pile. Thus half of one arch is on this side of the pile and the other half of the arch will be made by a pile of brick similar to this, after the second and third benches have been piled on top.

On the other side of the form he has piled the brick suitable for the second or third bench. The carrier has applied the setting



W. G. Buckles, Coffeyville, Kans.

machine to this pile of 125 brick, has tightened the chain on the triplex trolley block, and is lifting the whole pile away from the form. He is now ready to start for the kiln with his load running on the overhead eye beam.

In the second picture he is on his way to the kiln, and is just now making a right angled transfer in the direction he is going. If you will look closely here, you will see the points of the fingers in between the bottom rows of brick. All of the brick above the two bottom rows are supported by resting upon these fingers, while the two bottom rows are held tightly by an automatic clamping device, which spreads the steel aprons arranged on each side of each finger. That is, when the weight of the upper brick comes upon the fingers, this weight automatically causes the steel aprons to spread. Thus each bottom row brick is tightly held by a steel apron pressing on each side of it. And when the weight of the top brick is taken off the fingers, then the aprons automatically release, and the machine may be removed, leaving the pile of brick anywhere on a level spot.

Now, in the third picture, the carrier is entering the kiln with his load, and one of the two men in the kiln is standing with his arm raised holding the hook which he will fasten into the eye on top of the setting machine. This framework extends into the kiln by sections, easily arranged to be put up and taken down, so that the advancing wall of green brick is always at a convenient distance from the end of the frame.

The fourth picture shows the electric traveling crane complete. It travels upon eye beams, which are fastened to the kiln roof posts. Like all traveling cranes, three of the six motions may be had at one time. This renders the lift from the end of the framework to the proper location in the kiln very quick and direct. The 125 brick have been lifted thus, and now the operators are carefully landing them in their permanent place. You also gain here a good idea of the appearance of the kiln when set by this method. The setters whom we formerly used here in the

kiln, are the pressmen whom you saw in the first picture. Thus these two high-priced men are combined. Neither of the two men in the kiln are now brick setters except with the machine. Good, careful common laborers are chosen for these positions.

Picture No. 5 shows the basket properly released, and the crane is beginning to swing it away from the brick and down to the frame, where it will be picked up again by the carrier for another trip.

Picture No. 6 shows the operator when he has just landed another load of brick. This load is on the third bench, while the former one was on the top bench. You see, some of the time the wall of green brick is built by setting the piles of brick flat against it, and again, as in this picture, edgewise to the body of brick already set. In this manner everything is made to fit all right in the middle and at the sides of the kiln. The carrier at the bottom is starting to return with the other basket for another load.

Picture No. 7 illustrates how the machine works as well for the arch bench as it does for the top or middle benches. Thus not a single brick in the whole kiln is set by hand. Thus you have the whole operation shown in detail.

I will say that the Francis Brothers consider that the setting



View No. 1.



View No. 3.

problem is solved for the stiff mud brick, although as yet the system has been so far applied to dry press only. In fact the rough stiff mud brick would have been the easiest proposition in the first place. Before the flowers are blossoming again in Kansas the system will be working on stiff mud brick also. In this, of course, there will be no framework built up in the kiln. The brick will be piled wet and green on the cars at the represses, just as they are now, except that they will be in kiln formation, and formation that the machine can grasp. These cars of green brick will go into the dryer as now, and also be taken into the kiln on tracks as now. But when they get in there the machine will be waiting for them, and the cars will be relieved of their loads of brick in from three to six lifts by the two operators shown in the pictures. For the down-draft kilns, a track crane will be devised to take the place of the overhead crane.

Gentlemen, I hesitate to give you anything but facts already accomplished, but let me say that the possibilities of this machine have not yet been reached. Why will it not take the brick out of the kiln again? Why will it not take them to the edge of

the car? Why will it be necessary to disturb a brick from the repress to the railroad car? These are the questions which are to be answered. Come out in Kansas to see us before the next convention of the brickmakers, and, in the famous words of our neighbor, the Missourian, "We will show you." (Applause.)

General Discussion.

Secretary Randall: Did anybody say what is the matter with Kansas? (Laughter.)

Mr. J. W. Sibley: I would like to ask Mr. Buckles if he has applied this system as yet to the down-draft kilns, and if so to give us a description of it, and what success they have had.

Mr. Buckles: I guess I forgot that part of my paper, I was a little bit rattled, not being used to speaking before such a large and intelligent audience. We simply use a track crane instead of the overhead crane. It took us some time to think of that, but we finally did think of it, and we have the track crane all arranged, and I can not see why



View No. 2.

any trouble should come. We have not done it as yet, but we see no reason why we should not handle it that way, just as effectively as the overhead crane.

Mr. C. P. Mayer: How would you set the brick in a round kiln?

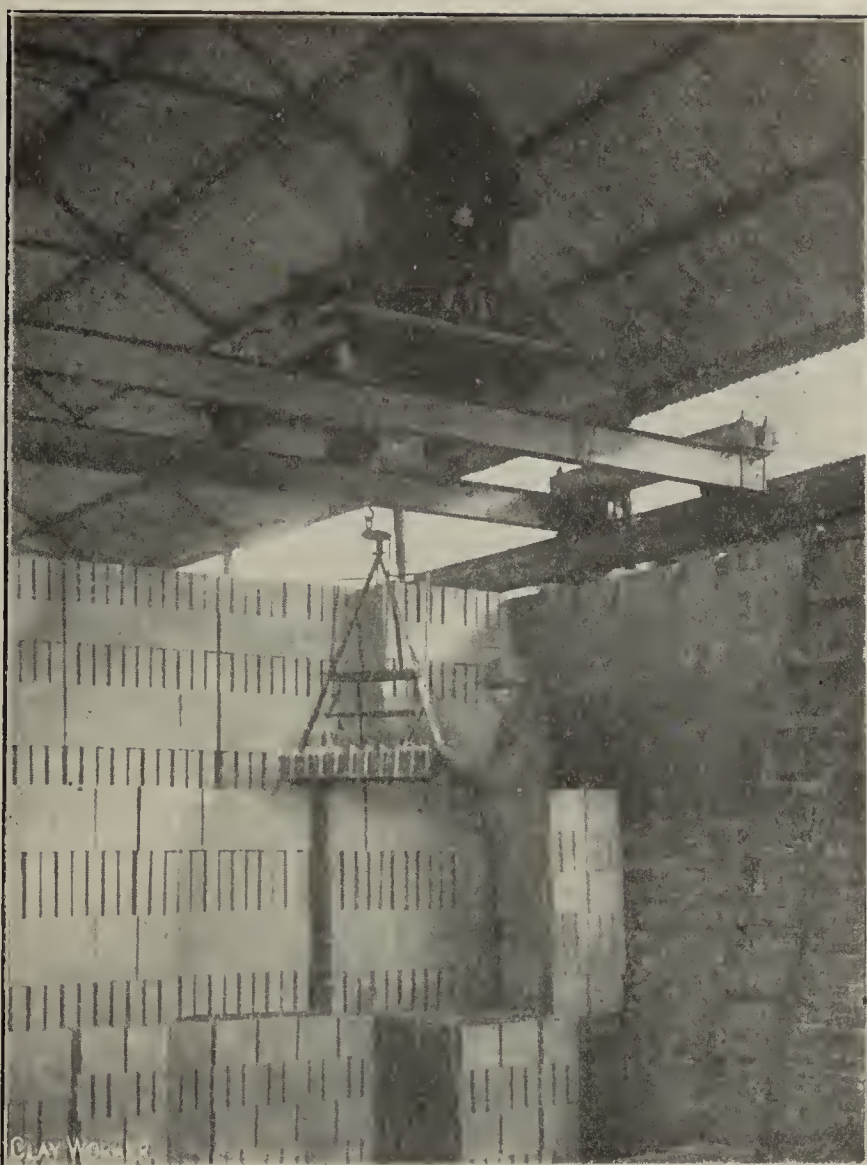
Mr. Buckles. I believe I can say that the track crane could set the brick in round kilns, the setter filling his wall the same as the other. There might, possibly, objections come up. You see, we have had a great many things like this come up, and so far we have been able to overcome them. We have not set in round kilns yet, but we believe that the track crane will set the brick in round down-draft kilns.

President Gregory: This is a very interesting subject and we want to get all we can out of it. We have Mr. Buckles right here now, and let us make use of him.

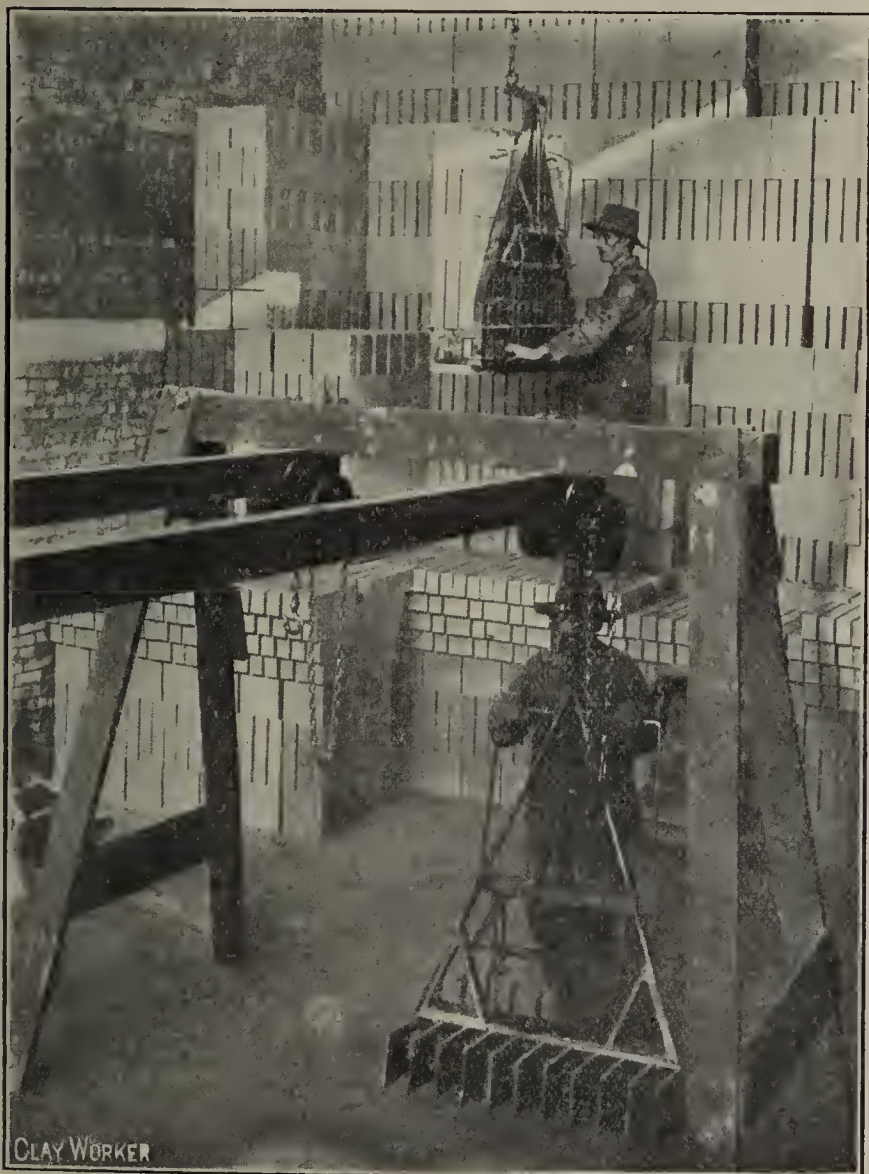
Mr. Alfred Yates: I would suggest that we call on Mr.



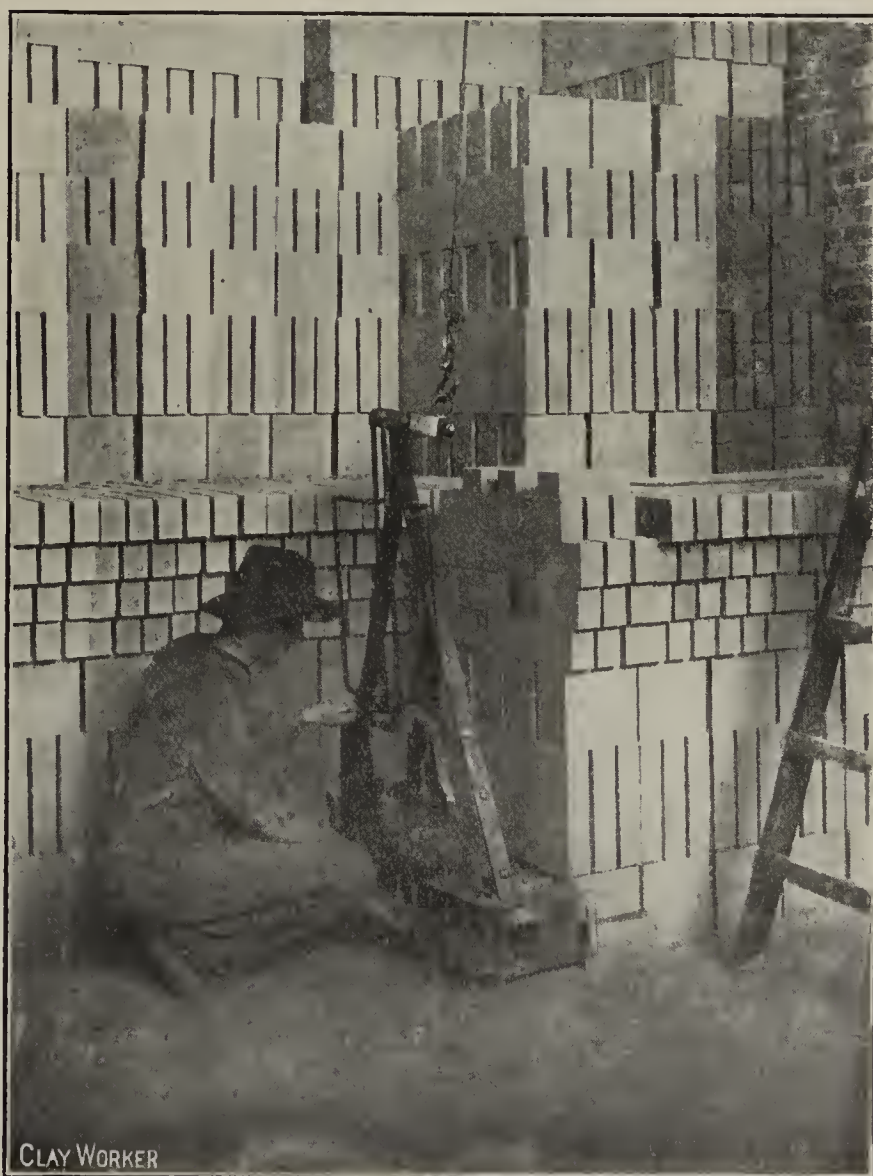
View No. 4.



View No. 5.



View No. 6.



View No. 7.

J. Parker Fiske for his views on this subject. He has had experience along this line.

J. Parker Fiske: It is needless to say, I have been very much interested in this paper, for setting brick by machinery has been a sort of hobby of mine for many years, and particularly the handling of the brick in unit stacks. I have had a good deal of experience in handling large units. Of course, my method was somewhat different from this one presented here today, but the principle is, I believe, the right principle. As I have said a number of times on the floor of this convention, the brickmaking craft has been the slowest of any of the crafts or trades to adopt labor saving machinery, and, while we have for many years had very perfect machines for digging and preparing the clay and molding the brick, the sending of the brick from the machine, from the press, has been done largely by hand, and this constitutes a very large proportion of the entire labor of the plant. In other lines of business, particularly steel, which is the one I like to refer to, because I have had a chance to watch it and have seen such marvelous developments in it, the entire process from one end to the other is done by machinery. You all know what enormous strides have been made in the production of steel goods, and it has been due to no small extent to the introduction of machinery. I have no more to say except to



J. Parker Fiske, Boston, Mass.

congratulate Mr. Buckles on the presentation of his paper, and the excellent way in which all of these details have been worked out.

Wm. Conway: Do you take the brick out of the kiln the same way?

Mr. Buckles: You gentlemen are pretty intelligent, and are bringing out the points I forgot. Mr. Conway and Mr. Fiske are very kind to bring these points out. I hesitate to give anything that we have not already accomplished. We believe we are going to be able to take these same units out of our kilns with this machine and set them on iron cars, the same kind of a car that we use for the green brick, and roll that car down hill (if you have a hill) into the railroad car. And if we can get this machine light enough, agile enough, to go, as they say, anywhere a pony goes, we may set the brick in the car and take it off in units. Anyhow, we will go this far and take that iron car with its load of burned brick into the railroad car, and if we have to, we will have men there sliding them off without any pitchers at all. We will have one man, or possibly two, for the purpose of taking the brick off the iron car into the railroad car. That is the incomplete portion of this system. We will run against some difficulties. The Francis Brothers are now working on that and they will solve that in time, and that at no very distant date.

Mr. Fiske: On the matter of taking the brick out of the kiln by machinery, you will find that a difficult problem. At the time of the Boston Convention, the members went out to our Dover Point plant. At that time we were not taking the brick out very successfully by machinery, and we did not do it for some time after that, the trouble being that the brick in burning would settle unequally, and the finger spaces would get so badly out of shape that the lift we employed would not enter these spaces. We found that a few of the fingers would enter the spaces and others would not. I have seen men work ten minutes to get a brick out of the way, so a single brick would go in, and subsequently we developed a system by which each of the fingers had a certain amount of plasticity and as many of the fingers as could find spaces would work in, and the remaining fingers could be worked in by hand and the load lifted. I think there will be no trouble at all in the still further development of the system by which the brick can be put down in the cars. The steel companies not only make steel, but load it onto the cars by machinery, and if we can employ open cars in the shipment of brick, there is no reason at all why car after car can not be loaded by one man. I think the estimate of 120,000 brick is a very conservative estimate. There is no question about it, the brick can be loaded on the cars, and it is certainly an improvement over the old hand method. (Applause.)

Secretary Randall: The next number on the program is a paper by Prof. A. V. Bleininger, of Champaign, Ill., on "The Balance Sheet of a Down-Draft Kiln." Prof. Bleininger, as you probably know, was formerly a professor at the Ohio State University, and he has asked us to change this part of the program, so he may present his paper tomorrow when we hold a session at the university. We have with us a gentleman who is not on the program, but who has prepared a very excellent paper on "Factory Output." We also have another paper not on the program, which I am sure you will all hear with unusual interest. There are very few brick-makers who are not more or less disturbed over the cement bogie. You are coming into competition with cement block and concrete, and we have a gentleman here from Iowa, a chemist and an engineer, who has prepared a paper on the cement proposition, and I think he will demonstrate to your satisfaction this afternoon that the cement game is not what it is cracked up to be. It will be a paper that will interest some of our members more than any other paper on the program. Mr. Hull, who will now present his paper, is one of Prof. Orton's "boys," a graduate of the Ohio School for Clay-workers. (Applause.)

FACTORY OUTPUT.

BY WALTER HULL, WARREN, OHIO.

Mr. President and Gentlemen of the Convention:

The importance of quantity is so obvious that it is overlooked, and many dividends are passed because promoters, engineers, managers and superintendents fail to ascribe to the factory output its proper place among the problems and tasks of the clayworkers.

Those new enterprises which are promoted by men who know but little about the problems with which the manufacturer has to deal and who interest capital on the strength of the control of a piece of clay property, partake largely of the nature of a speculative venture and it is not remarkable that a large proportion of them should disappoint their owners. But when an old manufacturing concern puts its accumulated earnings into a new works, building it to satisfy the increased demand of its own home market for a product which it has made successfully for years, we expect to see the new undertaking prosper. If this proves to be a disappointment, we are justified in making inquiries—since inquiry is less costly than experience. A case of this kind was that of a well established concern which was making a success of the manufacture of paving brick, using raw materials that had to be shipped some distance. New materials, similar in occurrence and almost identical in appearance, but more conveniently located, were found and tested. There was the best sort of chance to learn all the peculiarities of the new clay, for it was entirely feasible to ship it to the old works and use it, for as long a time as necessary for making paving brick. Probably a good deal was taken for granted. At any rate, money made from the output of the old works was used to build a new factory, near the new clay supply. The new plant was not successful. Various difficulties were encountered, among

them being a failure to get the anticipated output from the kilns. It took twelve to fourteen days to burn a kiln safely, about four days being added to the usual water-smoking period to guard against swelling. A few of the brick, set in a kiln of other brick would come through an eight day burn without showing a sign of any evil tendency. The trouble with the material was that it contained so much carbonaceous matter that in a kiln of bricks made from it, special care and extra time had to be spent, or the combustion of the fuel contained in the bricks themselves would heat up the bottom part of the kiln so rapidly as to give little opportunity for oxidation. The brick in the lower portion of the kiln would then swell even before the top brick became red. Undoubtedly the burning could have been improved and shortened to some extent had the trouble been better understood, but the time required for oxidation would inevitably be considerable and the loss of kiln capacity a serious matter. Had even one whole kiln of brick from the new clay been burned at the old works in the beginning, it is doubtful if any plant which had to depend on this clay exclusively would ever have been built.

Such an experience seems most unnecessary and yet it is not so unusual. In fact it is doubtful whether, in the exploitation of new clays, the capacity feature is ever tested out as thoroughly as it should be. In determining whether a clay is worthy of development and use, the conscientious promoter will consider its location, investigate its extent and test its quality. But testing the quality does not, as a rule, go further than to determine what sort of face brick, sewer pipe or other ware, the material will make. It may be that in the testing it shows some dangerous tendencies, such as excessive shrinkage or cracking in burning or drying. The interested parties will take such a bad quality into consideration in estimating the value of the clay. But as to making any attempt to determine the time factor to learn how fast the material can be made to run through a die successfully, or how long it will take to burn a kiln of ware made from it, the fact that these features need to be taken into account is not even thought of. Yet they really merit a place among the facts which decide for or against a material.

In financing a sewer pipe proposition, for example, it is undoubtedly helpful to have some pieces of sewer pipe on exhibition, made from the material which is to be used in the new factory. But the mere fact that clay will make sewer pipe of a good quality, is not sufficient evidence that the clay is of value as a sewer pipe material. If another clay is available which is equally good in other respects and will give ten per cent. greater output at the press or will dry safely in a quarter less time or burn safely one day quicker, a distinct advantage would be gained by using that one. A case in point is that of two materials, both available in the same locality. One of them is being used for sewer pipe and makes a good product, although it requires extreme care in both drying and burning. The second material was in use at another factory for making hollow ware, but not sewer pipe. Judging from the behavior of the clay in making fire-proofing and glazed building blocks, it seemed to be a better sewer pipe clay than the first, but when it was tried out by actual use in the sewer pipe works, it was found to be inferior. It was slow in tempering and slow at the press. There was profitable sale for the maximum output of the works and to reduce the efficiency of the press crew meant a reduction of profits that would not be compensated by the comparatively insignificant difference in cost of the two materials. However, there happened to be another material available, which could be mixed with the slow one and would give it better working qualities. The making end could thus be corrected and the drying was not bad. As for the burning and the quality of the finished product, small pipe turned out fairly well; but when 24 inch were burned in the regular 24 inch burn, they failed to oxidize and swelled. Had it been necessary to make the sewer pipe from this material, the time required for burning the larger sizes would have been increased and one or more additional kilns would have had to be built in order to keep the regular output of the plant from falling off. The cost of burning would also have increased, but that is another problem. The one feature, the time required for burning, would have been sufficient, in this case, to decide against one clay, in favor of another.

A clay like the one just referred to can of course be burned successfully, but when the factory superintendent finds that the time required for burning is longer than the average and that one or two more kilns must be provided in order to keep the press crew busy, there is only one thing to do—produce the funds. And so the promoter, the man who assumes the task of financing an enterprise, and of seeing it through the transition from a paper proposition to a going concern, will, if he be wise, read between the lines on the tombstone of the enterprises that have gone before and will make liberal provision for unforeseen expenses. If he should be extremely cautious and shall want to eliminate as many of the uncertainties as possible, he will have his clay tried out for speed before building the factory.

In the matter of factory design, the output problem comes in in two ways: first, to decide what capacity is best to provide for, all conditions considered; second, to balance the works so that every part will be kept busy—so that no capital is tied up in idle equipment. This demands an investigation of the peculiarities of the materials to be used. The plant can be built to suit the average material, but if the clay does not prove to behave like the average clay the plant will have to be modified before things will go right. It saves money to estimate closely in the beginning. For example, with an average clay, ten 32 foot kilns are required to keep one sewer pipe press crew busy. With quick burning clays, eight kilns would burn the product. In such a case, the building of the two unnecessary kilns would mean an addition of something like ten per cent. to the cost of the plant without materially

increasing its earning capacity. A small point like this overlooked here and there in the construction of a works, may go to make up the difference between the promoter's factory and the manufacturer's factory, even deciding between a dividend and a deficit.

But it is to the factory operation that the problem of output finally goes to be settled. It is preeminently the superintendent's problem. Here the question appears in two forms: first, how to enlarge or change certain parts of the plant so that the full working capacity of the other parts can be utilized and no part of the investment be non-productive; second, how to get out of the plant every day all that it can be made to produce.

With a factory that has an established market for one kind of product, the balancing problem is usually a simple one. Experience has shown that a works making ware which runs in few forms and sizes can be run with good efficiency with kiln capacity lower than the machine capacity. The working crew can be put on a contract basis and be made to work up to capacity while the machine runs, even though they do something else during the rest of the day. As an instance, a common brick works has kiln and dryer capacity for about thirty-three thousand brick per day. The one auger machine will run out brick at the rate of nine thousand per hour. The crew, consisting of one clay feeder, one machine man, three off-bearers and one car man, makes the day's run in five and one-half hours. They are kept up to capacity by an arrangement which provides that if they keep down the time spent in making brick to so many hours for the week, they get off an hour early on Saturday. This crew does the roustabout work of the plant in addition to their work at the machine. The manager says that the chief benefit of crowding the making into a few hours per day is the saving in power—that it takes almost as much electricity per hour to run the machinery to make brick at the rate of three thousand as seven thousand per hour and he keeps down the power bill by keeping up the speed of making. In the



Walter Hull, Warren, Ohio.

above case, an unbalanced plant works very well and is purposely kept unbalanced.

Another case of profitable unbalancing is that of a combination works in the Canadian Northwest. The plant has materials available for the manufacture of face brick, fire brick, sewer pipe and other hollow ware. By virtue of isolation, with the protection of high freight rates and tariffs, all the products command a good price, though the market is limited. This works, to run economically, must have three times the making capacity and twice the dryer capacity of a plant of the same total output making but one class of ware. But the kiln capacity, which is the big item in the cost of the works, can be fully utilized. With such a proposition, the policy followed is to build kilns of a type that is good for all the lines of ware that the factory will have to make. As a rule, a market which will justify such a works at all will take the diversified product of as many kilns as will burn the output of our sewer-pipe press, and this is the number best to build. Sewer pipe drying capacity is provided equal to the output of one press and brick drying capacity equal to the equal to the total kiln capacity. The plan of operation is to run the plant part of the time as a sewer-pipe works as if it were intended for sewer pipe alone. When making brick, the plant should make nothing but brick, allowing the sewer pipe press to stand idle. As a rule, a market which necessitates a combination plant does not call for a great deal of hollow ware, other than sewer pipe, and such quantities as are demanded can be made, partly on the auger machine and partly on the press, the drying being done in the department that does the making. By the exercise of a little extra care in the planning of the factory work, these hollow ware requirements can be met economically without providing any extra dryer capacity for them.

In a plant that must make a diversified product, the essential thing for economy is to make but one thing at a time and to plan the work in advance. What is most fatal to output is to allow things to come along so that more kilns than one are being set at the same time, kilns waiting to be set, waiting to be drawn or

more kilns than one being drawn at the same time. To get the most out of such a plant, the superintendent must exercise the mental qualities of a chess player. To him, the most precious thing on earth is kiln time. With a ten kiln plant, if one kiln is out of business, say waiting to be set, the earning capacity of the plant is being cut down ten per cent. Then if one kiln is being set with face brick and another with sewer pipe at the same time, one of them may be considered idle. Again, if two kilns are being drawn at once, there is another lost ten per cent. It is easy, with a combination works, to keep the average kiln output down to fifty per cent. of the possible capacity. In fact the yard looks busier running half capacity than when it is crowded up to its limit. Here is one kiln being set with fire brick and another with drain tile, men are wheeling face brick from one kiln and sewer pipe from another; here stands one kiln of ware cold, ready to be drawn and there an empty one, ready to be set. To the layman, that is a busy plant. But to be really producing, there would be one full crew setting one kiln, one crew drawing another, say three kilns cooling and five burning. With a single product which always requires the same length of time to burn and cool, the same time to draw a kiln and to set one, it is not so difficult to live up to this ideal. But with a diversified product, there being less uniformity about the length of time which a kiln must spend on each operation, it is possible to avoid losing some kiln time. The efficiency of the works is measured by how little of this valuable commodity is wasted, and no amount of energy or hardships will make up for a lack of foresight and persistent, careful planning in getting the maximum production from a given kiln equipment in a mixed product factory.

Every factory foreman knows what a simple matter it is to keep up the output at the making end. You provide adequate machine capacity and then keep the machine running full capacity all the time, every day. That is all there is to it. And pretty nearly every one knows that he doesn't do it, himself. But keeping the



Chas. A. Bloomfield, Metuchen, N. J.

machinery running, guarding against break-downs and the little half-hour stops are vital and can be accomplished. But it requires vigilance, night work and a stock of repair parts.

Where the output of a machine depends on the crew—and it always does to some extent, the human element, the personal factor, enters into the equation and we have a variable quantity to calculate on. However, if the work can be put on a contract basis at so much a thousand, or so much to turn out for a day's work, the variation can be confined to narrow limits. When a superintendent starts out to put the making on a piece work basis, it is too often with a view to nothing but getting more work done for the money. But, it is safe to say that in the majority of cases, getting more work for the money should be a secondary consideration. Usually, the most important thing that can be accomplished is to secure, regularly, the maximum production of the factory. If such an arrangement be made that the men, by putting their best efforts into the work—giving it their interest as well as their physical labor, can make what they consider good money, the factory problems are considerably simplified. The output depends to a very great extent on the services of experienced as well as steady men, and while many of the jobs do not require a long experience, it is impossible to attain a regular maximum production if men are constantly quitting and green ones taking their places. By making the job worth holding down it is possible to keep men after they have become proficient. Moreover, by measuring the amount of a man's pay, not by the day, but by the day's run, the man's entire attitude is changed. If there is nothing of the contract element in the work, the workman does not particularly care whether things go right or wrong. He sees a stop for this and a stop for that and they mean nothing more to him than a little breathing spell now and then. Why should he bother his head about it? He is paid so much a day to do what he is told, and if he tried to make things go better he would make no more money and get no extra thanks. In fact, he might lay himself open to disagreeable criticism. But, on the other hand, if a man's pay

envelope is to contain a negotiable record of every day's run during the whole pay, he just naturally takes a different view of the whole proposition. Now it is his business to see to it that there are no stops and no delays. The crew works team work, and if any one delays the game he hears about it. If anything about the equipment is out of order or likely to get out of order, or if any improvement could be made that would facilitate matters, the men will call attention to it and even insist that it be attended to. He is interested now. What he would formerly have considered none of his business, concerns him. If things don't go right, he has a kick coming, and he has a good reason for registering it—he needs the money.

Changing from day work to piece work is very apt to be attended with some difficulties. The men may be suspicious, possibly not without reason, that the proposed new order of things is a scheme to rob them. Or, in cases where a reasonable degree of confidence exists between the management and the men, the matter may be put in such a way that the men do not fully understand the terms of the transaction, and they are afraid they are going to lose by it when pay day comes. The writer has found, in his own experience, that it is necessary to put the proposition in simple form, and the simpler it is the better it works. A case may be cited of a gang of Italians that were breaking and loading shale. They were good workers and under a good boss, but the work was costing a little too much, and the cost per ton fluctuated more from day to day than the conditions warranted. Several attempts had been made to get the men to take the work by the ton, and they seemed to be afraid of it. But when the boss finally said: "Tomorrow, 16 men load 150 cars, get ten hours pay, take bucket and go home," they were willing to try it, and the bargain proved satisfactory on both sides. But there was that one thing that they wanted no doubt about—they were to get the full day's pay. Once the element of uncertainty as to the amount of pay was entirely eliminated, they worked more cheerfully, and did more work for the money than they had done when quitting by the whistle.

One thing holds good under practically all circumstances: that the arrangement, to be successful, must enable the men to make at least as much money as they did on day work, and make it from the start. On the other hand, they will work a good deal harder to make a little more money or to get through a little earlier. An instance of an experience in putting work on a contract basis to increase the output is that of a sewer pipe works which had been turned over to the manufacturers of electrical conduits. The works were capable of taking care of about 25,000 duct feet per day, but the making crew couldn't get them out. They could make them at that rate, but the rate of making and the amount of the average day's run, bore no satisfactory relation to each other. There were too many little stops and too many little pieces made and thrown away. The result was that it took a good deal of overtime on the part of the press crew to keep the works up to anything like capacity. Working overtime took the vim out of the men and defeated, in a measure, its own purpose. It is not in human nature to tear out a big day's work in ten hours when, by taking things a bit easy, they would get two or three more hours to add to the day's pay. It was determined to put the making on a piecework basis, yet how to do it was something of a problem. It may be said in this connection that the tonnage output of the factory, when making conduits, was about double that produced when running on sewer pipe, and that the changes to the higher tonnage necessitated some changes in the equipment, which required some time for completion. At the time referred to, the machinery was not fully adjusted to the amount of material handled, and this condition was partly responsible for the irregularity of the output. This was discouraging to the men, for most of them were all doing all they knew how to do, and when troubles came up that they thought they were in no way responsible for, they lost heart.

It was fully appreciated that if the making were put on piecework, at a reasonable price, which could be adhered to after the trouble incident to a new undertaking were over, there would be days at the start when the men could not make wages under the conditions then existing. To demand that they do the impossible was to lose the men, and yet it was desired to establish a high standard. What seemed the best plan for the conditions was to judge from past performances of the crew, how much they could run out in ten hours, and to call that a day's work. If they could do that task before quitting time, pay them overtime to work on till the whistle blew. If they had bad luck and failed to get out their run, they got ten hours' pay just as when working day work. This plan was simple enough to be readily understood by all the men. It gave them an opportunity to make extra money by getting results, and yet they stood no chance of losing. The arrangement went into effect without incident and made an immediate showing on the output. The crew worked more in unison and more effectively. Before, if one boy was slow with a transfer car, the whole crew would wait without much impatience. Now, it paid him to be on time and it paid all the others to see to it that he was. Each man became, to some extent, his brother's keeper, and the foreman himself did not escape the vigilance of the men; but if anything was neglected when it needed his attention, he heard about it right away. In a short time the output problem was shifted to the setting, and the making cost was considerably reduced.

With a product like sewer pipe, the great number of sizes and lengths renders it difficult to devise any plan of contract for the making which would not be too complicated. The chief requisite to output is always to keep a little shop room empty ahead of the press crew, so that they do not have to learn the art of "marking time" to keep things balanced. It is, of course, necessary to keep close watch of the daily reports. Sometimes, when the

day's run is low, it is difficult to place the reason for it. The following form of daily report is one which the writer has found useful in spotting the weak points:

DAILY REPORT --- Making

Machine		190					
MATERIAL	TIME OF STARTING	TIME OF STOPPING	HOURS OF RUNNING	NUMBER - PICES	PIECES PER HR.	NUMBER TONS	REMARKS
TOTAL TIME				TOTAL TONS		TONS PER HR.	
No. Men Wheeling							Total Wage
" " Crushers, Pans and Screens							Wage per Ton
" " Tempering, Making and Transfer							
							Foreman

This form is designed to show whether a low day's run has been due to delays which could have been avoided, or to trouble that was unavoidable, or to loafing on the part of the crew. It establishes the actual hourly capacity of the crew for different sizes, and shows up any who take it easy for an hour or two now and then. In fact, such a tendency is bred of the realization that it is hard to detect it. Something of this sort is valuable, in that it enables the manager or superintendent to get an intelligent answer to the question "Why?" and to know that the answer is a reason and not an excuse. Frequently shop troubles come to light in the records before they are discovered in the shop. (Applause.)

General Discussion.

President Gregory was called from the convention hall and asked Vice President Parker to preside.

Vice President Parker: Mr. Hull has given us an excellent paper, and it is now open for discussion. I personally have taken a great interest in it. I believe steps in this direction are good. We should keep close track of the details in factory work. If there is no further discussion, we will take up the next.

Secretary Randall: This brings us to the first of the questions for general discussion: "What is the relative cost of burning brick in continuous kilns and ordinary up-draft kilns?"

The Burning Question.

Vice President Parker: Is there any one here who cares to answer that question?

H. C. Kleymeyer, Evansville, Ind.: We have only burned our continuous kiln once, but I am very well satisfied with the burn and know we can save a lot of fuel. I expect to save from one-third to one-half.

John Hummert, Quincy, Ill.: I have burned brick in up-draft kilns and also in continuous kilns, mostly dry press building brick, and I find that the cost of burning in the up-draft kiln will amount to about \$1.40 per thousand with our clay and the price of our fuel. Take the same clay, the same fuel, and we can burn for ninety cents a thousand in a continuous kiln.

T. L. Herbert, Jr., Nashville, Tenn.: We use a continuous kiln, and also an open-top kiln. We find we burn in the continuous kiln for about half as much as in the open top. The open top kiln figures about \$1.50 per thousand, and the continuous kiln about eighty cents a thousand. I would like to ask Mr. Hummert if his stack is at the end of the kiln.

Mr. Hummert: Yes, the stack is at the end of the kiln. We have a fourteen compartment kiln.

Mr. Herbert: Our stack is in the center. We have twenty-two compartments, or chambers, and each chamber holds 40,000 brick. We are now taking heat from the continuous kiln with which to dry our brick. We formerly dried 40,000 a day and now we are drying 60,000.

T. W. Spinke, Covington, Ky.: May I ask the gentleman if it is not customary to get more kiln marked brick out of an up-draft kiln than out of a down-draft kiln.

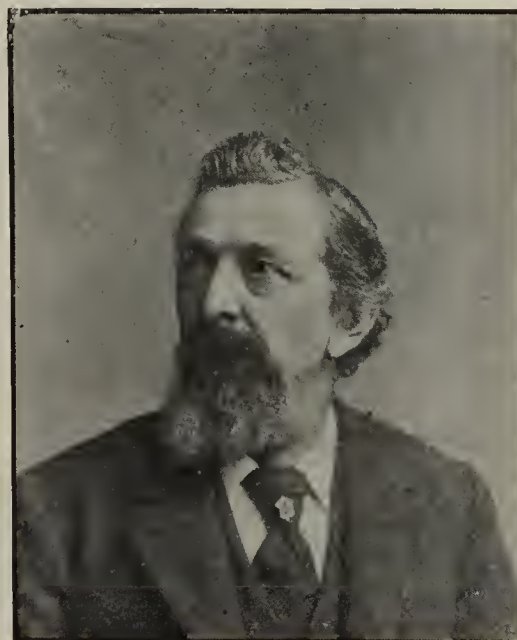
Mr. Hummert: There is a larger per cent. of face brick in an up-draft kiln than in a continuous kiln, but in the up-draft kiln we could not burn the brick hard enough. When we burned the up-draft kiln we made soft mud brick and put about five or six courses of soft mud brick on top of the press brick, and the result was unmerchantable brick in the top of the kiln, but, in the continuous kiln, we have them entirely hard and have no soft brick; but our compartments are small, holding 25,000 each, and we get 7,000 or 8,000 face brick out of a compartment, and the balance are good, hard brick, what we call sewers.

Secretary Randall: The next question is along somewhat similar lines. "Does it cost more to fill and empty continuous kilns than either up-draft or down-draft kilns?"

Mr. Hummert: We can not get a wagon into our continuous kiln, but we do not consider that a disadvantage, because we have to sort our brick the same as we do in the up-draft kiln, only in the continuous kiln we get a more uniform product.

Henry Loveland, Jewettville, N. Y.: It costs considerable to close up an up-draft kiln, and that is largely done away with in a continuous kiln. You have that expense saved.

Mr. Hummert: We have no expense connected with our continuous kiln. The continuous kiln is a labor saver in ad-



John Hummert, Quincy, Ill.

dition to a fuel saver. We have only a day fireman and a night fireman. The firing is all done from the top. We have one coal hustler, who hustles coal for the day and night fireman, and does all the work that is necessary to prepare the kiln for the burning again after the burner gets through. One man does all this work. The day and night firemen have an easy job, all they have to do is to put coal in every half hour or hour, so, as I said, the continuous kiln is a labor saver as well as a fuel saver.

P. J. Laubscher, New Galilee, Pa.: What is the capacity of your plant?

Mr. Hummert: We make 100,000 brick a week, and the kiln is built to burn that many and no more. I think I stated that our kiln was a fourteen compartment kiln.

Mr. Spinke: I do not believe Mr. Hummert understood my question. I wanted to know as to the scumming of the brick, whether a down-draft kiln will put the scum on the brick like an up-draft kiln, or whether it will put less.

Mr. Hummert: It all depends on the firemen. We have a good deal of trouble in that respect. If we find the damper was put on the kiln too long we give it more draft and greater firing and overcome it. There is more danger in scumming in continuous kilns than in up-draft kilns, but, by using good judgment, and having reliable firemen, we have very little

trouble in that respect. Some times it is the fault of the coal, some times it is the rapid pulling of the heat, which gives too much draft. We find most of the scumming in the lower part of the kiln. Where our face brick come we do not get so much of it. But to answer the question correctly, there is more danger of scumming in a continuous kiln than there is in an up-draft kiln.

P. J. Laubscher, New Galilee, Pa.: How long does it take after the brick are at a red heat to complete a chamber of the kiln, and what kind of clay do you have?

Mr. Hummert: After we get a red firing heat on, then we begin to settle our brick; we may settle two inches every twelve hours, four inches in twenty-four hours. We settle our kilns ten inches, say, in two days and a half after we have reached the settling heat. We have red burning clay, the same as the St. Louis clays.

Burning Brick with Coke.

Secretary Randall: The next is Question No. 9 on the program. "Is there any economy or advantage in burning brick with coke instead of coal?" I have a letter here from a gentleman who has had experience on this subject, in which he says:

"When coke is used for burning brick, it is almost always



Eb. Rodgers, St. Louis, Mo.

used in substitution for anthracite coal or wood. The principal advantages are that it contains about one-half the amount of ashes of anthracite coal, having a high percentage of fixed carbon, and, when the coke is fired in the kiln, the fire returns to almost the original heat in a very short time. On the old style Dutch kiln, where the fires are turned about every five hours, by the burning of coke approximately one-half hour's time is saved every time the fires are turned, and where a week's time is consumed in burning the kiln under anthracite coal, you can readily see the large saving in the wages of the helpers by the burning of coke. In the burning of coke the fires are carried much lower, it eliminates the ashes attaching themselves fast to so many brick and requires absolutely no slicing in the center of the fire, and a very small amount in the heads. The great advantage of coke is that it can be readily controlled and the heat is very uniform. This is something that is of great advantage to the brick burners, in that hot spots can be eliminated, and that by operation of ash pans the heat can be driven from one side of the kiln to the other with the greatest of ease, and the fire can be brought down very low, if so desired, by shutting off the draft."

Vice President Parker: Has any one else anything to say on the subject?

Mr. Spinke: Does the gentleman refer to up-draft or down-draft kilns?

Secretary Randall: I think this means the common scove kiln.

E. L. Cook, State Farm, Mass.: One of the large coke companies adjacent to Philadelphia took a large party of Hudson River brickmakers to a certain plant where coke was used to show them the results of their experiments in burning with coke, and it occurred to me that possibly some of the gentlemen who went on that trip might be present, and could tell something in regard to it.

Secretary Randall: I think it is pretty generally conceded where they use a certain kind of coal and the common scove kilns that the coke has proved an advantage. Of course, coke companies are trying to extend their business, and if the brickmaker profits by it, that is the part he is interested in.

A Member: I would like to ask if they mean gas coke or common coke.

Secretary Randall: Common coke. This brings us to Question No. 10: "Has the producer gas system of burning proven a success in this country in the manufacture of brick of any sort?"

Vice President Parker: I think Mr. Eb Rodgers can give us some information on this question.

Mr. Rodgers: We have worked about three years burning brick in a gas-fired continuous kiln, burning paving brick, and it is a success. All of our trouble came through ignorance entirely, lack of skill in operating the kiln. It is very successful now.

J. M. Powell, Brooklyn, Ind.: We have been burning in a continuous kiln fired with producer gas, making drain tile and fire proofing, and it has been very successful. Like Mr. Rogers, the only trouble we had came from ignorance in getting the gas to our kiln. After making some research (by the way, Mr. Rodgers helped me out very much in this respect) we have no trouble at all. We are getting a high efficiency, with a saving of fuel and much better ware.

Vice President Parker: Do you attribute the saving to the gas or the continuous arrangement of your kiln?

Mr. Rodgers: To the continuous kiln.

Mr. Powell: I think that is true. It is due to the continuous kiln.

Vice President Parker: Mr. Hervey Haigh has had a great deal of experience along this line. Perhaps he can tell us something.

Mr. Hervey Haigh, Catskill, N. Y.: I do not think I can add very much to what has been said, except that I do know for a fact that the continuous kiln burned with gas is a success, no question about it, and it is a success in burning pretty nearly all grades of brick. I am interested in this, as you know, but there is no doubt but that the continuous kiln will save fully one-half of the time, no matter what grade of brick you are burning. Of course, that does not include the high grades of enameled brick.

Mr. Alfred Yates: I would like to ask Mr. Haigh if he considers producer gas as cheap as coal, if he can get as much out of it after he has made his gas as he did before.

Mr. Haigh: I would like to quote some one else in this. When at St. Louis last year, we visited the plant of the Christy Fire Clay Company. They had a gas-fired continuous kiln and a coal-fired continuous kiln, and Mr. Morris said that the favor in cost was with the coal-fired continuous kiln. There are two very good firms in this country manufacturing gas that does not produce the tar and all those other ingredients we are bothered with in producer gas, and I am ready at any time, whenever they will give me this gas at the same price, to burn the same line of goods as I am doing with

coal, to adopt the gas, and there are two or three people who will put it in under those conditions. The gas companies are not yet willing to guarantee that, but they will give me a gas now that they will guarantee will travel for a mile, and that is quite an improvement to be able to know that you can carry the gas that far. I do not doubt but that in a little while they will give us a gas about as cheap as coal, and when they do there is no question but that we will have more kilns fired with gas.

Vice President Parker: Our friend, Mr. Conway, is now using a continuous kiln. Perhaps he can tell us something interesting.

Mr. Conway: I am only learning.

Mr. Powell: I want to speak about producer gas. As I understand it, the difficulty with gas not giving as high efficiency as it should, is because you do not have the hot air in anything but the continuous kiln. I think our vice president mentioned the same thing a little while ago, when he said they preheated the air.

Vice President Parker: I was merely referring to the continuous arrangement of the kiln producing preheated air which goes into the kiln that is burning the gas. Producer gas will not burn satisfactorily unless heat is there to heat it and burn with the gas. I believe this completes the morning program. We will stand adjourned until 2:30 this afternoon.

THIRD SESSION.

Thursday Afternoon, February 6, 1908.

President Gregory: The convention will come to order. Before we take up our regular work this afternoon, I want to call the attention of the members to a book I have here, entitled, "Burned Clay Products in Fire and Earthquake." If any of you are interested, I want you to come forward and examine it. This book is very instructive, and I am sure more of us could use it to very good advantage. We all of us know what it is to come up against the cement proposition, and if we could have one of these books with us at such a time we could make our statements much more forcible, because we could substantiate our statements by the actual figures given here. I would like to see our members generally give this book the support it deserves.

Secretary Randall: I heartily endorse what Mr. Gregory has said in regard to this book, "Burned Clay in Fire and Earthquake." It is published by a firm in San Francisco. They have been trying for some time to interest the brickmakers of the country in the same, but have not met with much success. They had intended to send some of the books to be on exhibition at the convention, but so far they have not been received. Inasmuch as we had a paper this morning which was not on the regular printed program, and are to have another this afternoon, I would suggest that the first number of this afternoon's program, "Brick and Terra Cotta in Architecture," by our old time friend, Mr. S. Geijsbeek, of Seattle, and which he has sent to be read for him, be considered as read and published in the printed report.

THE DEFINITION AND APPLICATION OF TERRA COTTA.

BY S. GEIJSBEEK, SEATTLE, WASH.

Mr. President and Gentlemen of the Convention:

Your honorable secretary, Mr. Randall, wrote me early in the winter that he wanted me to prepare a paper for the convention. As it was impossible for me to attend this meeting in person, I suggested to him that it would be better to have somebody else to take my place on the program. He, however, insisted, and wrote back that he wanted a paper from the Northwest. Now, I have pondered over the question, if friend Randall wanted a paper dealing with the Northwest or just a paper from somebody living in the Northwest. As the clay industries of the Northwest are just as far advanced in their methods of manufacturing as their Eastern friends, I did not feel justified to single this section

out for discussion, and, therefore, chose a general subject, entitled, "The Definition and Application of Terra Cotta."

The name terra cotta is a very old term. It has no Chinese or Japanese origin in regard to its name. The word terra cotta is Italian in its birth, meaning earth baked. Through the centuries of its application, it has held onto its original name, and terra cotta is today a common word, found in all modern languages.

The word terra cotta is now mostly employed in connection with architecture. Under a general definition we understand by terra cotta, a hard burned clay, uniform in texture, molded in various shapes, durable, and of good quality. The clays used for such purposes are usually the impure fire clays, and are usually therefore called terra cotta clays.

Terra cotta is usually classified among the highest class of the brick and tile industries, and has many features in its manufacture in common with these industries. It is divided into three distinct classes regarding its products:

1. Architectural or Ornamental Terra Cotta.
2. Terra Cotta Fireproofing.
3. Terra Cotta Pottery.

Architectural terra cotta and terra cotta fireproofing are both used to a great extent in buildings of large structure. The former is used on the exterior of the buildings to take the place of ornamental or plain stone, and also for many interior decorations. The fireproofing used for interior facings of iron or steel structures will give the building in which it is employed a stability and endurance to resist fire. When properly employed it will make such buildings fireproof.

Architectural terra cotta is usually exposed to the weather, and should, therefore, be weather resisting as well as fireproof. It is either covered with a glaze or has a more or less impervious surface. It should have enough stability to withstand heavy loads without being crushed. Architectural terra cotta specifies very distinctly its character and product, and there is no instance where this term is wrongly applied.

Under terra cotta fireproofing, we find several names for this



S. Geijsbeek, Seattle, Wash.

product in the trade, such as terra cotta lumber, porous terra cotta, fireproofing, hollow ware and others. Among manufacturers and the trade these terms are well known, and bear certain relations to the products made, but conflicting as far as the general public is concerned. Discrimination as to the proper name is sometimes also manifested among the manufacturers for some reason or other. A company calling itself a fireproofing company, indicating that it manufactures fireproofing products, brings same on the market strictly as terra cotta.

Fireproofing or porous terra cotta is a material which nearly completely meets the requirements for absolute protection of fireproof structures. It is easy to handle and erect, and has comparatively a lower weight than other materials. It has refractory qualities, which makes it preferable over other materials. Porous terra cotta, or terra cotta fireproofing, should be strictly called cellular terra cotta, indicating its distinction from architectural terra cotta by its shape and character. It can be classified in three grades, dense, porous and semi-porous. In all instances the manufacturing process is the same, only the hardness of the product after being burned indicates the grade to which it belongs. Terra cotta lumber, while in all points nearly alike to porous terra cotta, is somewhat different in its manufacturing on account of the addition of sawdust to the clay. The former burns off in the kiln, thus leaving the material so soft and porous that nails can be driven into it.

Terra cotta pottery is of an ornamental nature entirely, and consists mostly of statues, lawn vases, garden stands and pots. This class is more often called pottery, and classified with earthenware.

The application of terra cotta has been dwelt upon to some extent in the definition of this product. For a general description of its earlier application, we will have to go back to history. Of the three classes of terra cotta, ornamental terra cotta and terra cotta pottery only have been used in history. Terra cotta fire-

proofing is of recent date. Therefore, in speaking of history, architectural terra cotta and terra cotta pottery only will be mentioned, and called, for shortness, terra cotta.

Terra cotta was used in art by the Chinese in olden times. The figures and images of their gods were made of ordinary terra cotta, either glazed or brown in color. Judging from some of the relics which have been found, that art was very highly cultivated in those times. Among the older countries of Europe, the Grecian and Roman terra cotta stand even today as an example of what can be done in that line. The ornamental panels which we find on exhibition in collections in the Louvre, at Paris, are good examples of their work. In the middle ages terra cotta was again brought to a high state of perfection. The work of Luccia Della Robbia, in Italy, is well known, and still highly prized. His principal work was glazed terra cotta. The decorations were figures in relief, variously colored with yellow, produced by lead and antimony, a dark opaque blue or cobalt, a green produced by copper, and a bad violet produced by manganese.

The door heads of many churches in Florence and elsewhere, the magnificent altar backs and washing fountains throughout Italy are very effective pieces of glazed terra cotta. An altar screen of the collection of Sauvegot consists of four pieces and two pilasters. The ground is a fine azure blue, the figures are white, the fruits are a golden yellow, and the wreaths are green. The piece was made about 1420. In Italy, and also in France, roofing tile and elaborate pieces of cresting were made on the same style as terra cotta. Chimney tops in different shapes are still found much in evidence today.

The epoch of Della Robbia, in Italy, was followed by that of Bernard Palissy, in France. While Palissy did good work in terra cotta, his main efforts were centered in pottery. However, the French have been using terra cotta ever since, largely for statues and medallions. The last three centuries terra cotta has been steadily advanced to a permanent place in the field of art and manufacturing. In England and France terra cotta win-



E. C. Kimbell, Chicago, Ill.

dow trimmings and doorheads have been used for more than a century past.

According to Barber, the Encyclopedia Britannica, published in 1815, contained the following note relative to terra cotta. "Woodlidge and others after him have endeavored to excite brickmakers to try their skill in making a new kind of brick, or a composition of clay and sand, whereof to form window frames, chimney pieces, door cases and the like. It is to be made in pieces, fashioned in molds, which, when burnt, may be set together with fine red cement, and seems as one entire piece. The thing should seem feasible."

In modern times terra cotta has found an ever increasing application. It is now considered a material which allows much richer treatment in regard to ornament at reasonable prices than carved stone. It is regarded as being excellent material for decorative purposes, and well adapted for the steel and reinforced constructed buildings of today. In 1853 the first terra cotta was used by Architect James Renwick, in New York, and consisted of brackets for cornice support. Since that time terra cotta has been employed more and more. Its application in architecture is considered today a necessity. The veneering of steel and reinforced concrete constructed buildings with architectural terra cotta is universally adopted by leading architects. We only need to visit and inspect the principal business blocks of our cities, to observe the use to which terra cotta is put. The manufacturers have greatly assisted the architects in perfecting designs in feasibility, and adding stability in execution. There is today a great demand for terra cotta in all building lines, and its application in residences has been satisfactory and effective.

Architectural terra cotta and pottery has, therefore, occupied a noble place among the burnt clay products through centuries past, and have given everlasting evidence as to their value for ornamental purposes.

In order to gain an idea as to the value of its application, we find, according to the statistics of the clayworking industries of 1906, published by Mr. Middleton, of the U. S. Geological Sur-

vey, that the total amount of architectural terra cotta manufactured throughout the United States was \$5,739,460, while the paving and front brick industries in the same period amounted in comparison to only \$2,000,000 more. The use of architectural terra cotta has steadily grown with years, the value of this product increasing since 1897, \$3,898,038, or 211 per cent.

It can be considered one of the wares of the highest grade in the brick and tile classification, and its production would, therefore naturally be looked for in few states. It is reported from only thirteen states in the Union, and of these in only four can the totals be given without disclosing individual statements, there being less than three manufacturers in one state. Of the states for which totals may be given in 1906, New Jersey would still be the largest producer, and, in fact, it will be violating no confidence to say that, were there the totals for all states to be given, New Jersey would still be the leading state, reporting a product valued at \$1,682,002, or over 29 per cent. of the total for the country. New York was second, with \$967,987, with nearly seventeen per cent. of the total.

Turning to the application of terra cotta fireproofing the field is quite large, and the manufacturers are ever alert to introduce new ideas for its use. It is used for arch construction of floors, girder covering, eye beam soffits, column coverings, partition tiles, roof and ceiling construction, and other applications.

In a report of the San Francisco fire, we find the excellence of terra cotta fireproofing described as follows:

"There is no question but that the best fire resisting material available at the present time, is the right kind of burned clay, that is, a good, tough, refractory clay, almost as refractory as fire clay, made into proper shapes and properly burned." A hollow tile floor, with furred ceiling equal to reinforced cement floors, should be made by using tiles in which the minimum thickness of the web is one inch, and of which the material itself is tough, refractory clay, made porous by the addition of sawdust. Such tiles should, however, be burned to a point where the clay itself is just short of vitrification in regard to shrinkage. All the interior angles where the webs of the tile join each other, should be rounded to a radius of at least one inch to one and one-half inches. If necessary to secure proper burning, a small hole three-eighths to five-eighths of an inch in diameter might be allowed through the body of clay at the intersections of the webs.

In searching for data as to the date when fireproofing was first employed, we are unable to find sufficient data to form any conclusions. A patent issued on December 9, 1856 to M. & J. H. Buek and F. A. Cushman, of Lebanon, N. H., for a machine for pressing hollow building brick and building tile, is about the first direct data as to the commencement of hollow tile.

The large losses of the recent great fires of Rochester, Baltimore and San Francisco have created a large demand for this material. From an annual production in 1894 of \$514,637, the annual value of production has increased to \$3,652,181, in 1906. According to the government statistics, fireproofing was made in eighteen states. New Jersey was the largest producer, with \$1,399,233, Ohio was second, and Illinois was third in rank of value manufactured.

The industry is still in its infancy. It is, however, rapidly growing in importance. It has a strong competitor in concrete, but, with proper judgment in manufacturing, putting only such material on the market as will stand the test in great fires, terra cotta fireproofing will be an important branch of the clay-working industries for all time to come. (Applause.)

Secretary Randall: The next in order is a paper by Mr. E. C. Kimbell on "The Survival of the Fittest." Mr. Kimbell is not able to be with us, but he has sent his paper, which is along the same lines as Mr. Wheat's paper, which we are to hear this afternoon. He has written a letter, in which he says:

CHICAGO, ILL., FEBRUARY 3, 1908.

Dear Mr. Randall:

I am sorry to advise you that it will be impossible for me to be at the convention. Matters have so shaped themselves that I have not time, as much as I would like to be with you, so I will ask you to present my paper for me.

Mr. T. C. Moulding will be at Columbus, and he has some very important items which could be used in the discussion: "Concrete vs. Brick," mainly pertaining to the unknown quantity of the cost of a building after once started. I think he can cite the Heath & Milligan building and the Montgomery-Ward building, the latter now in process of construction. He also has some interesting photographs taken of the Corn Exchange Bank, showing effects of the late fire, where press brick are practically uninjured as compared to other materials.

Yours truly,
E. C. KIMBELL.

THE SURVIVAL OF THE FITTEST.

BY E. C. KIMBELL, CHICAGO, ILL.

Mr. President and Gentlemen:

When Mr. Randall suggested to me that I speak on the subject, "The Survival of the Fittest," I felt that possibly he had an idea he could cure me of the convention speaking habit. As to my mind—notwithstanding the efforts of the individual members to counteract the effects—the subject is liable to be dry. However, I will carry out my orders, and I only hope that your experience will not be as that of the timid curate, who, finding

himself in the same compartment with his bishop, could not conceal his embarrassment. Thinking to put him more at ease, the bishop said, "If you do not object, I think I will enjoy a smoke." "Certainly not," said the curate, "if you do not object to my being sick." With this understanding, I will proceed to smoke.

There is only one meaning to me in my topic. All brick-makers know that if their product does not equal that of their competitors, they are soon out of the race. But there is another feature in construction, which is now in a state of evolution, that means a great deal to the manufacturer of clay products, viz., cement construction.

The American Architect of September 29, 1906, gives an interesting history of the use of cement from the date of its application for construction purposes in a limited way in 1855, at which date patents were taken out in France for making concrete from hydraulic limes and various aggregates. The reinforcing idea did not develop until 1888, and it would appear that the volume of business in this line in France and Germany was directed to aqueducts, arches and retaining walls; and in 1900 the system had a decided start as a factor in building construction abroad. Every brickmaker here is alive to the fact that the question is up to him, not in any future time, but now. I will admit it is a broad question, and I am reminded of a saying credited to Mark Twain that, "It is better not to know so much, than to know so much that is not so." Keeping this in mind, I will govern myself accordingly. I will also bear in mind that some of our friends present are directly interested in machinery adapted to both clay and cement products. I can hardly feel, while this is a brick convention, that we are all of the same kind, as were the occupants of a coach in Scotland. An American passenger arriving at his destination discovered that he had left his rain coat in the coach. Rushing back, he called out, "Did I leave a mackintosh in here?" A brawny Scot answered, "Naw, we're all MacGregors."

The utility of reinforced concrete, at the present time, in the construction of sea walls, ornamental work in parks and public places, and, notably, in the locks of the Panama Canal, is undisputed, and it fills a place not adapted to brick construction.

The point I will endeavor to make is, that the use of reinforced concrete for structural purposes has not yet been demonstrated as either practical or safe, as compared to brick construction, and I base my opinion on the results of such construction in the past three years. There are two propositions to consider, the tensile or carrying strength, and the resistance when subjected to fire and water. The Baltimore fire demonstrated without question the superiority of brick construction over all other products. The San Francisco disaster was another object lesson in this respect, and the dangers and defects of sand-lime brick, concrete piers and reinforced concrete construction are fully set forth without prejudice in a pamphlet issued by the manufacturers of burnt clay products at Los Angeles in 1907. This pamphlet contains reports on the San Francisco disaster by our government, many technical journals, and, notably, a report by Dr. Nakamura, Japan's representative, who states that brick are largely used in construction in his own country, where earthquakes are more common than are brick conventions here. Numerous photographs prove without question the stability of brick construction as to any other product, and these same photographs also show that the life or strength of sand-lime brick and all cement construction was destroyed by the action of fire, and this holds equally true in the damage caused by the earthquake. Other casualties causing loss of life in addition to heavy financial losses are common. The Hotel Bixby disaster, at Long Beach, Cal., in November, 1906; warehouse at South Framingham, Mass., in 1905; four-story factory building of Central Broom Company, at Jefferson City, Mo., in December, 1907, and the Marquette Hotel, at St. Louis, in 1907, were all of reinforced concrete, and all successful disasters.

It is not my purpose to be a "knocker," but I believe that in view of the widespread advertising of cement construction, which means cheap construction, the question should be met with arguments based on facts, and a few more practical object lessons such as I have referred to, may, in time, open the eyes of both the architects and prospective builders, and incidentally the insurance companies may get interested.

The human race as a whole are susceptible to changes from the ordinary routine, and any innovation properly pushed—with a judicious omission of troublesome details which develop later, after the victim is landed—and spread broadcast by the use of printer's ink and energetic promoters, is sure to establish a footing, however insecure. This "change" microbe reminds me of a certain British "Highland" regiment, whose colonel was the descendant of a line of Scotch lairds, and old traditions with him were a religion. Receiving information that his men were dissatisfied with the kilts, he appointed a sergeant to take a census of the regiment and report. In due time, the sergeant reported that all were in favor of trousers but three. "Indeed," the colonel said, "Tell me the names of these three true clansmen. They shall be promoted." The sergeant read from his list. "They are, sir," he added, "Patrick Doolan, Hans Steinbrecher and Moses Ikenstein."

And now I come to the most radical change in building construction that has ever before been presented to a susceptible public. You have all heard, in a general way—with a noticeable lack of the aforesaid troublesome details—of the three-story cement house, constructed on the half-soling plan, while you wait. From the limited information I have at hand, it would appear that a set of molds costs only a mere item of twenty-five or thirty thousand dollars, and, as every brickmaker knows, the trend of the architectural idea is for new designs; it would appear to me that any contractor that makes a specialty of this class of work, would need be of such financial caliber that the profits in construction

would not appeal to him. Many here probably recall the first annual cement convention, held at Chicago in December last, and the movement received an unlimited amount of free advertising in the four days' session. I believe it a business proposition for the National Brickmakers' Association to push the idea of having at their annual conventions a more extended exhibit of their products. This would mean time and money, but, under intelligent management, would add to the interests of the convention, and, at the same time, be a campaign of intelligent information, the results of which would be far reaching.

The United States Government is making an extensive series of tests of the effects of fire and water on different finished clay products, and the results will be worked up into bulletin form and published. I would suggest that this report, when published, be copied in our official paper. Mr. Richard L. Humphrey, care Structural Material Laboratories, at St. Louis, is in charge of the work. It is necessary for the clayworkers to stand shoulder to shoulder, and work in unison for results that will benefit the whole. This necessity for co-operation reminds me of the minister returning from an evening service. Noticing a man lying drunk in the gutter, he accosted him with the remark that it was a disgrace for any man to be in that condition. The man opened his tipsy eyes, and, noticing the ministerial garb, asked, "Are you a minister?" "Yes," was the answer. "Get up." "What nominashun," asked the inebriate. "Methodist," says the minister. "Then," says the other, "help me up, I'm a Methodist myself." (Applause.)

Secretary Randall: I want to repeat in a few words what I said to the convention at Philadelphia when this question came up. Brick and terra cotta manufacturers have nothing to fear from cement construction of a good quality. Good cement construction means expensive construction. This



E. L. Cook, State Farm, Mass.

building of the Montgomery-Ward Company, which Mr. Kimbell referred to cost over \$2,000,000, and the other building referred to, bankrupted the firm that built it, and it was a big firm at that. The building cost twice as much as they anticipated, but they got good construction. Cheap cement construction means dangerous construction, dangerous to the pocketbook, and to life as well. Mr. Wheat's paper, which we will hear this afternoon, on the lack of durability of cement, will probably pretty well convince you that I am not prejudiced in my statements.

THE LIFE OF PORTLAND CEMENT.

BY G. G. WHEAT AND A. J. WHEAT, EMMETSBURG, IOWA.

Mr. President and Gentlemen of the Convention:

Gentlemen—Before entering at all upon the discussion of the main subject we wish to ask you to approach it with us, to get the same spirit that we have in making this inquiry. The various cements in use, common lime, stucco, all the hydraulic cements, and a Portland cement, are indispensable to the builders and the engineer, and in turn are, of course, indispensable to the maker of brick and building shapes of burnt clay. If builders need to learn one thing today, it is the production of the mortar that is as strong as the brick it holds in place. Portland cement is, aside from white lime, the most useful and common cement.

The great usefulness of Portland cement has brought it so to prominence that its qualities have been vastly overrated by those who have not inquired into the true nature of the cement and its action under various conditions. Portland cement has been used

for any and every purpose that the maker of cement using machinery could devise and induce some would-be manufacturer to begin making.

Now, we wish to be understood as the most loyal friends of Portland cement, fully recognizing its great usefulness and the debt we owe it. We will try to pay the debt we owe cement by showing its true nature and helping it to be understood, that it may not be abused by being used for wrong purposes. Portland cement is so great a friend of the brickmaker that he can not afford to stand by and allow it to be used for purposes that must inevitably bring it into disrepute.

We will proceed at once to the nature of Portland cement by making a short study of how it acts under the various conditions of use. A study of the facts and phenomena of the lasting, and

also the disintegration of the ware made with Portland cement as a matrix or bonding material. While there are various combinations of grog and cement bearing various names, we will class them all under the name of concrete.

Five years ago, Dr. Nicholas Knight, of Cornell College, called my attention to the hardness of rain water in a certain cistern. He suggested that the cement made the water hard. I contended that the leakage of ground water into the cistern was taking place through some crack in the wall. Investigation found no cracks, but the cistern would not stay dry when pumped dry. The cistern was recoated with cement, and the hardness of the water ceased. Prof. W. H. Norton called my attention to his cistern. A 200-barrel cistern, made in 1894, which was in a high, dry ground on a side hill. All the water had leaked out. He sent workmen

Instances of the Failure of Cement Posts, Curb, Water Tables and Block.



View No. 1.



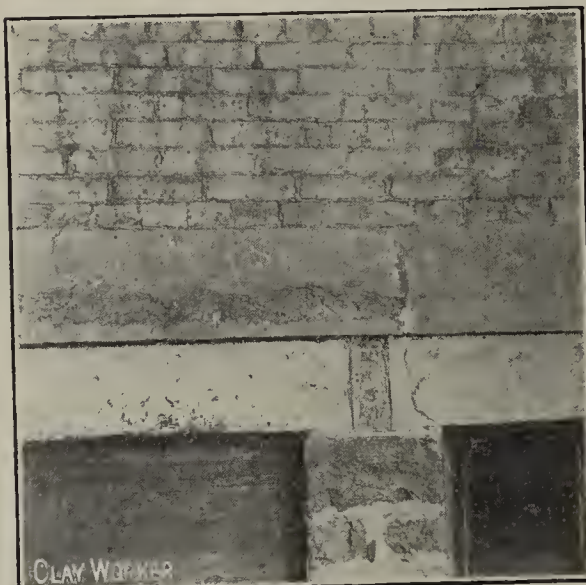
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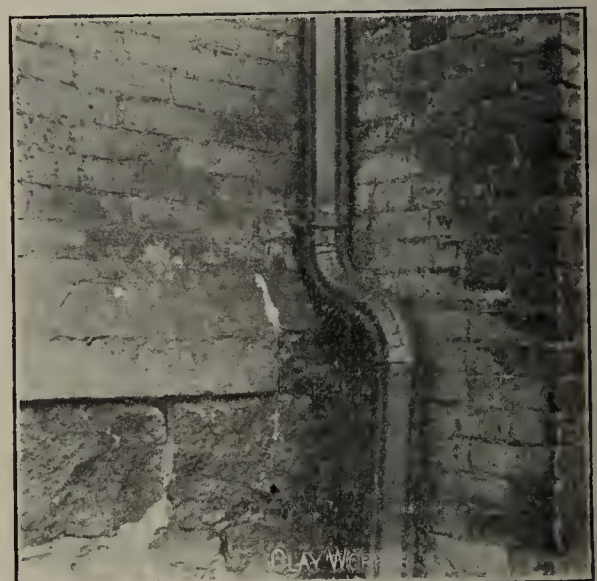
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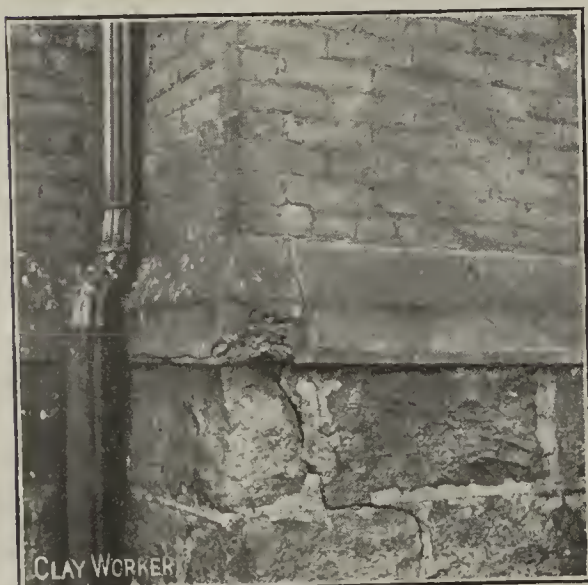
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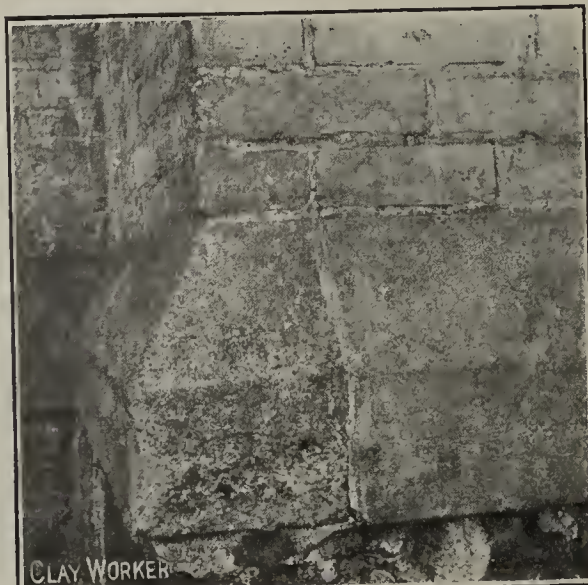
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View No. 6.



View No. 7.



View No. 8.



View No. 9.

to look for cracks; they found none, and he himself examined the wall, finding it somewhat open and porous. Since recoating it has retained the water. This cistern lost its contents at about nine years of age. Prof. Norton had another cistern, 87-barrel, shallow, left continually open to the air, made in 1887. This cistern is still good. It is right beside the first one mentioned, but it has never leaked. Being open to the air and stagnant water, slime or fresh algae have so closed the pores of the mortar that disintegration has not taken place. Multiplied instances of cisterns are not necessary, any cistern builder will furnish you plenty of evidence.

CEMENT POSTS.

Mr. Persons, secretary of our company, at Emmetsburg, tells me of a Panora druggist's experience with cement posts. This druggist began farming his own farm. His first improvement was to surround the farm with cement fence posts. At the end of nine years the fences would no longer stand, many of the posts having crumbled almost entirely away, others having broken as soon as they had become weak. I show you here a photograph made recently of cement fence posts in Des Moines, Iowa. (No. 1.)

CURBSTONES.

At the foot of Capitol Hill, Des Moines, I also made this (No. 2) photograph of a curbstone. You will notice that part



No. 10.—Fragments of Cement Drain Pipe that Had to be Replaced with Sewer Pipe.



No. 11.—Vitrified Sewer Pipe to be Substituted for Partly Destroyed Cement Pipe at Oshkosh, Wis.

of the curbstone is good, but where the angle is turned all that you can see is the pebbles, and these can be easily brushed from the face of the curbstone, as the bond of cement is almost entirely destroyed.

Examine with me a moment these blocks (Nos. 3 and 4) in a small office building in the metropolis of Iowa. You will notice the upper part of the rock face of each block shows light-colored. The lower slope still remains dark, giving the effect of light and shadow, but as there was no direct sunlight, I saw it could not be so. The light color is due to the exposure of sand and gravel, all the cement having disappeared. The sand can be easily brushed off, and, in fact, a small line of sand which has fallen from the faces of these blocks lies on the pavement at the base of the wall. Two years ago, at the time of the brick-makers' convention, I personally examined these same blocks in this building, and had no fault to find with them except that six per cent. were broken squarely through in upright cracks.

These photos (Nos. 5, 6, 7, 8) will show the effect of weathering upon the cement water table of the Emmetsburg court house.

Let me mention now a fence which Mr. Omer Smith, of North English, Iowa, told me about recently. The bare facts are these: Thirty years ago a certain man in an Illinois town built an ornamental fence of Portland cement work. Fifteen years ago, Mr. Omer Smith examined the fence, and listened to the praises given

by its maker. Fifteen years later, or this summer, Mr. Smith could no longer find the fence, but could find evidences that it had rotted away.

The use of concrete construction in sea walls, piers, dams, and all manner of massive construction whose face is continually washed by the water, gives many instances where the concrete has steadily lost its cement, and has eaten back under the action of the water and frost. To be on the safe side, the maker of the sea wall is obliged to face the wall with brick or granite between high and low water mark, in order to insure lasting. Many instances of cement lasting for decades in sea wall construction can be found. Other instances, under apparently similar conditions, have been found to show rapid disintegration. The growth of barnacles and sea slime and vegetation will protect the wall when conditions are favorable to such growth.

Examination of the faces of these walls which I have shown you photographs of, show that in each case the gravel and sand particles have retained their original integrity, and have not changed, while the cement has been eaten or worn away. Pebbles are found projecting nearly their whole length from the face of a curbstone that was originally a smooth surface of cement and sand. Unquestionably the body of the concrete has been disintegrating by the loss of the bonding material or matrix in a manner similar to the disintegration of the soft sandstones which have for their bonding material a calcareous crystallization. This photograph will not show very clearly this disintegration of sandstone, as the particles of sand are so small, but every Iowan could well wish that no such material had been used in the construction of the stairways and balustrades that lead to our Capitol building. This stone could not again secure recommendation by architects for use in a like place.

In this sandstone (Photo No. 9) we see the same phenomena of breaking down that we observe in the breaking down of concrete, calcareous or lime bonding material slowly disappearing, and the more lasting parts falling apart as the matrix disappears. In each case the cause is the same: the weathering away of the



No. 12.—Cement Pipe that Disintegrated After Being in the Ground a Few Years.

bonding material under the action of water, aided in the final breaking down of the stone by the expansive power of frost.

Water has broken down and washed or carried away the matrix. Applying this idea that water can, after a time, reduce the amount of cement in the concrete, let us turn back to cisterns a moment. They are good for perhaps six to ten years, then the water gets hard or leaks out, or else the cistern refuses to go dry, as mentioned before. If the wall has become porous with age and water can filter through, then the ground water of a higher level than the cistern water is will filter through and level the cistern water up to its own level, and keep the cistern full and act just like a well. Or, again, if the wall has become porous and the cistern is located in high, dry ground or gravel, the cistern can leak out all of its contents.

Now, gentlemen, if water has the power to reduce the amount of cement in cement mortar, water will do it in the cistern, and gradually make the wall porous to the flow of water.

Inasmuch as we find in the study of cisterns that all the phenomena of filtration through the walls does take place in old cisterns, we in turn have partly earned the right to say that the water actually has at last made the wall porous and pervious to the flow of water.

This same method of reasoning will apply to the final breaking down of the cement fence Mr. Smith tells us of. The slow reducing of the total amount of cement in the body of the fence, and the weakening of the strength of the matrix, finally place the fence in the same condition of the wonderful one horse shay; and when it goes, it goes all to pieces.

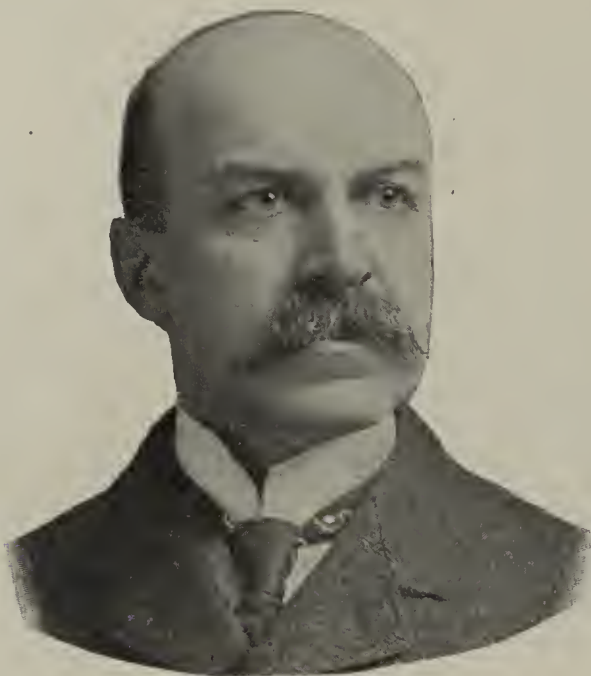
Now, gentlemen, we will not further multiply examples or go further in deduction from the facts and phenomena to the cause of the whole. We have reason to believe that the cement is carried away by the water. To determine this might require extended chemical and physical laboratory tests. The most obvious explanation of the problem appeared to us to be that cement was soluble in water, that is, that it would actually dissolve like sugar and salt.

But before going to the laboratory to make our tests, let us examine how the action of cement in setting, the contention of many users of cement and many civil engineers that cement grows

harder all the time, and the facts maintained and explained by chemists and other competent men, that concrete work increases in strength for at least six months after it is brought in contact with water and begins to hydrate or set, opens another fruitful field. If cement does grow stronger for six months, then it is not completely set, before six months' action by the water, and at no time during the six months is the cement at a state of rest. If not at rest for this six months, what process is taking place? Volume 15, of the Iowa State Geological Survey, in discussing the process of Portland cement in setting, says: "Each tiny particle of cement is enveloped in water, and a very thin layer of the surface of the particles pass into solution, and then the particles of cement crystallize onto whatever grain of sand they may be in contact with."

Now, if this be the correct explanation of the process of Portland cement in setting (and we have no reason to question it), then we have but to consider that the process of solution and crystallization continues until it is complete, and not only a thin envelope of the surface of each tiny particle of Portland cement has been in solution and crystallized, but the entire body of the tiny particles and each tiny particle has passed through this process of crystallization and is complete.

Now, gentlemen, we have been discussing cement and reasoning toward the point where we can say that the cement is actually soluble in water, but with all our reasoning and evidence there yet remains the positive proof of the chemist's analysis and his scales. Accordingly, we took properly cured cement tile, six months old, hard and strong almost as a clay tile, sent this to Dr. Knight, Cornell College, Mt. Vernon, Iowa, to be tested by soaking in pure water, containing no solids at all, and then making analysis of the water. Also to be tested by using water whose per cent. of solid matter was known, and determining whether additions of solid matter were obtained from the cement tile. These results were obtained: Seventy-three grams of tile were soaked in dis-



R. G. Eisenhart, Horseheads, N. Y.

tilled water for 72 hours. The water was then filtered and 200 centimeters, or about seven ounces, was evaporated to dryness in a weighed platinum dish. A careful drying and weighing showed that .0325 grams had dissolved. At this rate the tile, were the entire 73 grams pure cement, would dissolve in about eighteen years, but since not more than one-fifth of the tile was cement, the entire amount of cement in the tile would be dissolved in about one-fifth of the eighteen years. An analysis of this solid matter showed the following: Silica, .004 grams; iron and aluminum, .0014; calcium, .0085. No magnesium was found, but a qualitative analysis showed the presence of sulphates, but these were not determined. These sulphates and carbon dioxide would, in all probability, account for the loss of weight between the original amount of .0325 and that of the silica and iron, aluminum and calcium. Again the same piece, 73 grams, was left to soak for 95 hours in distilled water, and 185 centimeters evaporated to dryness showed that .0390 grams had dissolved. The rate of dissolving continued almost exactly the same. Two more similar determinations were made, using the city water as the solvent. The city water contained carbon dioxide and .0749 grams of solid matter in 200 centimeters. Seventy-four hours at soak in the city water there was dissolved .0039; 96 hours in the city water, .0320 grams. Each of these results show that the tile dissolved more slowly in the city water than in the distilled water.

The results were so startling and so strongly confirmed the conclusions which we had previously reached, viz., that cement was quite soluble in water, that we at once applied to some of our leading clayworkers in our corner of the State to assist us in the work of further investigation. Prompt replies and generous checks encouraged us to go ahead. We have secured confirmation of these chemical tests just given by results at Urbana, Ill., and further tests at Cornell College. The solubility of Portland cement is by these tests established beyond any successful controversy.

A great deal of unprofitable discussion might be indulged in by those who would question the value of the work we have

just shown. Discussion as to whether a solution is a chemical or physical process, and as to how this really effects the durability of concrete work. We would jump right over all hair-splitting discussion on this point, and state this proposition: That Portland cement is soluble in water once, and being soluble once is being soluble an indefinite number of times, and also state that cement when perfectly set is not at a state of rest, and is not a constant, but will continue to change under the action of water.

Now these facts about the nature of cement bring us to an application of this knowledge in governing us in using the cement for construction purposes.

Obviously there are any number of uses to which cement can be put, and classes of work which cement can be used for without the foregoing facts in anyway forbidding. The fact of the solubility of cement does not forbid its use in underground foundations, footings, piles under ground, or in any massive construction where the work is not exposed to a continuous change of water across its face. Cement may be used successfully in construction of massive bridges, abutments, piers, etc., yet a question remains always whether a facing of superior material will not greatly better the construction and lengthen its life.

The whole question of the place where cement shall be used, or rather how long it will last in any certain class of construction, is purely and simply a question of balances. How rapidly does the cement disappear, and how long will it take to remove the cement under the conditions it must meet?

Passing now any number of interesting and fruitful fields for investigation, we will bring the discussion towards its major object, and we wish that the members of this association may so thoroughly realize the gravity of this object that co-operation may be secured to bring the real truth before the people of the United States in a proper manner.

No class of construction for which Portland cement is used subjects it to more severe tests than its use in making drain tiles. Nothing more severe than to subject a thin 9-16 inch wall of five to one, or even seven to one concrete or cement tile, to the continuous passage of as great a volume of water as can come in contact with it, for 24 hours of the day, and 10 or even 12 months of the year.

And I wish to speak further, using the words of several leading makers of cement tile: "More water will pass through a cement tile wall than any other kind of a tile wall." I make no comment, except to add that the tile wall is very porous and will undoubtedly remain very wet, and if it drains the land a continuous change of water passes through it, and chemists know that the motion of water or any liquid increases the rapidity with which any substance is dissolved by it. What is bound to be the inevitable result? This thin tile wall in a few years will lose all of its cement and the ditch of drain tile will become a little streak of sand running through where the drain tile ditch originally was, and it is closed up.

Gentlemen, let me state what others have stated before: "To make a cement tile rich enough with cement to be good is too expensive, and puts good cement tile out of the question." Gentlemen, I will not stop with stating this, but add our own statement, which is the inevitable conclusion that follows the facts presented on this paper:

There is, and can be no such thing as a good cement drain. Even if it were all cement, it would dissolve and carry away in one generation, provided the ditch were to remain open until its last vestige of cement could be carried away in solution. But every one can readily see that long before the cement could all be carried away individual weak tile would crush in, or places where heavier pressure were subjected to the tile than at others would break down. The ditch will begin to close and obstruct in a very few years, with the result of a total final loss of any power to drain the land.

(Applause.)

General Discussion.

Secretary Randall: I understand that Mr. Wheat desires to hear from any member present who can cite to him cases of failure of concrete work of any sort. If any member is so modest that he will not talk in public, he can see Mr. Wheat after adjournment.

Thomas A. Burrows, Warren, Ohio: About seven years ago I was in the city of Pittsburg, and there were several small houses being built of cement block by a contractor. There was some failure or some reason why they were not completed that fall, and I happened to be there again the following spring, and noticed three of these houses were in ruins and had fallen to pieces in one winter. They were a perfect mass of cement and gravel.

Mr. W. A. Eudaly: I do not wish to discuss this paper, but I do wish to say that this is the kind of a paper we like to have read here. I have been more than pleased at the manner in which this paper has been presented to us. We have been given a great many facts without any effort on the part of the speaker to display learning. The facts have been given us with the distinct understanding that there is still more to be learned, and a desire for information along the

lines that will enable the speaker and others to arrive at a proper conclusion.

Mr. W. L. Cook, State Farm, Mass.: I feel that this discussion opens a field to us as brickmakers, and I think it would be of great value to us, more than any other way, perhaps, to spend a part of our money in the direction of collecting the data concerning the value of cement construction, and get it out in a shape that we brickmakers could make use of it in our several localities.

President Gregory: I think that is a good suggestion. This book of which Mr. Randall and I spoke a short time ago would be a good thing along that line. There was a little church in our town—a rich widow became a spiritualist and built a church. (Laughter.) The architect in designing the church made a contract to put in a cement water table—it was not exactly cement, but a brick bottomed water table covered with cement. They laid six or eight courses and then made a projection about six courses, and this was to be cemented over. They hired the most expert plasterer in that town in order to have the job done perfectly, and when it was done, it looked all right, but every time I pass the church, I see it is a total failure. Where the cement was slick and smooth at first, it is rough and full of cracks now.

Mr. Victor Cushwa: I would like to say a word or two. I have been so delightfully entertained and edified by this association, that my mind is really full of the information I have received here, and the inner man has also been well supplied by our host, the manager of the Southern, so I feel very much like the celebrated orator who passed away a great many years ago, Henry W. Davis, one of the most eloquent men we ever had in Maryland. He was speaking one time where a number had preceded him and when he was introduced, he arose and said, "Gentlemen, I am too full for utterance," and this is my condition today. (Laughter.) My mind is full of what I have learned, and I am better cared for than I ought to be for health, but I want to say something in regard to this cement question. I was very much edified and enlightened by these pictures on the screen of the different experiments made by Mr. Wheat. I know something about cement, I have handled hundreds of thousands of barrels of it, both natural and Portland. Cement was used perhaps soon after the creation of the world, and where it is properly used, and where it is kept from the elements it will stand perhaps for all time to come, but when it comes to dwelling construction or warehouses above the surface of the ground, we know that it matters not what proportion of cement or what proportion of sharp sand, or how much reinforced iron you have in your construction. We know that it will burn when it is subjected to a sufficient degree of heat, so that is sufficient, I should think, to settle our minds as to competition in that respect with our brick. I would only add one word to what I have said, let us keep on making brick, and make them better all the time. You know Daniel Webster's father said he did not know what to do with Daniel, that he was not fit for anything but a lawyer. He said: "I set him to work on the farm, and the first thing I know he has a book in his hand and is neglecting his work. The country is full of lawyers now." Mr. Choate, to whom he was talking, said: "Well, there are lots of lawyers below, but there is plenty of room above," and Webster, as we know, got above. So let us do better all the time, try to make our product such as will command the best price on the market. (Applause.)

President Gregory: I wish to appoint the Committee on Resolutions at this time.

Committee on Resolutions.

J. Parker B. Fiske, New York.
F. P. Marshall, North Carolina.
R. F. Grady, Missouri.
C. F. Monfort, Pennsylvania.
R. D. Lindsay, Colorado.
W. Siwart Smit, Minnesota.
J. E. Butler, Texas.

Secretary Randall: We will depart from the regular program now, if it is agreeable, and listen to a paper by Mr. Frank H. Riddle, of Colorado Springs, Colo., on "The Use

of Clay Ware in Polychrome Architecture," which will be illustrated with stereopticon views. (Applause.)

Mr. Frank H. Riddle, Colorado Springs, Colo.: Mr. President and Gentlemen of the Convention—It affords me pleasure to present to you views of the new Van Briggie Pottery, built during the past year. As you know, our city lies in the beautiful valley above which towers Pike's Peak, so that the color scheme of our factory building fits in nicely with the surrounding scenery. Most clayworkers are very much like young girls. At first they are very happy, the young girls are, if they get on long skirts, but by and by they are not satisfied with long skirts, they begin to want pretty colors, and to primp and be a young lady. The brickmaker at first is very happy is he can make a good grade of common brick, but, by and by, he improves and branches out and gets all kinds of colors and beautiful effects. Perhaps the latest effect is polychrome architecture. It deals, as you know, with common brick, glazed brick, and glazed terra cotta and glazed tile. I am going to show you the outside of our pottery building as it is today. The materials used in this building are common dry press brick, kiln run, a great many black heads and odd colors, so arranged in the wall that the black heads give a beautiful effect. But one can get a better effect when glazed terra cotta is used than with the brick. As you will see the ornamental details are



Charles H. Bray, Helena, Mont.

worked out in colors, mostly matt glazes, which harmonize nicely.

The views, as shown on the screen, were beautifully colored, and challenged the admiration of all beholders. A full description of the plant, with the views shown, will be given in a subsequent number of THE CLAY-WORKER.

President Gregory: I am sure we have all enjoyed this talk and the pictures very much indeed. Secretary Randall will announce the next in order.

Secretary Randall: The next regular paper on the program is a paper, "The Market Side of the Brick Business," by Mr. W. E. Dunwody, of Macon, Ga. Mr. Dunwody fully intended to be here, but he writes that, in common with many others, he is struggling with an attack of la grippe, which keeps him at home. He has sent his paper, however, which I am sure you will appreciate very much.

THE MARKET SIDE OF THE BRICK BUSINESS.

BY W. E. DUNWODY, MACON, GA.

Mr. President and Gentlemen of the National Brick Manufacturers' Association:

The subject assigned to me is indeed a momentous one, and there has never been a time in my experience when I more fully realized its importance than I do now. The reception of a letter from our esteemed secretary requesting me to write a paper on this subject was quite a surprise to me, and yet the request was one which I highly appreciate; and, while as a young Georgia

cracker, I probably know less about the market side, or any other side, of the brick business than the majority of the gentlemen whom I have the pleasure of addressing; nevertheless, I am only expected to introduce the subject, and if I simply tell you what I do not know, it will serve as an introduction, and I will then have the benefit of your ideas and experiences. Of the advantage of your opinion to me, I assure you I am fully cognizant. Naturally, the first thing that I considered after reading Mr. Randall's letter, was how it happened that he settled on me to discuss this question—a man hailing from the far south; and, while I have never been able to arrive at any explanation entirely satisfactory, it has occurred to me that I may owe the honor conferred to the following characteristics of my physical makeup: First, I have, what the boys used to call a "brick top;" second, square corners; third, a smooth face, and last and not the least important, am of a size not to make the freight charges excessive—all of which qualities are very essential to a brick which is to be successfully marketed.

As stated above, I shall be very glad to hear the discussion on this subject, and its importance is especially emphasized by the fact that I have spent more of my time on the market end of my business for the last six months than I have spent on all of the other matters pertaining to it.

While I turn the leaves of my paper, I am reminded with considerable nervousness of the story related once by the late Henry Grady, one of Georgia's most elegant sons, in a speech delivered before the New England Society in the city of New York, of an old preacher. The old gentleman had a class of boys, and wishing the boys to familiarize themselves with the subject of the lesson which he expected to read to them on the following morning, he told them where the lesson would be found. The boys, finding the place in the Bible, glued together the connecting pages. The next morning he read on the bottom of the page: "When Noah was 120 years old he took unto himself a wife, who was"—then, turning the page he continued to read: "One hundred and forty cubits long, forty cubits wide,



Fred Talbott, St. Louis, Mo.

built of gopher wood and covered with pitch inside and out." He was naturally puzzled at this; he read it again carefully, verified it, and then said: "My friends, this is the first time I ever met this in the Bible, but I accept it as an indisputable evidence of the assertion that we are fearfully and wonderfully made."

If I could get more of such faith as this this afternoon, I could proceed cheerfully with the task set before me, which I otherwise approach with a sense of uneasiness.

The market side of the brick business is closely and vitally related to the remainder of the business; as without successfully and systematically marketing your brick, you will soon be compelled to shut your plant down, even though you have plenty of money to continue to manufacture without disposing of your product, as not many plants have the room necessary to store any very large stock of brick. This, in the main, is the chief point of trouble we Georgia brick manufacturers have experienced during the last six months. On account of the large cotton crop raised in Georgia, and the good price it has brought, we have had plenty of money, but, on account of the late money panic everyone has been playing the waiting game, and delaying as far as possible all building operations. Our output, therefore, has at times exceeded our sales, and we have been put to it to find room for our brick, although when I consider the fact that my company marketed during the year 1907 66,000,000 brick, I suppose I should not complain.

When we find the demand for our output curtailed there is a strong temptation to cut our prices, but I have never found that cutting the price of brick, or any other commodity, created a market or increased a demand. Certain it is, that in my section of the country as soon as the price on brick breaks a little, the buyer begins to wait for another reduction. My plan has been to put a fair price on my brick, make the best brick possible, be sure that I am making a brick that is worth the price, and then stick to it. One must have confidence in himself and in his product, if he hopes to inspire his customer with confidence

in him and enough interest in his product to make him buy. In other words, it is almost impossible to make some one else believe your statements, unless you believe them yourself. I believe in a fair price at all times; that is to say, I do not believe in taking advantage of circumstances by which you may be able to raise your price unreasonably, as that encourages competition, and in all my experience I have never known a business in which you could make a fortune as fast, on paper, as in the manufacture of brick; but when you put away your figures and get into the clay hole and kilns, you find that "Straight is the gate, and narrow the way, and few there be that find it." Figures do not lie, but they sometimes mislead you badly. The result is that I believe there is less money made in the manufacture of brick than there is in many other lines of manufacture. So few of us know what our brick actually cost, and even if we know what they cost us this month and last month, who knows what they will cost next?

I have often remarked that where, as in most every line of manufacture, the superintendent is trying to keep even a speck of dust off his machinery; in the manufacture of brick we are dumping dirt into and all over our machinery by the ton. This results in a great wear and tear on the machinery, unlooked for breakdowns and large repair bills, and I have always noticed that your bills are almost as large for the time you are shut down for repairs, for a day or two, as they are when you are running and turning out brick.

An important factor in the marketing of brick is the law of supply and demand, and this law should be carefully considered and kept before us. In the manufacture of common building brick our territory is necessarily very circumscribed. We can not go far from home, as the freight rates are prohibitive, and even where we do try, the material for the manufacture of brick has been so well distributed by nature that we can not get a very great distance from home before we run into the territory which is controlled by some other brick manufacturer on account of the fact that he has better freight rates; and when you attempt to sell brick in his market, you simply become a public beneficiary of the benefits of whose services the consumer is the sole recipient, as the only thing that you accomplish is to make the other man cut his price in order to prevent your coming into his market. If you make more brick than you can sell, those that you do dispose of, will bring you less money, as few of us have the nerve to hold up our prices when we see all of our available kilns getting filled, and the prospect of a shutdown staring us in the face. More than this, as soon as you accumulate any considerable stock of brick, the contractor finds it out in some way, and he knows he has you at his mercy to a certain extent, and is not slow to take advantage of the situation.

Let us remember when we begin to consider the necessity or even the advisability of cutting our prices, that every 25 cents per thousand we cut our price should not be figured as being a reduction on a total price per thousand, but that we should realize that that 25 cents is cut from our margin of profit; that is, if you are making fifty cents per thousand net profit on your brick at the market price and you cut it 25 cents, as far as your pocket-book is concerned you are not only cutting the total price 25 cents, but you are cutting your profit in two.

There is another very serious question in the marketing of brick in the south, and that is the question which confronts every individual in the south, and every individual interested in the south's welfare—the question of transportation. The large increase in the south's prosperity makes this a matter of great concern. If the products of southern factories, farms, forests, and mines are to be sold advantageously, they must be transported to those localities in our own and foreign lands where there exists effective demands for such products. The rate in which the south can develop is therefore limited by the capacity of the carriers on which it must depend for the transportation of its products to market, and I think that every one who has made even a superficial study of southern transportation will agree with me in the opinion that transportation facilities in our section must be greatly increased and improved if they are to keep pace with the increasing demand that will be made upon them as a result of the agricultural and industrial developments of southern communities. My acquaintance with commercial and transportation conditions in our section convinces me that its most pressing economic need is a very large increase in transportation facilities, both by water and by rail, in the immediate future. You will pardon this little digression, but I did not wish to lose the opportunity of acquainting this representative body of gentlemen of the fact, which I would impress upon them, that while there has been a great deal said and written in regard to legislative enactments in Georgia inimicable to railroads, that the business men of Georgia and of the south are willing and anxious to do everything in their power to increase the developments of the south, than which there is no more important and effective factor than the upbuilding of railroads.

In our section of the country, and in fact all over these United States, there are encouraging signs which point to the improvement of conditions in our own special line of business; and, while in my section of the country, the manufacture of brick is being considerably overdone now, still we can note a tendency towards better and more substantial homes among our people, not only in the cities but also in the agricultural districts.

Better homes bring among its first requirements a demand for better building material, and when people consider carefully the question of the best building material, they will in most instances buy brick. I read with a great deal of interest and pleasure, in the printed record of the deliberations of the National Brick Manufacturers' Association of their Twenty-First Anniversary, held in St. Louis, the address of Mr. Dickey on the "Importance

of Trade Schools to the American Boy," and also that of Mr. Brumbaugh on "The Trade School in an American City," being especially interested in that part which referred to the necessity of training boys as bricklayers. The scarcity of bricklayers, and the control of those we have by the unions is seriously affecting the marketing of our brick, as the cost of laying brick is doing more to increase the use of concrete to the detriment of our interests than any other one thing.

Let me offer a few suggestions that may be of some benefit in the marketing of your product:

First—Keep your business to yourself. Nobody has sufficient interest in it to use any information which you may give them to your benefit, and if any use can be put to such information, it will in most cases be used to your detriment.

Second—Inform yourself as thoroughly as possible on the advantages of brick construction as compared with concrete, and adversely of the disadvantages of concrete as compared with brick. On this line, I have found the book gotten out by the Brick Construction Association in California a very useful treatise, which, although necessarily incomplete, nevertheless furnishes an ocular demonstration, which, in numerous instances, resulted in my selling brick where the use of concrete was contemplated.

Third—Let your bill of lading show correct weights and rates, and where it is possible, insist on your customer compelling the railroad to protect your bill of lading. This is very essential where you are selling brick at delivered prices.

Fourth—Make your shipments as promptly as possible after reception of the order. This sometimes anticipates a countermand, and always makes a pleasant impression on the customer.

Fifth—Keep your records as near absolutely accurate as it is possible, and do not be afraid to make them too full, as not infrequently the successful prosecution of an account depends on the accuracy and fullness of your records.

Sixth—Careful counting of your brick. This is very necessary, as there are those among all of our customers who will claim shortages sometimes which do not exist; and if you are in position to make a sworn affidavit as to the correctness of your count, you will seldom hear from the party the second time, if you send him such an affidavit.

Seventh—Careful loading. This is necessary of course in order to secure an accurate count, but it also has a good effect on the customer when he notes that care has been taken in the loading of his brick, and it also prevents, to a large extent, breakage. As a proof of the necessity of this feature, witness the beautiful packages which are used in marketing gents' furnishing goods, and other articles of merchandise which can be put up in boxes.

Eighth—Use nice stationery in your correspondence. This gives the impression of prosperity, and "Nothing Succeeds Like Success."

Ninth—Have your letters written on the typewriter, where it is possible. This often prevents the overlooking of an error in the correspondence and saves the customer time and simplifies keeping copies of your correspondence.

Tenth—Prompt replies to inquiries and all other matters pertaining to the correspondence of your customers. This will always bring results.

These suggestions are general. Now, just a word about settling claims for shortages, etc. Decide first, whether or not you believe the claim is a just one, then whether or not you will allow it; if not, decline to do so, firmly but politely. If, on the contrary, you decide to make the allowance, make the customer feel as if you did it willingly and cheerfully; in other words, do it gracefully, and make as much capital out of it as you can. Never make an allowance and let your customer feel that you did it unwillingly, as that has one of two effects: If his claim has been just, he feels as if you were not disposed to do the square thing. If he is conscious of having taken advantage of you, he feels that you know it, becomes ashamed of himself probably, and does not wish to do any more business with you; or, even if he does, he fears that either you will refuse to sell him, or that if you do sell him you will try and "get even with him."

Now, gentlemen, I know that I have told you nothing that you did not know already, but when we have our attention called to matters with which we are already familiar, we sometimes become more impressed than before with the importance of some one suggestion; and if such has been the case with any one of my auditors, my efforts have not been in vain.

In these troublesome times of tightness in the money market, some of us have had some serious problems to come up in the marketing of our product, and, therefore, in closing I wish to prescribe a specific for anyone who has had any indications of symptoms of this nature.

When in doubt, take optimism, as optimism is the first born of hope, the mother of confidence, the executioner of adversity, and the undertaker of pessimism. (Applause.)

Secretary Randall: This brings us to the last regular paper on today's program, "The Use of Hollow Tile in Dwelling Construction," by J. E. Mecusker, Warren, Pa.

THE USE OF HOLLOW TILE IN DWELLING CONSTRUCTION.

BY J. E. MECUSKER, WARREN, PA.

Mr. President and Gentlemen of the Convention:

In the December issue of THE CLAY-WORKER the speaker had an article on hollow tile for partitions in private houses. Little thinking when writing that little article to be asked by our secretary, Mr. Randall, to read a paper on practically the same subject before this convention, and I am afraid that Secretary Randall

little knew how poor material he was selecting for the purpose. However, I will do the best I can with the subject, trusting to your kind forbearance and the leniency of your criticism for my success.

The subject of fireproof building is just in its infancy. While architects are recognizing the desirability of the use of hollow clay tile for that purpose in public buildings and in our modern skyscrapers, they do not seem to have given its use in private house construction the consideration the subject demands. Where the owner is building a house for his own use, they do not seem to have taken into consideration the possibility of this form of construction, especially from the important points of both fire and sanitation. This form of construction being absolutely vermin, fire and sound proof, and of very little more expense than the usual form of wood construction. As to cost, I will treat on that later.

There is another point in favor of this form of construction, especially in its use in partitions, and that is making heat conductors or pipes out of ordinary partitions by setting the tile, where the heating pipes come, directly over each other. A flue or heating pipe can be formed in this way that is better in every way than tin, and, at the same time, forms the partition as well. Have done this myself, and know whereof I speak.

Partition tile should be set on end, as the tile have a greater strength set that way. In my own house the main partition, built of four-inch tile, carries the second floor joist, setting on a brick wall in the basement. The pipes from the furnace enter the wall through a thimble, the same as used for chimneys. Then where the register on the second floor comes, in the partition above the baseboard (as they all do), a tin pipe connects the tile with the register. Should the lower partition come directly under the upper, no tin would be required. Special tile could be made for this purpose, and do away with the tin entirely.

A very little thought on this line will easily demonstrate to



J. E. Mecusker, Warren, Pa.

the average manufacturer of fireproofing how easily all this can be accomplished.

In my house, which, by the way, is only a small insignificant affair, the saving of tin pipes was \$25, and the pipes are indestructible. Now you will understand that this applies only to houses using hot air furnaces.

Now as to cost. We will take a small cottage of eight rooms and bath, with outside dimensions of 28x32 feet, using a six-foot span of arch. A flat arch of six-inch tile is thick enough for residence construction. An arch of this thickness of good tile will carry a dead load of 600 pounds per square foot. The usual load requirement is 75 pounds per square foot. There would be required ten six-inch "I" beams, 27 feet long, the center resting on a brick wall in the cellar, ends on outside walls. These would weigh twelve and one-fourth pounds per foot, and cost about \$2.60 per hundred. Four angle irons, same length, costing about \$10, about 150 feet three-fourths inch tie rods, costing about \$15, or a total cost for steel of \$110. In both floors 1,560 square feet of six-inch arch set in floor at ten cents per square foot, or \$156 for tile. About four cubic yards of cinder concrete, at \$3.50 per cubic yard, to hold floor strips, costing about \$14, making a total cost for the steel, tile and concrete, complete, of \$280.

On lower floors, where the partitions in part carry the weight of the upper floor, and also the heating flues, six-inch tile should be used. For partitions on upper floors two or three-inch tile are heavy enough. All partitions should be of porous terra cotta, so that they can be nailed readily, saving plugging the walls for casings, picture mouldings and baseboards.

The cost of partitions exceeds studdings and lath but very little, if any.

Where electric wires are installed, they, as well as all pipings, can be run in the partition tile.

The figures given here can be easily verified, and, while in different localities may vary some, will prove approximately cor-

rect. With the very small additional cost, would not most all of our home builders use this form of construction? Especially when one takes into consideration the fact that it is absolutely vermin, sound and fireproof.

The time has come when the price of all wood makes its use very expensive, and building must be done with some other material. What building material is there, both from durability and artistic points of view, that fills the requirements like burned clays? The manufacturer of burned clays, as well as the prospective users thereof, hardly realizes the cheapness, as well as the many other points of superiority they possess, and the great additional market their use in home building would make possible were people educated more fully to their use.

The average prospective builder seems to think a brick house is about the most expensive construction one can start on. And should one talk fireproof construction he would be ready to throw over the whole proposition. It will take a long time, and lots of missionary work, to educate the public to this form of building, but come it must, and the sooner the better for our craft.

The subject of cheap fireproof home construction has become of such moment that it has brought forth the best thought of some of the most learned men of our time. When such men as Thomas A. Edison give a subject their thought it certainly deserves consideration. (Pardon the digression from my subject). But Mr. Edison has designed and patented a fireproof house. And a company has already been organized to develop his plans of fireproof residence construction. And, while not of burned clay, it seems to me worthy of mention here, showing the trend of the times. The clayworker certainly has one of the oldest, as well as the best of materials for the purpose, and the only requirements to advance its use are a proper application, as well as the educating of both the erecting contractor and the prospective builder. I thank you. (Applause.)



George T. Dickover, Wilkesbarre, Pa.

General Discussion.

President Gregory: Mr. Mecusker has given us a good paper. If there is no discussion on same, we will take up the first of the questions for general discussion: "Has sand-lime brick made any perceptible inroads in the brick business?"

J. Parker B. Fiske: I can speak for New York City. About three years ago the dealers of brick in New York City became somewhat alarmed in some way, by reason of the fact that a number of sand-lime brick plants were starting up in that vicinity. There were at least four or five, some of them of pretty good size; their output was supposed to be 75,000 to 100,000 brick a day, and the promoters of these enterprises said their output would be a million brick per day. The company with which I am connected thought if sand-lime brick were going to be sold, we might as well sell some, so we secured the agency for one of the best plants in that vicinity, so I am able to speak advisedly, now. We did not attempt to any great extent to sell common brick. The conditions were more favorable in New York City, perhaps, than they ever will be again. For instance, clay brick made on the Hudson River were sold at \$14.00 a thousand, delivered to the building. If there ever was a time in the history of sand-lime brick when they had a chance it was then. There were very few common sand-lime brick sold, but there were a number of face sand-lime brick

sold, mostly for courts and rear walls. We failed to find a single man who ever used these brick once who ever wanted to use them a second time, notwithstanding the fact that the brick were made to stand a good crushing test, and they were backed up by laboratory tests, etc. They were considered very satisfactory indeed from the weather standpoint, but they were not liked. They made a very disagreeable effect in the wall and their use has steadily gone down, until one after another all these plants are closed down, and I doubt if there is a single sand-lime brick being made in the New York City district at the present time. (Applause.)

Mr. George Berry, Columbus, Ga.: I understand the sand-lime brick plant at Savannah, Ga., has gone into the hands of a receiver.

W. Siwart Smit, St. Paul, Minn.: There is a sand-lime plant in St. Paul and one being built now in Minneapolis. The one in St. Paul is fairly successful. They are selling common brick at a lower price than clay brick—\$6.25 delivered at the building, and it costs about \$1.50 to deliver. One place that they seem to be given the preference is for the interiors of automobile garages, the reason being given that they are lighter than common clay brick, and the builders of these garages do not want to go to the expense of enameled brick. About fifty miles from St. Paul, at Red Wing, there is a large plant. They make a better grade of brick than they have made at St. Paul or Minneapolis. A large per cent. of their brick are used for facing brick for school buildings in different parts of the State in the country districts, where they do not get dirty so easily, and there are not so many objections to them. I think their use is steadily increasing. In the city of Sioux Falls, I understand they have a plant which is not very successful; they are still operating, but they are not increasing their capacity. I want to say further that we investigated the sand-lime brick question thoroughly because we intended once to start one ourselves. We have a bed of shale twenty-five feet deep and underneath that is twenty feet of sand. Our clay brick plant is on one side of the Mississippi River and we intended to start the sand-lime plant on the other, but, after investigating thoroughly we lost faith in the sand-lime brick business, so we decided not to go into it.

A Member: That shows where you were wise.

Mr. Smit: The president of our company, who is in Germany now, investigated the first sand-lime brick plant started here about twelve years ago. That plant paid out three and one-half per cent. dividends on the investment three years ago. I saw a similar plant in Holland that seemed successful, but I must admit that at that time none of the clay brick plants had any brick left in stock—they were all sold out. Our president, who, as I said, is in Germany now, wrote me from Holland recently that there is a good demand for clay brick, but that the sand-lime plants are most all idle, and they pay about eighty cents per thousand more in Holland for the clay brick than the sand-lime brick. (Applause.)

President Gregory: I would like to hear from Mr. Dickover. I believe there are some sand-lime brick plants in his section, at Scranton.

Mr. George T. Dickover, Wilkesbarre, Pa.: I am not aware that they have a plant at Scranton; if they have one I do not know it. (Laughter) I understand there was a company organized in Wilkesbarre. I saw their advertisement one time, but that is all I have seen of it.

Mr. Smit: When we investigated this sand-lime brick business, we went into the cost of brick, and there was but one place where they made them cheaper than the clay brick. But where they make them cheaper, they put in only five or six per cent. of lime, and if they do that they will not stand the weather.

Mr. Charles M. Crook: I think this convention is gradu-

ally recovering from the attack of heart disease it has had, as a result of the claims made by promoters of sand-lime brick. At Cincinnati, I really thought from some of the discussions on the floor of the convention, and in the exhibition room, that some of our members would have to be taken home in an ambulance. (Laughter.)

Secretary Randall: I really think the next question has been answered. It reads, "Has sand-lime brick made sufficient progress to be entitled to consideration as a reliable building material?"

Mr. Eudaly: I made quite a little money out of a sand-lime plant. I built a nice plant of kilns for a company which went into the clay brick business after they had failed in the sand-lime brick business. (Laughter.)

President Gregory: I think the next question, which reads, "Will porous cement tile, when laid in acid soil, gradually dissolve?" has been answered by Mr. Wheat's paper, so we will not waste any time on that, but pass on to the next. "Will porous or poorly made cement block withstand freezing and thawing, or will they go to pieces under the effects of frost?" They don't have to be exposed to frost to go to pieces. I can show you some in our section that have gone to pieces without frost. This finishes our program. We stand adjourned until tomorrow morning.

FOURTH SESSION.

Friday Morning, February 7, 1908.

This session was held in the auditorium of the University, and when President Gregory called the convention to order, shortly after 10:00 o'clock, the large room was comfortably filled, many ladies being in the audience.

President Gregory: It is my pleasure to introduce to the convention Prof. Wm. H. Siebert, dean of the College of Arts, Philosophy and Science, who, representing President Thompson, desires to extend a welcome to the convention. (Applause.)

The University's Welcome.

Prof. Wm. H. Siebert: Mr. Chairman, Members of the National Brick Manufacturers' Association, and Ladies—I wish very much that our President, Dr. W. O. Thompson, were here to speak these words of welcome. He is much more accustomed to these things than I am. When I received a note from him yesterday asking me to come in here and act like the president, I said I felt that you would be missing a great deal in not having our most worthy president with you this morning. There are certain reasons, it seems to me, why it is not at all incongruous that your Association should meet in the buildings of the Ohio State University, and if you will be patient with me for a few moments, I will try to give you what appear to me two of three good reasons.

In the first place, your Association represents one of the great technical industries of the country, an industry of immense importance to the social, commercial, and, I may add, the educational work. In the second place, as you doubtless know, this State University, like most of the other large State institutions, gives a very large share of its attention to instruction in the technical lines. We spend a vast amount of money every year in the department of those sciences which in their application contribute to advancement of technical industry.

In the third place, and I count this undoubtedly the most important reason of the three, the Ohio State University is fortunate enough to have a special department known as the Department of Ceramics, the first department, I may say, of the kind to be established in any American university, under the very able leadership of my friend and colleague, Prof.

Edward Orton, Jr. I take it that it is the existence of that department which is the immediate reason for this meeting here this morning. That Department of Ceramics is engaged in the scientific study of the properties of the raw materials of your industry. Furthermore, it is engaged in investigations and tests which are intended to improve the process of manufacture. It is also engaged in technical matters pertaining to the clay industry. It is engaged in the instruction of young men who shall have the knowledge and skill to conduct these industries in due time. The Department of Ceramics, then, is a bond of union between your association and the State University, and yet I think it is worth noting that the close relationship which is here indicated is not unusual. On the contrary, the close relationship is typical as between a number of American universities and the technical industries of the country. If I were asked what country had led us in bringing about this close relationship, I should, of course, have to answer, Germany. It is Germany, without possessing the natural advantages and resources that we possess, which through the development of industrial and technical education, has been able to set an example to the other countries of Europe and the United States as well. Our own government has followed the lead of Germany in the employment of numbers of university educated experts today to develop



John R. Copeland, Birmingham, Ala.

the agricultural resources and the mineral resources of the United States, and I dare say that there is not one of us here, and I doubt if you would find any one in this country who would gainsay the value of the efforts which the government at Washington puts forth in these various lines.

The State universities come in just at this point, as it seems to me, to supplement the work of the United States government by striving to develop the special resources of their respective States by doing what they may under the somewhat limited financial support they receive from the State governments in the development of processes, and in the raising of the standpoint of durability and excellence of the products of manufacture, and in the training of young men of knowledge and skill to assume positions of responsibility and trust in connection with these various industries. Thus there is a direct and immediate attraction between technical education and a given industry such as that you represent. There is a certain advantage in the fact that the College of Engineering, in which the Department of Ceramics exists here, is associated on our grounds with six other colleges. The young men of the country respond with remarkable promptness to the needs of the times, and I think that fact is evidenced by the fact that we have eight hundred and fifty students in our College of Engineer-

ing, a larger number than happens to be enrolled in any other college on the grounds at the present time. These eight hundred and fifty young men are associated here with sixteen hundred young people who are pursuing other studies and other specialties in the various colleges. They are brought into daily contact with these sixteen hundred other young people, they are constantly being subjected to the judgment of their fellows just as, in turn, they are daily passing judgment upon their fellows, and they are thus developing this ability to judge man which, I venture to say, is an important side in the qualification of any business man, whether he be engaged in general commercial pursuits or a technical industry like your own. Living here among these twenty-four hundred young people, the engineer student, like every student, lives in an ideal atmosphere. He stands on his own merits as a student. He gets no more than he deserves, and he becomes accustomed to that democratic environment and democratic ideals which become therefore a very important part, if not a serious part, of the education he receives here.

Now, gentlemen, it is my fortune to dwell in a community of this kind, and I take great pleasure, on behalf of the president, the board of trustees and the faculty of the university, in welcoming you to such a community. (Loud applause.)



W. A. Eudaly, Cincinnati, Ohio.

President Gregory: On behalf of the convention, Mr. Eudaly will respond to this address of welcome.

Mr. Eudaly's Response.

Mr. W. A. Eudaly: Mr. President, Ladies and Gentlemen, and Prof. Siebert—I have made the remark recently that when I was a boy of thirty-five years, there was not anything in the wide world that I would not undertake to do. Some of my dear friends have been pleased to chide me with age, which I must admit, but in all these long years of my flirtation with oratory and all that sort of thing, I have never felt myself competent to an occasion of this kind.

We are in the midst of things here. Any of us can be sort of soldiers on the skirmish line, but when we stand before a cannon some of the best of us flinch. Now, Mr. President, and when I say Mr. President, I mean the president of this college or the gentleman representing him, and not the president of this Association (laughter and applause); now, Mr. President, when I say to you and your board and your associates that the men and women sitting before you today are the backbone of the idea of advancing the boy and girl of this land, I am saying no small thing. (Applause.) I would have you and your associates to understand that the National Brick Manufacturers' Association of the United States of America stand for the boy. I would have you understand that we are for the rising generation. The buildings

we build are for others to occupy in later years. We are no temporary organization and our work is not temporary in any sense of the word. Ours is an organization that cannot be accused of doing solely from selfish motives. We realize that we are building for others. We realize that our boys and boys for generations to come will enjoy that which we now do.

Now I trust, sir, that I have made it plain to you that the men and women before you today are in hearty sympathy with the work that is being done in this university. One little remark was dropped a few minutes ago, that, at the risk of being criticised, I must mention. This great art school, the ceramic school, this school of all sciences, was referred to as being temporary in connection with this great institution. My dear sir, if there is any such thought in the mind of any one, we stand here to refute it, and to make it perpetual. I admit that the small contribution the National Brick Manufacturers' Association has made to this institution from year to year is but an evidence of our interest, but, if occasion needs, there is more to follow. We are not in this business for fun, we are in this business to do the world good. We are in a business capable of doing the world good. We are inclined to believe that the school of ceramics in connection with this institution is one of the greatest things for good about the whole university, and I will say this, we stand ready as an organization to back up and stand by any laudable department of education in this or any other institution. (Applause.) That is the kind of stuff we are made of. I wish you could have been in our convention during our first session, when the question came up of supporting another institution, and have seen the magnificent response by the gentlemen now before you. We are not hidebound; we stand for education the world over.

If I brag upon ourselves, Mr. President, it is only because I am proud of our organization. We have occasion to be proud of ourselves. We have occasion to be exceedingly proud that a great institution like this will open its doors and invite us to hold a session in its chapel, and to view its grounds and maintain a college directly along the line of our professional interests. We have great reason to be proud of this reception.

Now, Mr. Siebert, will you come up here please, right here on the platform beside me. You see I have a way of making people do things, just like you do. (Laughter.) I am going to elect this man, gentlemen of the convention, an honorary member of our Association. He has got to work Everybody in favor of making Mr. Siebert a full-fledged member of the National Brick Manufacturers' Association, please say "aye."

(A loud chorus of "ayes," with laughter and applause.)

You see, we are not going to ask you whether you will accept it or not, and now I am going to pin this badge on you.

Now, gentlemen and ladies, as a token of your sincerity, I want you to stand up, take out your handkerchiefs and give Mr. Siebert the Chatauqua salute. (The salute was given with a hearty good will.) Now, Mr. Siebert, you are excused. (Laughter and applause.)

Prof. Siebert: Gentlemen and ladies, in behalf of the president of this university, whom I represent, I accept this honor, which I deem as the greatest that has ever come to me. (Applause.)

A number of students at this point made the building ring with their O. S. U. college yell.

Vice-President Blair: There is no mistake about this being a university. The president has asked me to preside for a short time, and inasmuch as we departed from our regular program yesterday, I will ask Secretary Randall to announce the next in order.

Secretary Randall: We will depart a little from the program this morning, As the screen is ready we will first have

the paper on "Strength of Brick," by Mr. J. A. Howard, of Watertown, Mass., who comes to us under the direction of his superior officer at Watertown, Mass., to aid us in this work. (Applause.)

SOME TESTS OF BRICK.

BY JAMES E. HOWARD, WATERTOWN, MASS.

Mr. President and Gentlemen of the National Brick Manufacturers' Association:

I have the pleasure of presenting a resume of the results of some tests which have recently been made at the Watertown Arsenal Testing Laboratory on brick, of current make, kindly contributed by your members, representing not only the products of the Eastern and Middle States, but also those of the Pacific Slope. The co-operation of your Association in this important work is deeply appreciated.

So many excellent features are present in well made brick that an inquiry into their physical properties is enjoyable work, which excites admiration for a product which has contributed so much toward the industrial advance and the welfare of our nation.

To aid in furnishing information on those useful properties of brick, by all recognized as such, has been one of the aspirations of

—Slide 2.—

The fractured surfaces of two light gray face brick are here shown. One was made at Seattle, State of Washington, the other at Washington, D. C. Both are structurally sound and of uniform texture.

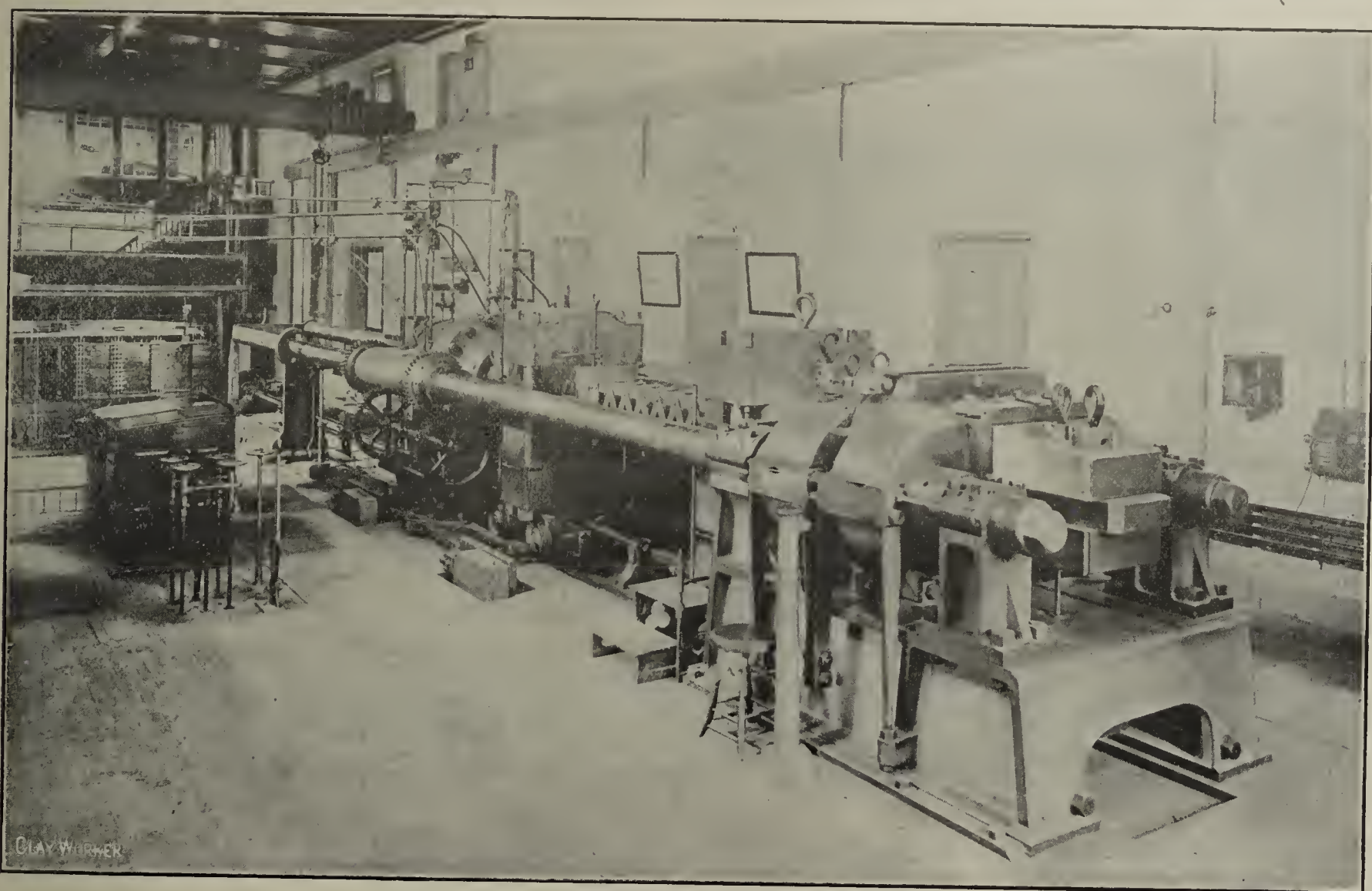
—Slide 3.—

Here are two red face brick, one from Washington, D. C., the other from Bradford, Pa., each being characterized by its state of structural soundness and uniformity.

—Slide 4.—

Three New York shale brick are shown on the screen, a hard burnt building brick and two pavers. Compression tests showed an ultimate strength of 13,090 lbs. per square inch for the paving block, while the strength of the building brick rose to 28,800 pounds per square inch, that is requiring a total load of 765,000 pounds to crush one brick.

The similarity in texture of the building brick here shown to that of the St. Louis vitrified shale brick of monumental strength, which was brought to your attention last year, suggests the possibility of reproducing the phenomenal record of the latter brick.



Slide No. 1.—General View of the Testing Laboratory at Watertown Arsenal.

the Testing Laboratory, to the end that there shall be ultimately accomplished a complete exploitation of the clay products of all sections of the country.

In reviewing this work it is gratifying to note that data has already been acquired upon material from a considerable number of the brickmaking states.

The results of the Watertown tests, as well known, are available in the annual reports of the laboratory, congressional documents for general distribution.

In considering these tests, attention is directed to the results which define the properties made use of in service, also to such other features as tend toward a future improvement of the product.

A number of diagrams were prepared, from which lantern slides have been made illustrating features of interest associated with the manufacture of or the use of brick.

A manufacturing feature which presents itself for early consideration is that of structural soundness and uniformity. In order to emphasize the importance of structural soundness, notwithstanding it is a feature with which all are familiar, several slides have been prepared showing end views of broken brick, in some of which there is exhibited a state of uniformity of structure, while others admit of improvement which should exert a salutary influence on the strength of the material.

First showing upon the screen a general view of the Testing Laboratory at Watertown Arsenal.

—Slide 5.—

These are common building brick, one an Illinois brick, the other made in Massachusetts. An improvement in structure would be accompanied by increased compressive strength in these examples.

—Slide 6.—

This slide shows the fractures of two vitrified paves. The interior fissures necessarily cause local weakness in their vicinity.

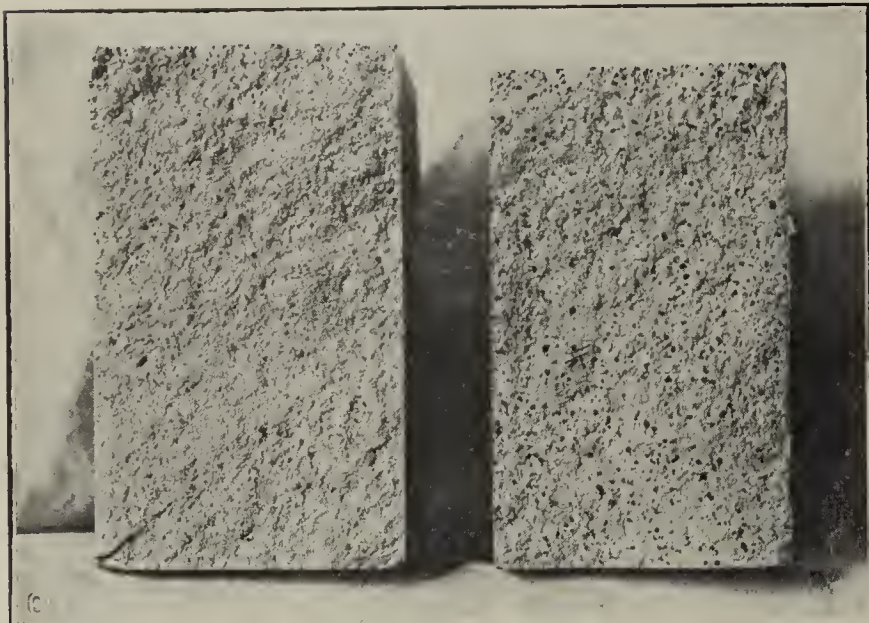
—Slide 7.—

This slide shows a departure from the conditions attending the brick of the previous slides. Swirls in the clay and interior voids are shown by one of these examples. The other brick, however, is dense and sound.

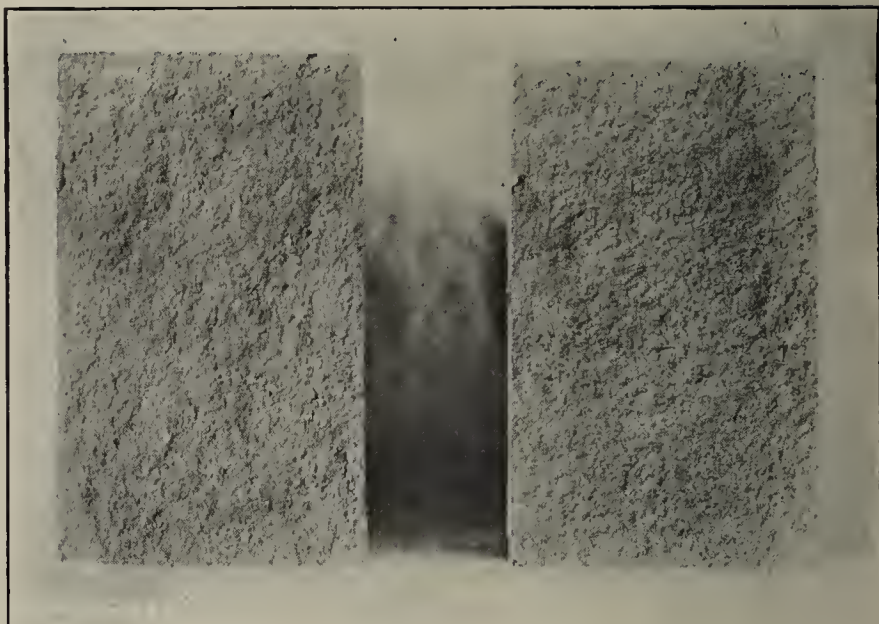
—Slide 8.—

Paving brick usually weigh more than building brick, the pavers here illustrated weighing from 140 to 148.3 pounds per cubic foot.

Hard burnt building brick occasionally attain these high values, as witnessed in the two on the present slide, one of which came from Cambridge, Mass., the other from Danville, Ill.



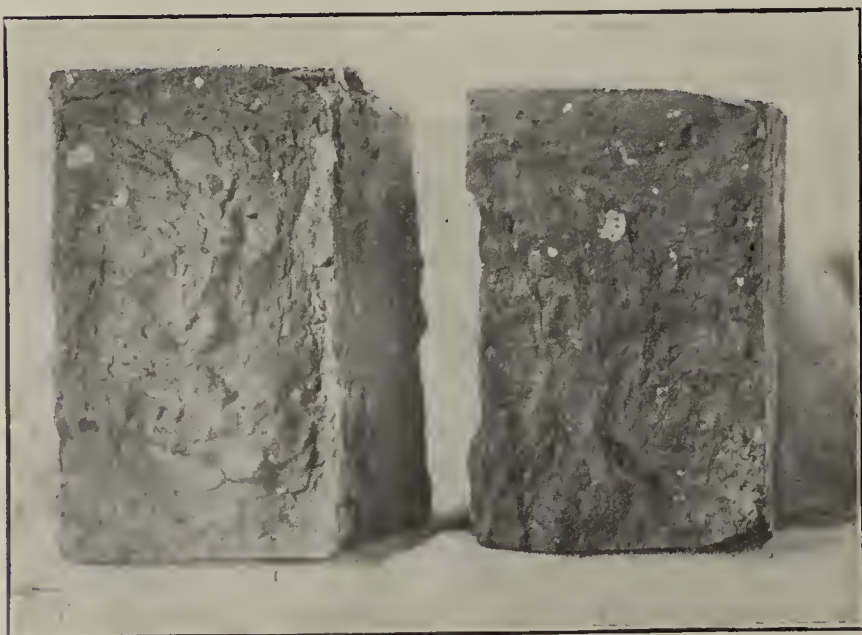
Slide No. 2.



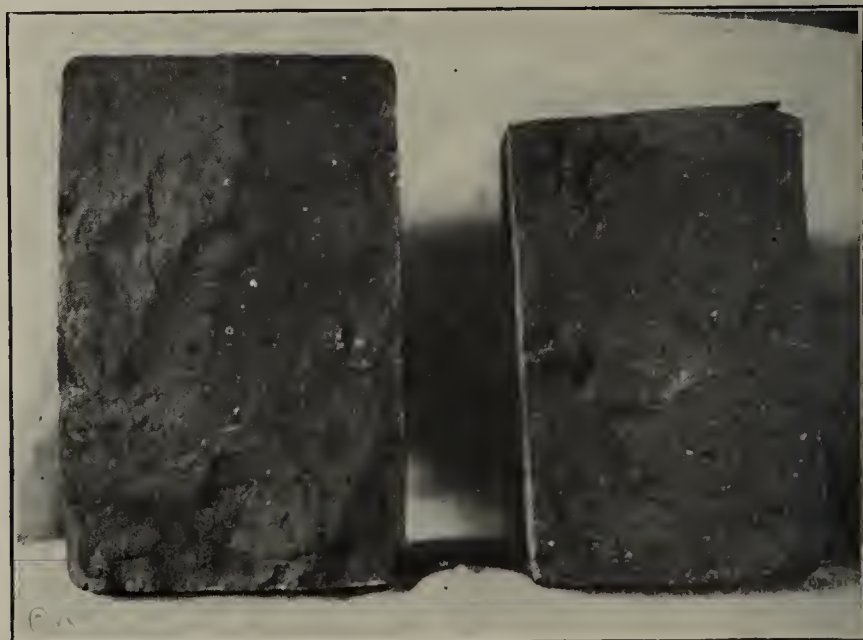
Slide No. 3.



Slide No. 4.



Slide No. 5.



Slide No. 6.

—Slide 9.—

The range in weight of certain of the lighter brick is now shown on the screen, where examples ranging from 100 pounds per cubic foot to 135.4 appear. These figures are not intended to stand for maximum and minimum limits, but refer only to results which were obtained on the material last contributed by members of this Association.

—Slide 10.—

Different kinds of brick from the same manufacturer or different brick from the same kiln, according to position vary in weight, as now shown.

—Slide 11.—

Results corresponding to those on the next slide, are here shown on paving brick taken from different parts of the kiln.

According to the specific gravity determinations, the weight of a brick, if of solid material, should be found generally between the limits of, say, 157 to 171 pounds per cubic foot. Similarly the weight of unburnt clay was found at 167.8 to 172.8 pounds per cubic foot, that is in the vicinity of or a little higher than the burnt material.

—Slide 12.—

A comparison will now be made of the density of brick according to absorption taken by volume (not by weight) after immersion one week and then boiling, and by specific gravity determinations of the ground material. The figures on the screen



Slide No. 7.

show by the shaded portions the relative amounts of solid material in different brick, according to these two methods. The total volume of voids is represented by the open parts at the upper ends of the figures.

In each case the method by specific gravity showed more voids than found by the method of absorption. The specific gravity method appears to more reliably indicate the real quantity of material present. It may happen that interior voids will not be reached in the absorption test and therefore cause unreliability in the results, while unexpected voids might subsequently appear in the case of paving brick after a certain amount of wear. A very close correspondence in results by these two methods was found, however, in salmon brick, and this may be true of light and porous brick in general.

—Slide 13.—

The modulus of elasticity is a value which represents the rigidity of the material, and in reference to these brick pertains to their elastic compressibility when loaded. The more rigid the material the higher the modulus.

Brick commonly increase in rigidity as they increase in strength. The present slide shows values of certain brick and some cement mortars as well as the value for plaster of paris.

It will be seen that the modulus of the most rigid brick corresponds closely with that of the 1:1 cement mortar.

These values are brought together on the same slide to show what would be a suitable mortar in laying hard brick in order to provide for satisfactory cushioning and even distribution of the loads on the beds of the brick.

To attain full strength in a brick pier the quality of the mortar must be considered. Strength is sacrificed by the use of a lean mortar, and lime mortar in particular is to be avoided when strong work is desired.

—Slide 14.—

The higher values of the moduli of the face and the paving brick illustrated on this slide are not met by any corresponding values available in the cement mortars. Nor by the use of a neat cement. In this is recognized a factor tending to restrict the development of strength in brick work by reason of the imperfect cushioning action of the mortar.

The crushing strength of individual brick not infrequently reaches the zone of 15,000 to 25,000 pounds per square inch, and of this strength a considerable part is available in a pier, but a still larger proportion might be realized provided an entirely satisfactory mortar could be found.

—Slide 15.—

Advantage may be taken of modified methods of laying the brick over the common way of laying them, flatwise and breaking joints every course. The diagram now on the screen illustrates how increased strength was attained in this manner.

The pier with brick laid in the usual way had an ultimate strength of 321.7 pounds per square inch, which was successively raised to 5,055 pounds per square inch by changes in the manner of laying, the highest strength being displayed when the brick were laid on edge with joints broken every three courses.

—Slide 16.—

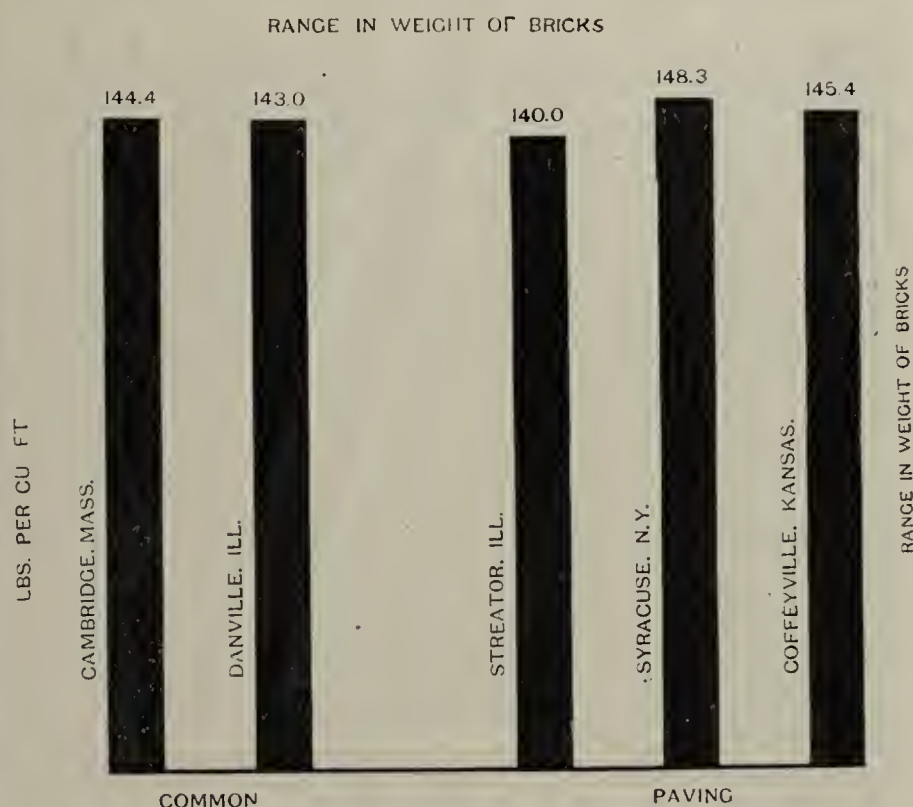
Brick are elastic, taken individually, and likewise piers display elastic properties. They shorten when loaded and spring back, in whole or in part, when unloaded.

The present slide shows the compression curves of two piers, one of which is slightly more compressible than the other, but each one a comparatively rigid pier.

—Slide 17.—

A less common type of fracture is shown by this pier, which was photographed before removal from the testing machine. Brick in some of the middle courses failed by direct crushing.

Accompanying the illustrations which have gone to make the lantern slides, there is furnished the tabulated results herewith which comprise those piers which have been tested since the last published report of the Watertown tests.



—Slide 18.—

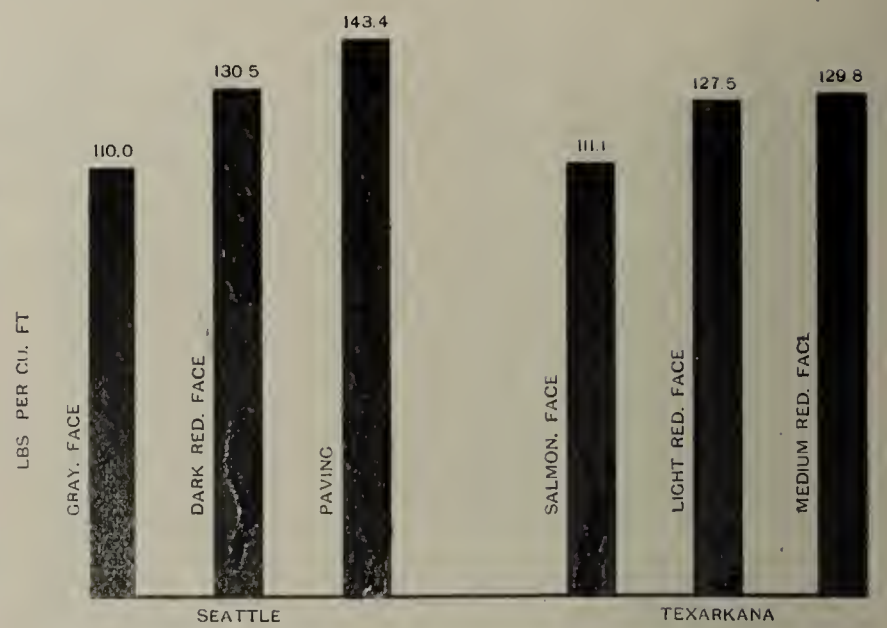
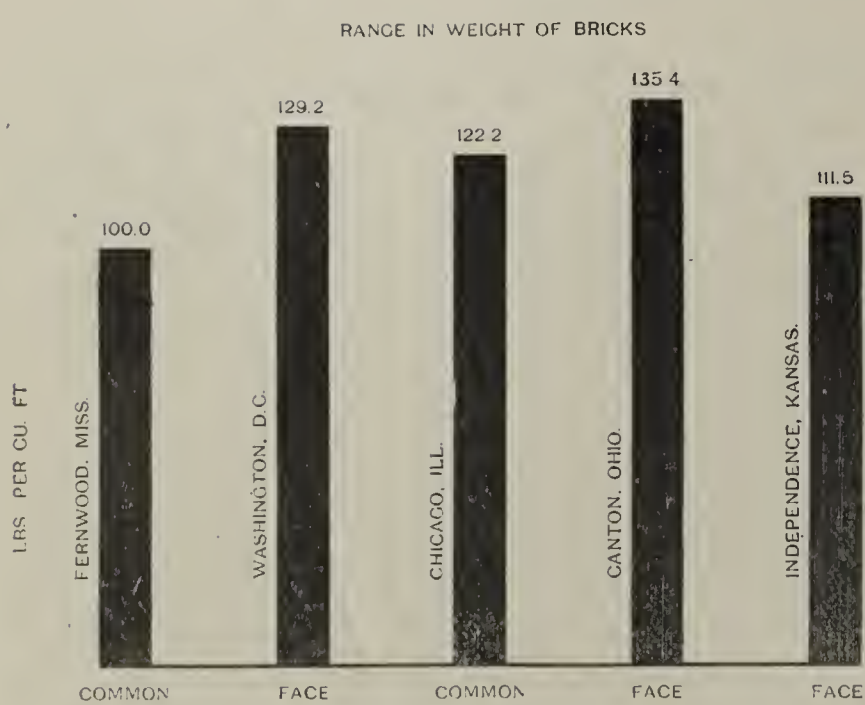
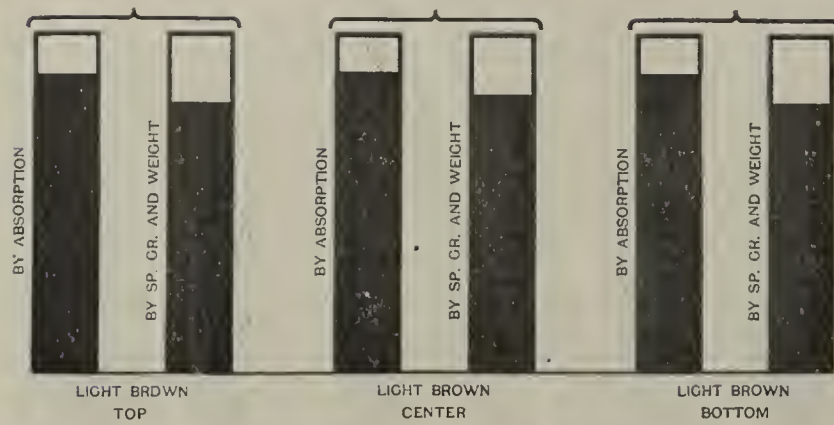
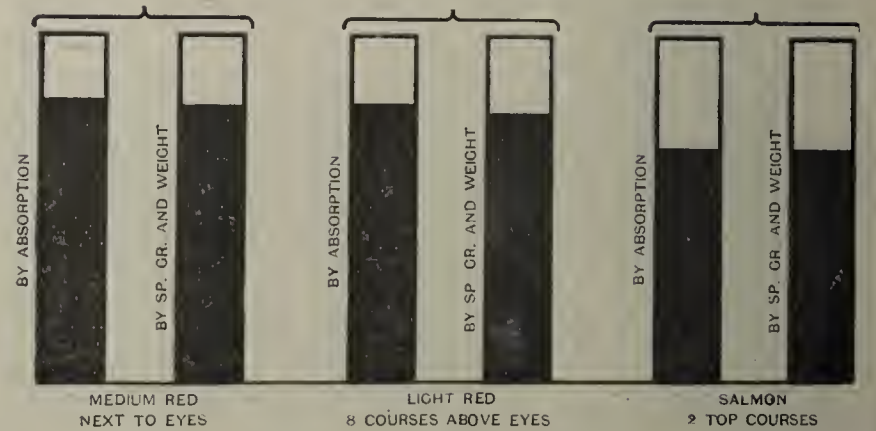
A common type of fracture is shown by this side. A longitudinal fracture extends nearly the full length of the pier. (Applause).

General Discussion.

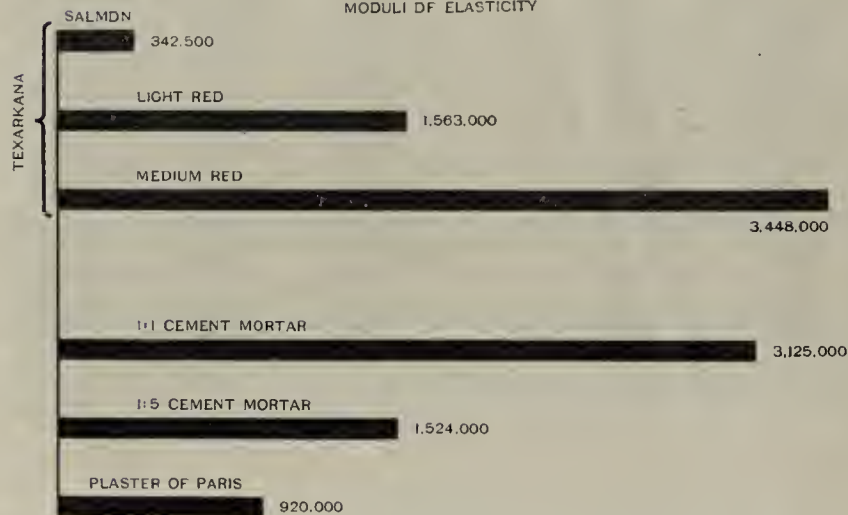
Vice-President Blair: If there are any questions any one desires to ask Mr. Howard, we will be glad to hear them now.

Prof. R. C. Purdy, Columbus, Ohio.: Of the many illustrations shown by Major Howard, No. 12, I believe it was, was of greatest interest to me, in that it displayed graphically the discrepancy between the amount of pore or void spaces, as determined by the ordinary water absorption methods, and the amount of void spaces that actually are present in burned brick. For the past two years I have devoted considerable study to structural peculiarities developed in clays, when formed into brick and burned at various temperatures. I have determined that there has yet to be found a clay, unless it be the flint fire clays, which does not, on vitrification, develop sealed pore spaces into which water can not be forced to enter. This is true of the plastic fire clays, which retain an open structure, even at the highest temperatures obtained in practice, as well

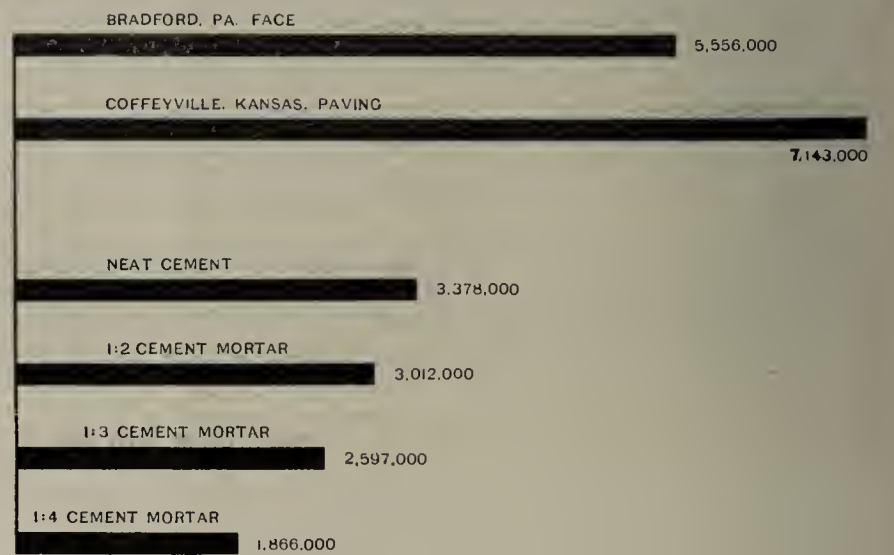
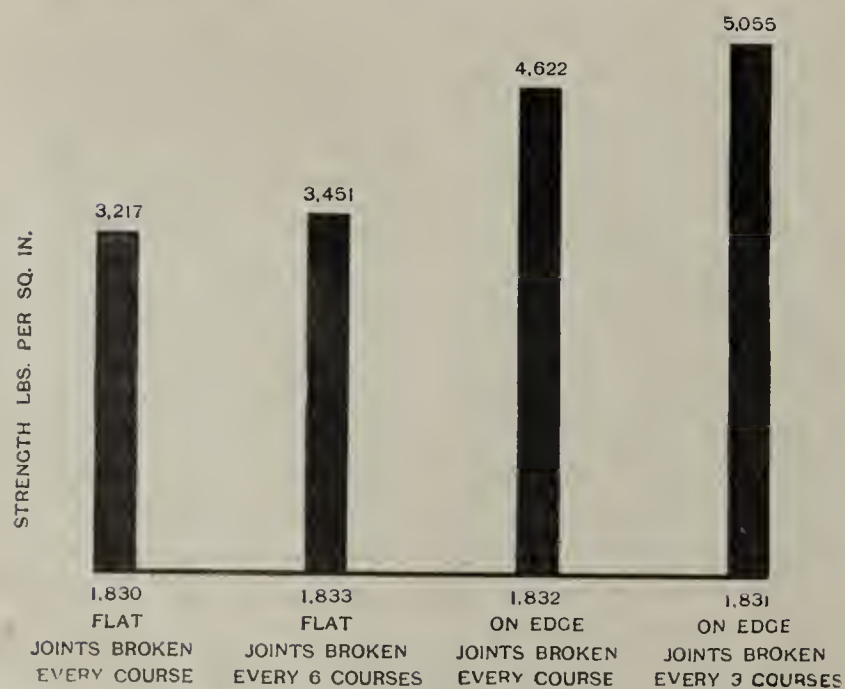
RANGE IN WEIGHT OF BRICKS

COMPARISON OF DENSITY OF BRICKS,
FROM DIFFERENT PARTS OF EUDALY KILN
ZANESVILLE PAVING BRICKCOMPARISON OF DENSITY OF BRICKS,
FROM DIFFERENT PARTS OF KILN
TEXARKANA FACE BRICK

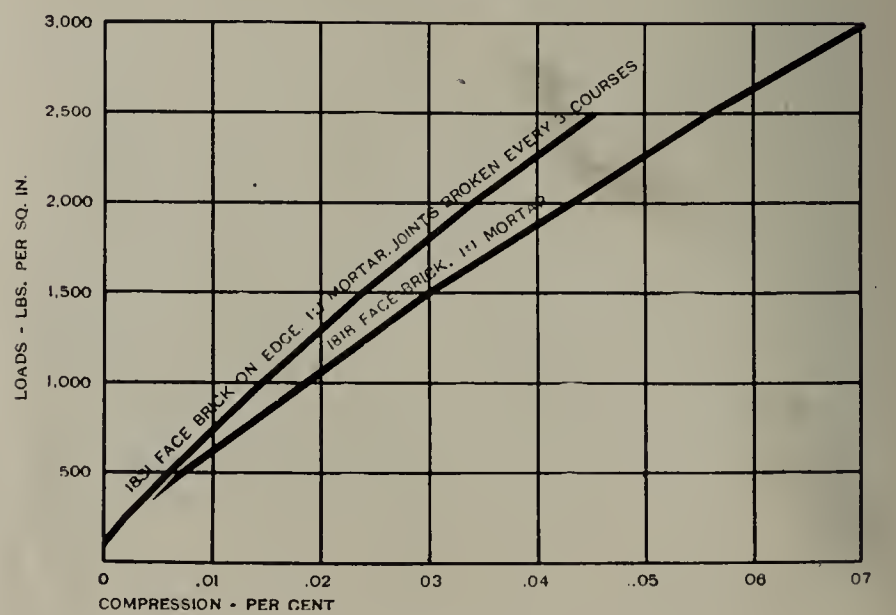
MODULI OF ELASTICITY



MODULI OF ELASTICITY

BRICK PIERS
LAID IN 1:1 CEMENT MORTAR

BRICK PIERS



Reading Across, Slides Nos. 9 to 16, Inclusive. See Paper, "Some Tests of Brick," Page 269.

as of the clays which vitrify at comparatively low temperatures. It has been shown also that shales and clays vary directly in quality as paving brick materials with the extent to which these sealed void spaces are developed.

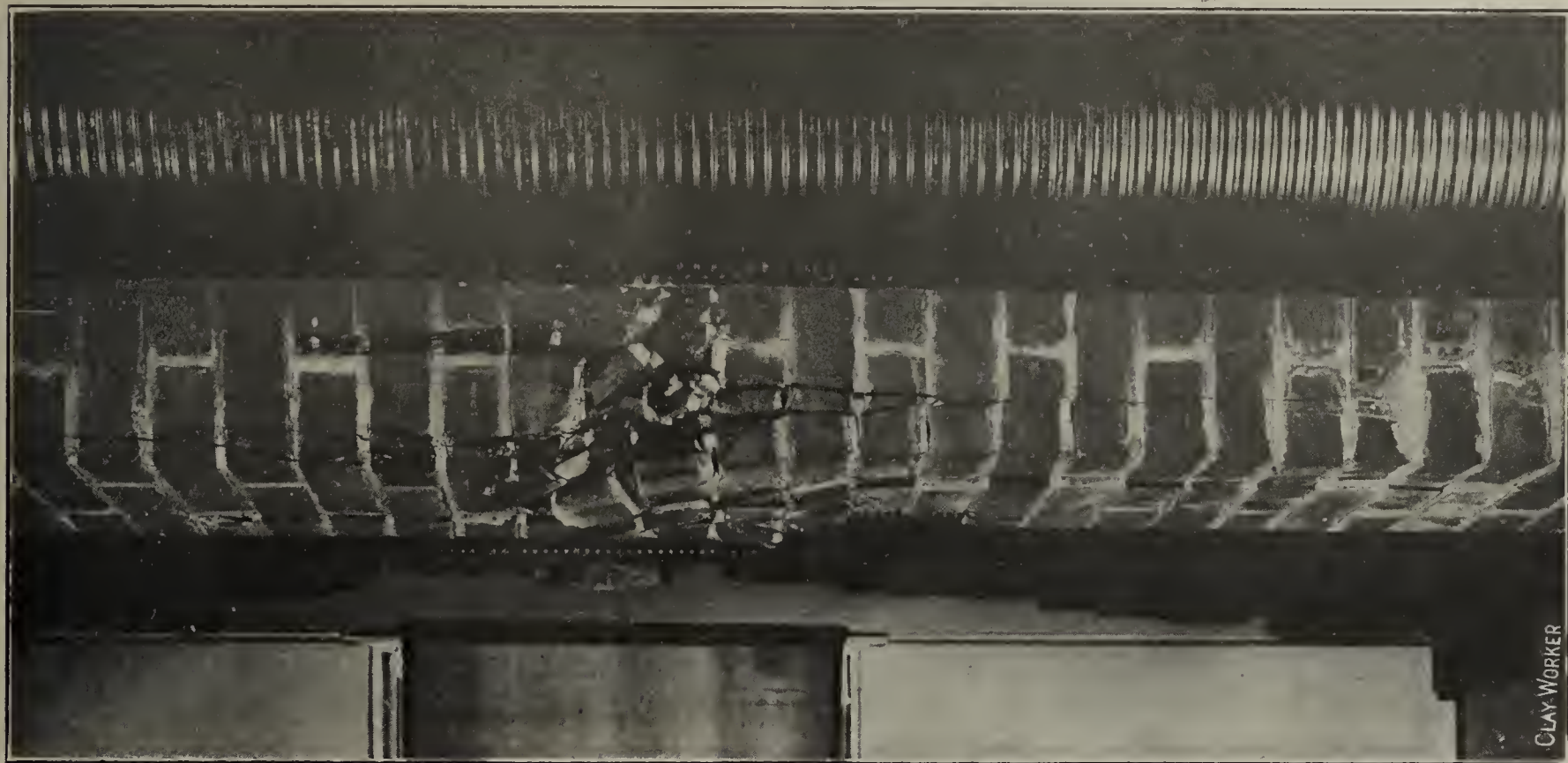
In ordinary vitrified brick, these sealed pores are not evident. On yards, these sealed pores become evident only when the brick begin to swell. This swelling of your brick, by too rapid burning or by too high a heat treatment, I feel sure, has been observed by you all. Prof. Orton, in his scholarship reports to this association, has presented photo illustrations of such cases. Our local men, and I see them smiling now, as I recall this to their minds, have seen this development of sealed pores, to the extent that nearly all the top courses in the kiln became so sponge-like that they would float in water. Now this development of spongy structure resulting in floatable brick is simply the extreme of what occurs with all clays when burned, and which, as I have elsewhere demonstrated, begins long before the brick have attained normal vitrification.

In illustration No. 12, Major Howard has shown the extent of this development of sealed pores in a given case in a very striking manner. He has shown the relative volumes

chanically by, or generated in the fused semi-liquid portion of a vitrifying brick, that gas is going to expand as the heat increases. When the brick cools, the gas will contract, but the thick, viscous, or heavy molasses like fluid will retain, when cooled, very nearly the same volume and shape that it had when in the most expanded condition.

The hardening in the early stages and vitrification of brick in the last stages of normal burning are direct results of the formation of this thick viscous fluid, cementing or holding into definite position the unfused particles. It is proper to conceive of a burned brick as a mass of unfused mineral particles, cemented and held into position by material, which, when the brick are under fire, is a thick flowing fluid, known technically as a viscous, molten material. Relative refractoriness of different clays depends upon the (a) relative amounts, (b) rate of formation, and (c) character of this fused, or semi-liquid, or molten material. In like manner, the range in time and heat treatment between incipient vitrification and fusion is dependent upon the amount, rate of formation and character of this fused material.

This is nicely illustrated by the fact that two fire clays,



Slide No. 17.

of the solid and void portions of brick; first, as determined by the old absorptive method, and then again, by the method which might be styled as difference between the true and apparent density of the solid portion. He shows clearly by what he calls "eyes" the difference between the open, or water permeable pores, and the total pore spaces. The difference in areas shown in the "eyes" in the two columns in Figure 12 is a measure of the pores into which water can not enter.

In technical terms these sealed pores are known as vesicular pores, and the spongy structure as vesicular structure. Vesicular pores are not caused to a very large extent by the sealing off of spaces that were originally open to water, but mainly by the intrapping and consequent expansion of evolved gases. The evolved gases are from two sources; first, the easily disengaged constituents, like the carbonic acid gas from carbonate of lime, etc., and second, the more easily vaporized constituents, like the alkalis, etc., from the fused, or molten portion, of the clay.

Now, obviously, if there is a gas particle intrapped me-

having almost identical appearance and ultimate chemical composition, will behave so radically different in vitrification that one will assume a dense, almost vitrified body, at Cone 8, and be serviceable for stoneware manufacture, and the other remain very open in structure, and be serviceable for refractory purposes. Again, take two shales, one will vitrify so rapidly as to make it a dangerous proposition to approach vitrification under normal yard conditions, and the other will vitrify so gradually as to make it perfectly safe to attempt the vitrification of over ninety per cent. of the whole kiln. These two shales may be almost identical in physical appearance and chemical composition, and yet, owing to the difference in character of the material which fuses, and constitutes the molten cementing bond in each case, we have the radical difference described.

If time permitted, I could collect data which would illustrate such cases as just described. I could also present data which would show that the cementing bond in different clays differs not only in the rate of formation and in fluidity, but also in the amount or extent of vesicular structure which is

developed in each case. This development of vesicular structure in the cementing bond, is, as described in the case of rate and extent of vitrification, not dependable, or, as we say, is not a function of the chemical composition of the clay as a whole. It is a function simply of the composition and mineral character of that portion of the clay which fuses first, and forms this viscous molten cementing bond before described.

It is out of question to enter into a discussion of the difference in relative fusibility, viscousness and apparent density of mixtures of same chemical but different mineralogical compositions, but it is pertinent to this discussion to state that the fusing behavior and character when molten of such mixtures have been found to vary variously with differences in mineralogical composition, even when the total chemical composition was the same.



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Now, if it is true, as Mr. J. K. Moore and myself tried to show in a paper read before the American Ceramic Society last year, that the usefulness of clays for paving brick depends directly upon (a) the rate of formation, (b) the fluidity of, and (c) the extent of developed vesicular structure in the cementing bond; then it is evident that the chemical composition of a clay can not be taken as a criterion or test of its paving brick possibilities.

Further, because the ordinary absorption test measures only the open, or water permeable pores, it is, as has been explained, true that this test in no way indicates the structure of the vitrified brick, simply because it leaves out of consideration the sealed or vesicular pores. Since the vesicu-

lar pores are just as (if not more) potent in their detrimental effect on the ultimate strength of a brick, it is proof conclusive that our absorption test for paving brick is also worthless as a criterion in determining the relative value of brick made from different clays. For brick made from the same clay by the same method absorption is, however, a serviceable test, but under no consideration should it be applied to brick made from different clays.

In a paper read before you two years ago, and published in our proceedings, Prof. Orton discussed a case in which not only the detrimental effect of these vesicular pores, but also the value of absorption test on brick made from the same clay and by the same method, but burned to different degrees of hardness, was nicely illustrated. The case in question was paving brick made at Portsmouth, Ohio. Prof. Orton's conclusions were, in part, as follows:

First. That this clay, under manufacturing treatment given by this company, reaches its maturity as regards toughness and ability to resist impact and abrasion, at an absorption of about five per cent.

Second. That at this stage, its color is still light red, and its fracture far from vitreous, and it would be condemned by most engineers and most paving brick manufacturers as "too soft."

Third. That no important or consistent gains in strength or toughness are found on burning the material harder, through the dark red and chocolate colored stages, where the absorption falls below one per cent.; but neither is there any marked falling off. The gains in density and hardness offset the losses by increased brittleness, so that rattling losses remain about uniform during this period.

Fourth. Burning beyond the chocolate colored stage is invariably a source of deterioration. The hardness and density reach their maximum, while the clay is still dark red. Brittleness continues to increase, and with it a vesicular structure begins to appear, so that the brick fails both by breaking, chipping and wearing. The percentage losses on rattling do not increase as rapidly from over burning as from under burning, but the percentage of broken brick increase very much more rapidly, and they are a very serious cause of street failure.

In a lengthy paper presented by myself to this association, the publication of which has been delayed in order to incorporate it into a report on the same topic, by the Committee on Technical Investigation, I showed curves of mineral brands of paving brick, illustrating rapid deterioration in rattler strength after having attained a hardness measured by five to ten per cent. absorption. In fact, the cases cited by myself exhibited, as W. D. Gates, I am sure, would put it, "the deteriorating disease," after having attained incipient vitrification, whereas, the case cited by Prof. Orton only had the symptoms of deterioration.

Now, since the density, or, as Major Howard has called it, "the apparent specific gravity," of a brick is a measure of the weight per unit volume of the water-impermeable portion of a brick, inclusive of the sealed pores, it is evident that specific gravity test, in itself, notwithstanding the opinion of a very large number of engineers to the contrary, tells us very little. If we proceed, however, as Major Howard did, by crushing the brick to fine powder, thus eliminating the sealed pores, and then determining the density of the solid portion thus crushed, we will have a standard by which, with the aid of the apparent density data, to figure the extent to which vesicular or sponge-like structure has been developed in a given case. This Major Howard evidently did, and represented his findings by differences in areas of the "eyes" shown in Figure 12. In one case, the one on the left, as I remember it, represents the volume of open pores by the area of the "eye" shown; and, in the other, the one on the right, the open plus the sealed pores by a larger

"eye". The difference between the area of these two "eyes" then, represents the volumes of the vesicular pores developed in the normal burning of this particular brick, which, as I understand it, is a particularly good paving brick.

I failed to catch in full the conclusion he drew as to the effect of these sealed pores on the strength of the brick, but I am confident that he has or will find that the crushing strength is, to a very large extent, a function of vesicular porosity. I know that this is the case in regard to brittleness and impact strength.

In conclusion, I want to state that the very facts which Major Howard has presented to us in connection with Figure 12, and those which I have been discussing are, to a very large degree, determinable by a simple firing test, which I developed and used two years ago, and which has been used by Prof. Bleininger in some very valuable researches reported by him and his associates to the Ceramic Society this year. It amounts simply to the manufacture of briquettes from clay to be tested and burning three each at several successively increasing intensity of heat treat-

through Major Howard's efforts at Watertown, Mass. When the Committee on Resolutions submits its report, we will have a resolution offered looking toward the further investigation along the line of publicity which will be of benefit not only to the members of this Association but to the building public generally. The facts that have been brought out at this convention and also at the St. Louis convention are very gratifying to us, but we want the building public at large to get the benefit of these things, and when they do, we will see that cement products and other forms of structural materials will not make any inroads upon brick structures, and the property owners and the building public will be saved disastrous experiments in the way of using other building material than burned clay. If we keep up these experiments under Mr. Howard's supervision, I think the country will see the advisability of using burned clay and will be benefitted thereby as well as ourselves. (Applause.)

Vice-President Blair: I would like to hear from Mr. Hunt, of Cleveland, on this question. I know it is a matter to which he has given much study and attention.

No. of Test	Description of brick and pier.	Pier laid in	Age		Compressive strength Lbs. per sq. in.
			Mos.	Days	
1815	Repressed brick, New England Brick Co. Tested flat. Hollow pier.	1 cement, 3 sand	24	0	2,176
1782	Wire cut brick, Dover, N. H. Tested flat. Hollow pier.	Neat cement	2	0	3,435
1816	Wire cut brick, New England Brick Co. Tested flat. Hollow pier.	1 cement, 2 sand	24	0	3,262
1820	Wire cut brick. Tested flat. Hollow pier.	1 cement, 1 sand	5	22	2,300
1822	Wire cut brick, Soco Brick Co. Tested flat. Hollow pier.	1 cement, 1 sand	3	8	3,178
1826	Wire cut brick, Soco Brick Co. Tested flat. Solid pier.	1 cement, 1 sand	3	6	2,896
1827	Wire cut brick, Soco Brick Co. Tested flat. Solid pier, joints broken every six courses.	1 cement, 1 sand	3	6	2,954
1821	Sand struck brick, I. L. Stiles & Son. Tested flat. Solid pier.	1 cement, 1 sand	3	0	2,869
1828	Sand struck brick, I. L. Stiles & Son. Tested flat. Hollow pier.	1 cement, 1 sand	3	4	2,578
1829	Sand struck brick, I. L. Stiles & Son. Tested flat. Solid pier, joints broken every six courses.	Lime mortar	3	4	730
1823	Sand struck brick, Stiles & Hart. Tested flat. Solid pier, core filled with brick on end.	1 cement, 1 sand	3	10	3,433
1824	Sand struck brick, Stiles & Hart. Tested flat. Solid pier, core filled with half brick.	1 cement, 1 sand	3	9	3,281
1825	Sand struck brick, Stiles & Hart. Tested flat. Solid pier, joints broken every six courses.	1 cement, 1 sand	3	10	3,000
1817	G. W. B. Co. Tested flat. Hollow pier.	Neat cement	5	24	4,243
1818	G. W. B. Co. Tested flat. Hollow pier.	1 cement, 1 sand	5	21	4,277
1819	G. W. B. Co. Tested on edge. Hollow pier.	1 cement, 1 sand	5	21	3,538
1830	Wire cut face brick (cream colored). Tested flat. Hollow pier.	1 cement, 1 sand	2	16	3,217
1831	Wire cut face brick (cream colored). Tested on edge. Hollow pier, joints broken every three courses.	1 cement, 1 sand	2	16	5,055
1832	Wire cut face brick (cream colored). Tested on edge. Hollow pier.	1 cement, 1 sand	2	21	4,622
1833	Wire cut face brick (cream colored). Tested flat. Hollow pier, joints broken every six courses.	1 cement, 1 sand	2	21	3,451
1779	Johnson's paver. Tested on edge. Hollow pier.	1 cement, 2 sand	Days	Hours	
1763	Sand cut paver. Tested on edge. Hollow pier.	1 cement, 2 sand	0	44	2,447
			7	0	3,295

Table Showing Results From Piers Tested Since Last Published Report of Watertown Tests.
See Paper "Some Tests of Brick," Page 269.

ments, and from these briquettes determining the rate of decrease of the open pores, rate and extent of increase of the sealed or vesicular pores per rate of burning. By this method I have been able to judge and classify clay, where fusion test, chemical analysis, etc., have failed.

Vice-President Blair: We will be glad to hear from Mr. Sibley on this question.

Mr. John W. Sibley: I do not think that I can add anything to what Mr. Howard has said. The actual tests and experiments given speak louder than any words or theories that might be advanced on the subject. Mr. W. D. Gates and I are representatives of this Association as appointees of President Roosevelt on the National Advisory Board of Fuels and Structural Materials, and the Government has indicated the purpose to undertake under this head the investigation of all structural materials. So far the work seems to have been devoted almost exclusively under the supervision of the Geological Survey toward the testing of cement products. Clay products have not yet been taken up. The only work we have had done along this line has been

Mr. Wm. H. Hunt: I have been much interested in Mr. Sibley's remarks, and I was also much interested yesterday in Mr. Wheat's illustrated article touching upon the use of cement in building construction. There may have been presented to our Association at some time when I was not present, some comparative tests showing the conduct of sand-lime and sand and cement brick. At some of our previous conventions we heard a great deal about these products. I personally feel a very keen interest in having Mr. Howard, if he will, give us any information he may have touching upon what has been the conduct of sand-lime and sand and cement brick in comparison with burned clay products.

Mr. Howard: The crushing strength of sand-lime brick has been found to range from 2,000 to 2,500 pounds per square inch, to 5,000 pounds; very rarely, however, has it reached the latter figure. In the form of piers, the highest strength, as it now occurs to me, has been about 1,500 pounds per square inch. That was sand-lime brick laid in neat cement. The materials named range within these limits, which are not high as compared with burned clay. (Applause.)

Mr. Hunt: That answers my question very satisfactorily. In this question of comparison tests, Mr. Howard has very kindly conducted a number of interesting experiments for the company with which I am connected. I remember one where he made a report of one of our brick showing the maximum load at the machine, which I believe was 2,500 pounds to the square inch, without showing a fracture. I had some literature prepared using that statement as I thought it a good advertisement, but I consulted a very able architect and engineer who made me appear very ridiculous when he showed me it was very rarely ever, in fact hardly possible, that there would be an occasion when any brick would be called upon to stand any such weight. The actual weight a brick is called upon to stand in the structure, as compared with these figures, is very small, and a well known Cleveland architect maintains that it is not so much what a brick will stand in weight, as it is to have the particles absolutely uniform and homogeneous. Am I correct about that Mr. Howard?

Mr. Howard: Yes, sir.

Mr. Hunt: May I ask you to state, Mr. Howard, what is the ordinary minimum load a brick is called upon to stand in the wall.



George O. Berry, Columbus, Ga.

Mr. Howard: This last question I think can hardly be answered by me, and possibly information is not available that would enable it to be answered. Many considerations come up to modify the actual load which is received by brick, so that I should hardly venture to express an opinion. My recollection is that certain of the cities have building laws which limit the loads upon piers to fifteen tons or twenty-five tons per square foot, very low, it would seem. I might add an incident which came to my notice recently, in which the architect was evidently on the safe side; some residences were being built in which the factor of safety was about ninety-four, which is rather in excess of any other class of building material with which I am familiar.

Vice President Blair: If there are no further remarks upon this subject, the Secretary will announce the next.

Secretary Randall: I think it will be well now to go back to the first paper on the program for this morning, "Our Inland Waterways and Their Influence on the Clay Business," by Mr. J. W. Robb, Clinton, Ind. Will the "gentleman from Indiana" please come forward.

Mr. Robb: Now that we are talking about wet and dry territory I am afraid you will find my paper a little dry, but the subject is surely wet enough for you. (Laughter.)

OUR INLAND WATERWAYS AND THEIR INFLUENCE ON THE CLAY BUSINESS.

BY J. W. ROBB, CLINTON, IND.

Mr. President and Gentlemen of the Convention:

Transportation problems have confronted the American people since the landing of the Pilgrim Fathers. During the earlier years of American history the locomotion of the country was by wagon overland, and by the then navigable rivers and lakes. The slow development of the earlier ages of our growth was during this period. At the beginning of the eighteenth century, and almost a century ago, railroad building was started in Europe, and simultaneously in a crude way in America, the first railroad being built in America in 1826 to carry granite from Quincy, Mass., to the site of Bunker Hill monument, and was four miles long. In a few years railroads began to traverse our fertile lands, and to give us a faster means of locomotion. This change of conditions and the attraction of the steam engine puffing across the country caused the American people to begin to neglect their water ways, and quite a number of the minor streams that had been arteries of commerce became neglected almost to the point of abandonment.

With the beginning of the increase in commerce and the busy marts of trade, during the first years of the twentieth century, it became necessary to look to other methods of transportation than our railroads, and men of broad minds began to turn their attention to the neglected streams and lakes as a means of relieving the congested traffic of the railroads. The first convention to consider the deep waterways from the Great Lakes to the Gulf was called to meet in St. Louis in November, 1906. This meeting was largely brought about by Hon. James E. Ransdall and the Hon. Wm. Lorimer, who conceived the idea of a waterway from Chicago to the Gulf, using the Chicago drainage canal, the Illinois River, and then the Mississippi River to the Gulf. The work began at this time had its influence on the country in awakening an interest in the project. Previous to this time river and harbor improvements had had no definite plan, and were only done by mere patchwork and without system. We find in turning to history that such men as Albert Gallatin, in 1808, had favored a system of improvement of our valuable waterways, as had Thomas Jefferson, Abraham Lincoln, U. S. Grant and James B. Eads, but for lack of system, want of enthusiasm, or neglect all were allowed to die of inanition. Today we are facing a problem of means to transport the product of our farms and mills to market.

American farms produced in 1907 the following:

Corn	\$1,375,000,000
Wheat	531,000,000
Oats	333,000,000
All other products.....	1,717,000,000
An increase in value over 1906 of....	324,000,000

This great increase, as well as a like increase of the mills and mines, necessarily means an increase of transportation facilities, and we find also that this increase is out of proportion to the increase of the transportation facilities provided by the railroads of this country. The speaker does not believe that the railroads have not sufficiently felt the press of business, but on the contrary believes they have fully realized the necessity of the country and that they have used all reasonable efforts to prepare for this increase, but it is out of proportion to their ability, not only to finance, but to find labor to prosecute. James J. Hill tells us that from 1901 to 1906 commerce increased twelve per cent. per annum, while railroad trackage only increased two per cent. per annum. He also advises us, as do other great railroad managers, that neither the money or labor can be had to build railroads to keep pace with this wonderful growth, and advises the American people to turn to the improvement of their waterways for transportation to get this necessary relief.

The increase of railroad building for a period of forty years we find as follows:

In 1870 the total mileage of railroads was	52,898
In 1880 the total mileage of railroads was	93,671—7.70% increase
In 1890 the total mileage of railroads was	163,597—7.46% increase
In 1904 the total mileage of railroads was	213,904—2.19% increase
In 1906 the total mileage of railroads was	220,000—1.45% increase

The increase diminishing in miles, while the shops and farms have all been handicapped for the lack of cars to move the ever-growing business of the country. In another table we find these startling figures:

	1895.	1905.	Inc. pct.
Total single track mileage..	180,657	218,101	21
Locomotives	35,699	48,357	35
Passenger cars.....	33,112	40,713	23
Freight cars.....	1,196,119	1,731,409	45
Passenger mileage.....	12,188,446,271	23,800,149,436	95
Freight ton per mileage..	85,227,515,891	186,463,109,510	118

This shows how persistently and successfully the increase in equipment has kept pace as nearly as possible with the commerce of the country, but during this same period the commerce of the country has increased 110 per cent. Under these conditions the shipping public have been inclined to condemn railroads and railroad management for not providing sufficient facilities to move this vast amount of business. embarrassing the railroads by many new laws, many of which failed to bring relief, which has caused no little talk of government ownership, all of which can be avoided by the Government improving and owning, as she does,

our rivers and harbors, an undertaking which is wholly within her ability to accomplish, but the ownership of railroads is an impossibility to a country like the United States. With the rivers and harbors in position to take care of the business they would become competitors of the railroads and give relief in numerous cases, and thus become regulators of rates and the various other transportation difficulties that now are in the minds of the public. A look at the map will show us the possibilities of the waterways throughout this great country of ours. We will find almost every state of the Union having streams coursing through her fertile valleys that might be made into arteries of commerce by the judicious expenditure of money. The greatest undertaking, and the one that would give relief to the largest number of people, would be the improvement of the fourteen-foot channel from the Great Lakes to the Gulf, as we find in the territory tributary to the Mississippi valley fifteen states, with a population a little in excess of 22,000,000, or almost one-third of the population of the United States. It is estimated by competent engineers, that adding to the cost of the Chicago Drainage Canal, which was \$50,000,000, that of a fourteen-foot channel from Lockport to St. Louis, which would cost \$35,000,000 and deepening the Mississippi River from St. Louis to the Gulf, costing \$32,000,000, we would thus get a channel that would carry sea going vessels, without breaking bulk, from Chicago and all the great cities of the Mississippi valley to any point in the Gulf or on the eastern border of North America, and when the Panama Canal is completed, to the cities on the western slope of our country. When this great channel would be completed, traffic to the amount of equal to forty trains per day would float down this majestic stream at an expense of about one-third the ordinary railway charges.

We have often heard it argued that were the rivers made navigable it would cost millions of dollars to keep them navigable, but it has been said by a good authority that were only the same number of dollars spent per mile on the track of the railroads of this country that are spent per mile on the rivers to clean their channels and keep them in good condition for traffic, it would be impossible at the end of twelve months to operate trains over tracks so neglected. It is true that it has been argued that water transportation is too slow for the American people at the present day, but during the discussion of transportation problems the last year, it has been learned that railway freight cars only move from twenty-five to fifty miles per day, which would be much slower than many of the fast boats now operating on the lakes or great rivers. Then, again, we also find that of the large proportion of freight to be handled great amounts of it are of low value and could take longer time than is now used to transport it from one point to another. Thirty-five per cent. of the traffic of this country is worth less than \$1.00 per ton where produced, and seventeen per cent. less than \$2.00 per ton where produced, so we can readily see that 52 per cent. of the traffic of the country could be moved by rivers or lakes at almost any time and not embarrass the business interests of our country. This change of traffic from the rails to water would relieve the railroads to carry that class of business that desires swifter movement. Another great undertaking, and one that would be of great value to the eastern country, would be a waterway from Lake Erie to Pittsburg, that would carry the large boats that are now plying between Lake Superior and Cleveland, thus carrying the iron ores from the Lake Superior regions to Pittsburg in unbroken cargoes at a much less cost than they are now handled.

President Roosevelt in his great Memphis speech on October 3d, declared for a full and comprehensive plan in river and harbor improvement that would carry with it a series of appropriations that would be permanent and systematic, and one that would bring relief at the final end. This would not only include a fourteen-foot channel from the Lakes to the Gulf, a nine-foot channel from Pittsburg to Cairo, a six-foot channel from Minneapolis and Sioux City to St. Louis, but also the improvement of all navigable rivers, the drainage of swamp lands, the irrigation of arid lands, the preservation of the forests, and will save the soil wash to the highlands, of which we are told that 400 millions of tons of the richest soil stuff is now annually carried down the Mississippi river and emptied into the Gulf, not only depreciating the soil at the head waters, but filling the channels of the lower waters. The small amount of money expended on our waterways since records have been kept is astonishing. According to Congressman Burton only \$273,000,000 had been expended up to the close of 1906, while the Government of France in eighty years spent on her streams \$706,000,000 and almost any state in the United States contains as much area as France. Holland, Belgium and France have 18,920 miles of waterway in a land area of 559,000 square miles, or about one mile to every twenty-three square miles, so that the idea prevailing in this country at present and the great demand for waterway improvement has only to look to our neighbors across the Atlantic to see that they have profited by such improvements. A great and growing demand today is being spread to have the United States Congress appropriate fifty millions annually for ten years for this work of improving the waterways, which will in time increase the possibilities of this great country of ours to a point beyond the expectations of the most optimistic of us. In the last few days we have been informed that after eleven years spent in constant work, the Ohio River Improvement Association have now the promise that a bill will be recommended to the present Congress appropriating \$63,000,000 for the improvement of the Ohio River from Pittsburg to Cairo, giving it a nine foot channel that will enable it to carry a greater amount of freight traffic than it has in past years.

Referring again to the great problem of the Mississippi River, we find the flour producing cities of Minneapolis and St. Paul, and the great grain centers of the west, Kansas City, St. Joseph,

Sioux City and Omaha, where the numerous products of the fields of these vast states could be loaded on boats practically at their own cities and delivered in New York at a saving of freight of something like forty per cent. Estimates have been made by responsible and reliable parties that the comparisons between the cost of transportation by rails and rivers are as follows: Rails, 100 per cent.; rivers, about 36 per cent. of the cost of rails, and lake transportation about 20 per cent. of the cost of rails, so that when the American public have expended \$500,000,000 for these improvements, instead of having made an expenditure they will have made an investment for future generations and for the improvement and increase of the traffic of this country, which will become necessary before the end of the next quarter of a century, that will give us a great and undoubted relief.

As brick manufacturers, you are no doubt interested in what this will bring to us as a class, as it is our business to make and mold the building of cities, and as the foundation of all well regulated cities and towns are made in the brick yards of the members of this convention, these improvements spoken of will give rise to an increased business throughout the world, and will eventually bring to us the results of opening up new markets and new cities and towns to supply, beside giving us relief in the transportation facilities in which we have suffered more or less for the past five years. To those of you who are interested in the problem I will say, give the American brickmaker a chance and he will build your cities not only along lines of architectural beauty, but for time and future generations. (Applause).

The improvement of all our harbors and rivers will be a vast undertaking and one that will require capacity, honesty and integrity in its prosecution to a successful end, and knowing full well that great difficulties shall be encountered, I believe that Congress, when it makes its first appropriation, that a department should be organized to carry on the work, and in order that it should command the confidence of the whole people, I would suggest



J. W. Robb, Clinton, Ind.

that to close the work of a great man who should leave a monument more lasting than granite, that as the executive head of such commission I would name Theodore Roosevelt. (Loud applause.)

General Discussion.

Vice-President Blair: Gentlemen, I have no doubt all of you read more or less in regard to this very interesting topic in the daily press and in the magazines, and I must say, for myself, that I never have had anything brought to my notice that has given such a clear presentation of the whole question as this paper to which we have just listened, and I think it would be a good idea to suggest to some of the magazines of this country that we have among the brickmakers a man who can prepare an article much better than any of the articles that have been printed on the subject. Is there any discussion on this subject?

Mr. Bloomfield: The proposition has interested me very much. The past few years the impression seems to be that the railroads make better time than the waterways. My experience has been that we could ship by water and get to our destination in from one-fourth to one-half the time that we could by rail. I have in mind one case where it took three weeks to cover the distance I could cover in three or four hours by train. In the State of New Jersey we have two canals that had been rendered practically worthless by coming

into the possession of the railroads which had allowed the canals to get into bad repair. So far as transporting our materials by railroads go, we have little or no consideration for the manufacture or shipper so long as they have no competition, and this association should take some action that would come to the notice of the Government, so the United States could take up the question of inland waterways and canals. In New York they have an appropriation to increase the capacity of canals, but under that State government, nothing is being done, while the people are being robbed by the railroads, and they ought to be under the control of the United States government.

Secretary Randall: I anticipated there would be some discussion following this paper, touching on freight rates, a matter of great importance to the brick manufacturers of this country today. If there are any present who desire to take up this question, it was intended that it should be considered now.

Mr. Robb: In the short paper that I prepared I did not take time to discuss the transportation by rail, but those of you who are along water lines are well aware that you get much better rates where the waterways, the rivers or the lakes, parallel the trunk lines from one point to another. From New York to Chicago, for instance, the waterways have



C. P. Mayer, Bridgeville, Pa

their influence upon the trunk line rates. They have a much better rate than the city of Indianapolis, which is almost one hundred miles nearer New York than the city of Chicago, but has no competition with waterways. The same is true of the city of Cincinnati, where they have competition with the Ohio River as against the railroads. The river rates have their effect upon the railroads. From Chicago and the north, where we have Lake Michigan, we find our rates almost one-half what they are for the same distance when we are attempting to transport our articles at forty or sixty miles away from the lakes. So the question of water transportation, to my mind, will do as much for us as any legislation can possibly do for us, and one that will be more effective and more permanent than any legislation that we can inaugurate or have inaugurated.

Mr. Alfred Yates: I would suggest that we call upon Mr. James L. Breed, of Syracuse. He is able to ship by canal and also by railroad.

Mr. James L. Breed, Syracuse, N. Y.: We have had a little experience in the transportation business. Two years ago I found in my business that the canal was a benefit to the railroad and the railroad a benefit to the canal. Concerning the rates by water or by rail: At times, they do not exceed by one-half what they would by rail. At times, it may be a

fraction over, owing to the supply and demand of freight for the water. In our own locality we have the Erie Canal, and as has been stated here, wherever we can deliver by water, the railroads do not raise the rate, but wherever we can not, they raise it. So I am an advocate of the water route. In my locality, I am called a "canal man," and have been for a number of years, having been interested in canal transportation. In the State of New York, as you know, the people have appropriated \$100,000,000 for a canal between Buffalo and Troy. They have been at it for three or four years and I believe there have been three or four post holes dug on the line. (Laughter.) I do not expect to live to see it completed, and I may say there is hardly a child born today that will live to see it finished, for it is in the hands of a political ring. We cannot do too much in the way of asking the Government to assist us in the water routes.

Vice-President Crook took the chair.

President Gregory (speaking from the floor): Mr. Chairman, my plant is within sixty miles of the canal, and the canal helps me just the same. Last year I had occasion to ship to a point on the canal. I went to see the division freight agent, and he said, "What competition have you got?" I said, "My friend Breed has a plant right on the canal and he can ship at a very low rate, now you have got to do something for me." He considered a moment and said, "I will meet that rate for you," and he did and I got the job. (Laughter.)

Mr. Bloomfield: For twenty years I have been shipping clay by water two hundred miles to New York, and the rate was \$1.40. The railroad freight agent came along and said, "Bloomfield, we want some of your business." I asked him what his rate was and he said it was \$4.80 a net ton. I told him he was too high and before I got through with him he had cut it down to \$1.55 per gross ton. If we had not had the water, it would be \$5.10 per gross ton.

Vice-President Crook: I believe Mr. Cushwa could tell us something of interest on this subject.

Mr. Victor Cushwa: This matter of transportation is one of the most important subjects we have considered, and one that concerns us all, as shippers of heavy material. I have been in that class for a great many years. I live right along the Chesapeake & Ohio Canal, and have been a large contributor to it, so I will give you my experience. The distance from Williamsport to Cumberland is eighty-four miles by canal and about the same distance by rail. We got our clay from our mines to Williamsport for about 75 cents per ton. In 1889 they destroyed the canal and we had to depend upon the railroad for the same service and the rate was \$1.50 per ton. When the canal would close up on account of the severe winter after having been open all summer, the railroads would put up their rates. We are now approaching a time when we expect to have the canal open again winter and summer. I tell you it is a serious matter and one of the most important matters that confront the people of this country, and if we have our canals in connection with our railroads and electric roads, etc., we will get cheaper freight. Nobody knows better than the brick men, for they are shipping heavy materials. I know that the Erie canal makes a difference to the shippers in that locality. I agree with the gentleman that this scheme for the new canal would be much better if it were not under political management. It should be in the hands of a corporation, or private management would be still better. What we want is for every man, woman and child to advocate inland canals and railroads and electric roads, the more we get the better it will be for the people. Germany and France are advocates of inland canals. Inland waterways will have a great influence on the freight rate question.

Secretary Randall: One suggestion made by the "gentleman from Indiana" I do not want lost sight of. This question of inland waterways is one of great importance, but it will

take some time to get them, and until we do get them, we will do well to give some attention to what we can do in the way of legislative matters in regulating freight rates and railroads. I want to call your attention to the fact that Mr. Robb has discovered what to do with our retiring presidents. If we put Teddy Roosevelt on the waterway commission we will get inland waterways quicker than in any other way. (Laughter and applause.)

Mr. Eudaly: I trust such will be the result—at the same time I think we ought to allow President Taft the privilege of making his own selection. (Laughter.)

Secretary Randall: As it is necessary for us to put up with the railroads for some time, it might be well to consider the regulating of rates by rail. Mr. C. B. Stowe, of Cleveland, has given quite a great deal of time and study to this subject and can probably give us some information.

Mr. C. B. Stowe, Cleveland, Ohio.: There is no question but that the proper way to bring our railroads to time is to fix up our waterways, but, in some sections, we are located so that we can not have waterways, and at these points we will have to put up with railroad transportation.

I have been at work with the different traffic associations for six years on the question of brick rates. After giving us every consideration and jollying us along, we were completely turned down at a meeting in Buffalo about a year and a half ago, and were compelled to go before the Interstate Commerce Commission with our complaint.

The principal thing that we have contended for is, that they make one rate on all brick based on the cost of haul. In doing so I have incurred the enmity of the different branches of the brick trade, and the paving brick people have especially taken this to heart, on account of the fact that the railroads took the bull by the horns and raised the paving brick rates to a common basis, putting all brick on one rate, east.

I am not working alone for the fire brick business, as we make brick for all purposes, but am working for the whole brick interest. Years ago, the great oil interests, through their influence, got oil on one basis, and today a barrel of oil, whether it is worth \$2.00 a barrel or \$100.00, is shipped on the same basis. Cement is on one basis. Some years ago we had a rate on common cement and a rate on Portland cement. Today we have one rate on cement, and, whether it goes into a street pavement, side walk, a building, or a furnace, it goes on the same rate.

Freight rates for this territory are made on the basis of the Chicago to New York rate. Before the first of January this basis was, on fire clay brick, twenty-five cents per hundred pounds, building brick twenty-two and one-half cents per hundred pounds, and paving brick twenty cents per hundred pounds. We make fire clay brick for pavers, and ship some brick for buildings and for the fire brick purposes, and have been up against a hard proposition, as it is a question for which work the brick were afterwards used, although generally ordered on the paving brick basis. According to the Hepburn bill, if we shipped a car of fire clay brick for paving, and they were afterwards used for furnaces, we were subject to a fine. If we billed it as fire brick it would take the twenty-five cent rate; if we billed it as building brick, twenty-two and one-half cent rate, and if billed as paving brick a twenty cent basis. This has made it difficult for us to be honest and live up to the law, as some of our trade has gone so far as to ask us to ship ground fire clay as paving brick, although fire clay is the basis of one-half the building and paving material made. This raw material, which is not worth one-quarter the price of the finished material, takes a higher rate, and it is not right that brick rates should be fixed in such a manner as to make such confusion and irregularity in our rates. If the paving brick interests can not stand a higher rate than twenty cents per hundred, rates on all brick should be made on that basis.

There is no commodity which can be hauled by railroads cheaper than brick, still they pull grain products, Portland cement, and other commodities of a higher value, at much lower rates. Portland cement is hauled on a basis of fifteen cents, New York to Chicago; grain products on a seventeen and one-half cent basis, Chicago to New York, and whether it is a carload of raw oats or a carload of oatmeal, put up in packages, it goes by the same basis. Both of these products are on a lower basis than brick, and of a higher valuation. We believe the whole brick interest is being discriminated against in rates. We believe it is up to the Association of Brick Manufacturers to work together and have the brick interests treated like the food product interests and other large interests, whose tonnage and cost of haul is no more.

This was why we went before the Interstate Commerce Commission, and the decision of the commission is one of the clearest decisions they have ever made, and one of great interest to all brick manufacturers. In the hearing of this case the testimony brought out that brick rates were made on conditions, and the conditions were that rates were made on the amount the traffic would bear. The decision of the commission shows that classification must be based upon a real distinction from a transportation stand-



C. B. Stowe, Cleveland, Ohio.

point, and that they can find no such distinction between the three classes of brick. There is no reason why we should not have as low a basis as other commodities, and if it is a matter of revenue to the railroads, the brick manufacturers should not be made to pay, by higher rates, revenues the railroads are losing on commodities, such as oats, breakfast foods and Portland cement. We should all be on the same basis, and a common basis, and the basis should be the cost of haul.

This is President Roosevelt's plan of doing business, treating all different interests alike, and I think the National Brick Manufacturers' Association should have a committee appointed to take up brick rates with the railroads and demand a proper basis, which should be on a par with other great interests. The tonnage of brick is equal to almost any other commodity, and there is no other manufactured commodity that is made that should be shipped on a lower price per ton, either in the raw or finished product, and the slight variation of cost per ton, whether it is in the shape of common building brick, pressed building brick, common fire clay brick, common paving brick, high-grade fire clay brick, or paving blocks, should not enter the controversy.

We should all work for a low commodity basis of brick rates as a whole, as there is no such variation in the cost

of the raw material and the finished product, whether it is put into any of the above finished articles, as there is in grain products, cement, or articles of this nature. Railroads seem to think that some special business must be protected with low rates. We must all get together and get in that class if possible; at least we must demand that we be on a basis which we can ship our product and not be up against the crude classification which we now have, and it is up to the brick interests to demand that rates be straightened out on this great product.

Mr. W. P. Blair: I would like to say I think we are getting away from the discussion of the paper altogether. This matter of railroad rates is so great and just at present so many of us hold diverse opinions with reference to it that I think if we keep stirring this up the wider apart we would get. It is a matter that has got to be considered and threshed out in the courts and before the Interstate Commerce Commissions of the country. In fact, it has come upon us so suddenly that I doubt if there are very many men in this audience who are convinced of their own position on this subject. A year hence we will be in better condition to dis-

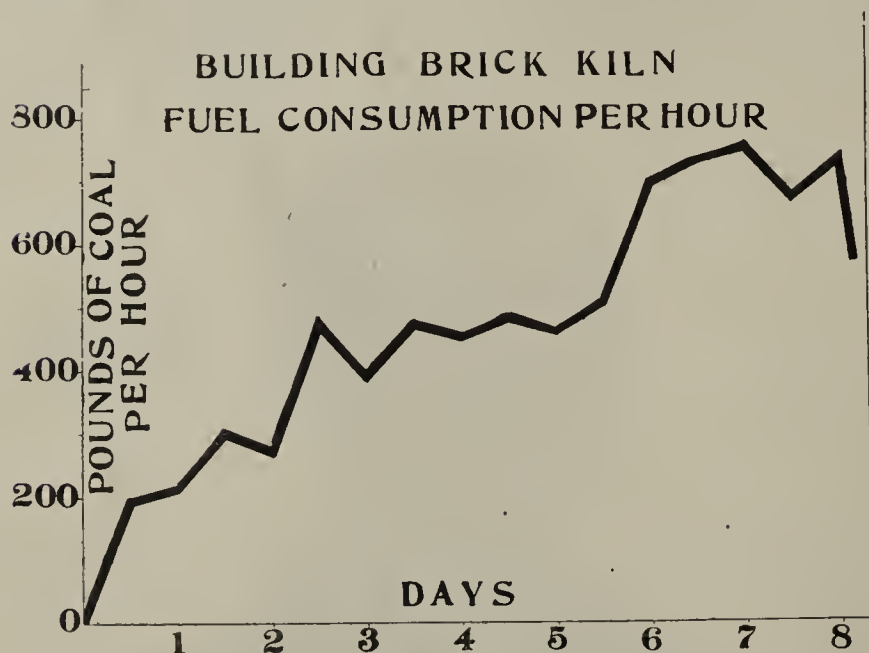


Diagram 1.

cuss this question, and I think we should confine our discussion to the question in point.

Vice-President Crook: We have got entirely away from the discussion of the paper. I suppose we will get back to it in due course of time. Our time is limited, so we will do well to stay by our program.

Mr. J. W. Sibley: I think everybody will agree that it is a pretty good idea for the brickmakers to get on the water wagon and stay there. We have to hear Prof. Orton's report, and if we keep on in this discussion, we will be in the position of the little girl who had been to Sunday School and heard that everybody was made of dust. She said to her father, "Papa are we all made of dust, you and mamma and me, too?" He said, "Well, my dear, you and I are made of dust, but mamma is not. If she were, she would dry up occasionally." (Laughter and applause.)

Vice-President Crook: The next in order is a paper deferred from the Thursday morning program, that of Prof. A. V. Bleininger, of Champaign, Ill., on "The Balance Sheet of a Down Draft Kiln." Although it is getting late, I know you will all be interested in Prof. Bleininger's paper.

Prof. Orton: So long as you can sit here and enjoy yourselves in this session, I would suggest that you finish the program. The lunch we have prepared over at the School of Mines building will keep. It is the kind that keeps. (Laughter.)

Secretary Randall: I know that, because I have eaten rye bread with Prof. Orton that I know he had kept a long time. (Laughter.)

Prof. Orton: Mr. Randall is substantial evidence of the fact it did not hurt him any. (Laughter.)

THE BALANCE SHEET OF A DOWN-DRAFT KILN.

A. V. BLEININGER, CHAMPAIGN, ILL.

Mr. President and Gentlemen of the Convention:

This brief article represents the plain story of a down-draft kiln, used for burning hard building brick, manufactured from shale by the stiff mud process, and dried in a waste heat dryer. The kiln in question was round and 28 feet in diameter. The number of brick in the kiln was 66,190, and each brick weighed $6\frac{1}{8}$ pounds after burning.

The object of this piece of work was to determine how the coal used in burning the brick was distributed, that is, how much of it was employed in useful work and how much was wasted, just as the bookkeeper balances the costs and profits of a business. In carrying out these tests the underlying principle is very simple. By weighing the coal used, and determining the heat escaping through the stack flue, as well as the heat lost by the ashes, it became a very easy matter to find the heat used in the kiln itself. At the same time it is possible to calculate approximately the actual heat used in burning the brick. We have, hence, to consider the coal shoveled into the furnaces, the heat escaping through the stack, the unburnt coal in the ashes, and the theoretical heat employed in heating up the bricks and expelling their mechanical and chemical water.

The first point was determined by weighing the coal and determining its heating value as well as by obtaining its composition. It was found that the calorific value of the coal was 11,162 British thermal units. The composition of the coal was found to be:

Moisture	9.52 per cent.
Ash	12.52 per cent.
Sulphur	2.91 per cent.
Carbon	59.57 per cent.
Hydrogen	4.18 per cent.
Oxygen	11.30 per cent.

The total amount of coal used in the burn was 95,045 pounds.

The heat escaping through the stack was found by measuring the temperature of the gases travelling through the flue as close

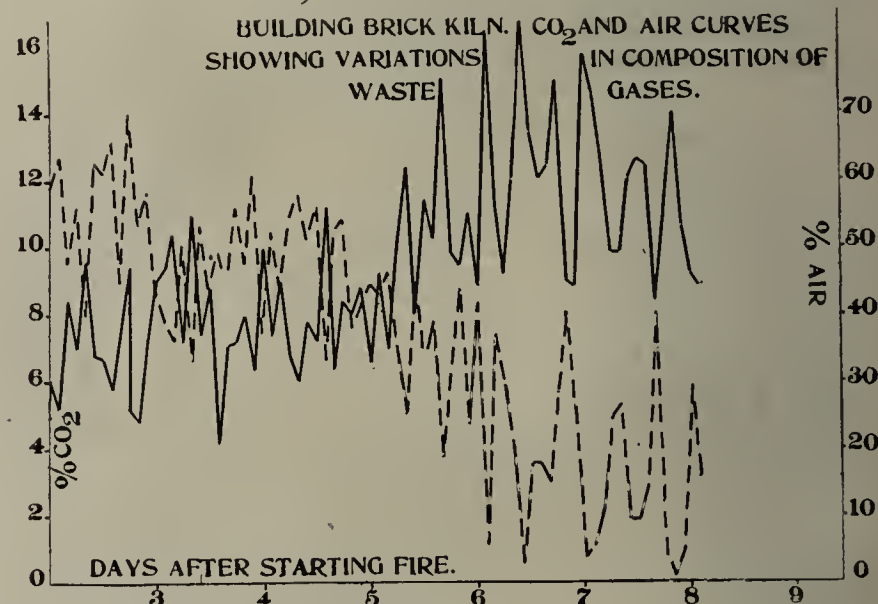


Diagram 2.

to the kiln as possible, and also by analyzing the gases. For the temperature determination the Le Chatelier pyrometer was employed, and for the analysis of the gases the Orsat apparatus. By means of this simple instrument it was possible to get at the composition of the waste gases at any time. The analyses were made as rapidly as possible, allowing from 10 to 15 minutes for the taking of one gas sample, so that average conditions were observed. The work of reading the instruments and making of the analyses was carried on without interruption from the beginning to the end of the burn, day and night. About three analyses were made every two hours, so that each shift of twelve hours represents 18 analyses. The pyrometer was read every half-hour. Naturally each change in the firing of the kiln was faithfully reflected by the analyses. When the firing was in the oxidizing stage a large volume of air was found in the gases, while during the hot fire the air dwindled down to a small amount, and the carbonic acid rose according to the amount of coal charged into the furnace. When the fires were cleaned this was at once shown by the lowering of the carbonic acid and the increase in air. The same thing occurred when the firemen were backward in their duty.

In addition to the above observations a draft gauge was connected to the flue and its readings recorded so that any change in the intensity of the draft was noted.

In the kiln itself a second thermocouple was inserted, so that the kiln temperatures were observed as well. By means of a switch either the flue or the kiln couple could be readily connected with the milli-voltmeter. At the end of each couple a thermometer was placed so that corrections could be made for the outside temperature, and the correct flue and kiln tempera-

tures determined. In this manner a careful log was kept of these readings.

The amount of coal fired per hour was calculated and the result is found in diagram No. 1. It is thus seen how the input of coal varies with the stage of the burn, being least in the watersmoking period and fairly constant during oxidation. After the fifth day the coal consumption rises and finally drops off during the last few hours of the burn.

The variations in the composition of the fire gases are shown by the two curves of diagram No. 2, representing the percentages of carbonic acid and air. After each firing the carbonic acid rises and then gradually drops until the next firing. The curves do not represent every firing since it would be impossible to represent all of them, but they do show the magnitude of the changes. Naturally, the more frequently the firing is done the smaller would be this variation, and the smaller the loss resulting from it. This is one advantage which gas-firing has over coal-firing, since in the former the fuel is applied in a steady stream.

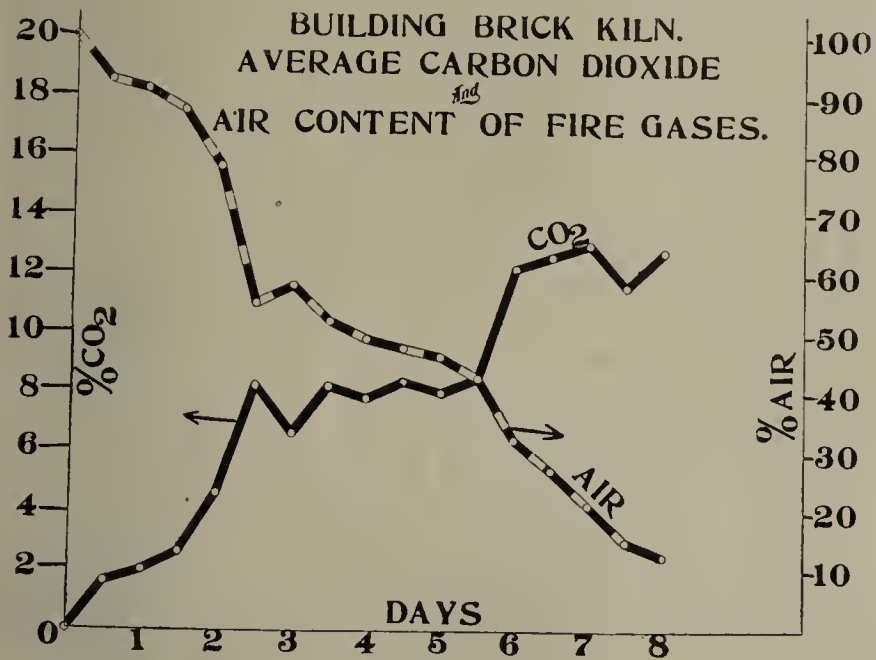


Diagram 3.

In a gas-fired kiln the carbonic acid gas curve should represent nearly a straight line.

In getting at the average carbonic acid and air percentages, the whole time of the burn was divided into sixteen periods of twelve hours each. For each period the average carbonic acid and air content was calculated from the analyses made. These averages are shown in diagram No. 3. Here the air content gradually drops from about 90 per cent. to approximately 50 per cent., where it remains quite steady during oxidation. During the last 60 hours it drops more rapidly, the carbonic acid meanwhile increasing correspondingly.

The kiln and flue temperature curves are shown in diagram No. 4, and are self explanatory. Diagram No. 5 illustrates the relation between the flue temperatures and the strength of the draft, and brings out the fact that the draft does not increase any to speak of above 300 degrees C. This is as it should be, for it can be proven by figures that it is useless to try obtaining more draft by getting the stack hotter. Theoretically a stack has

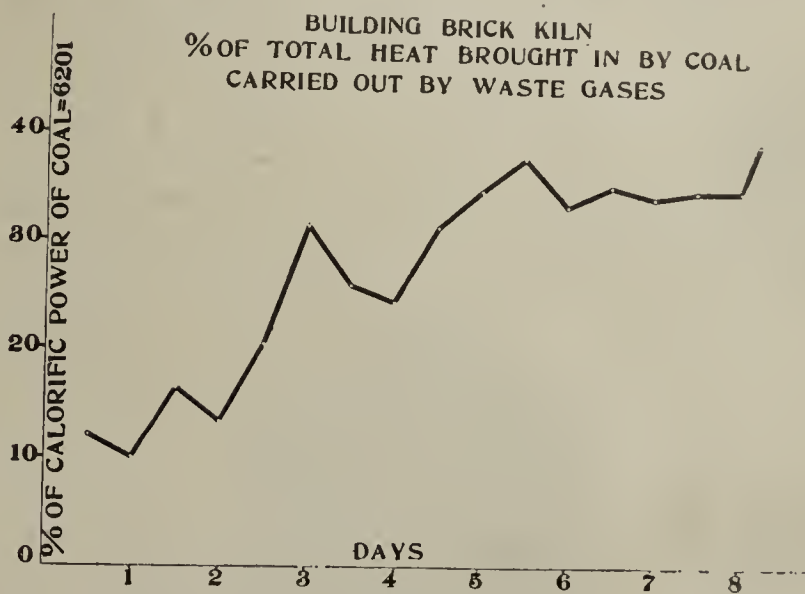


Diagram 6.

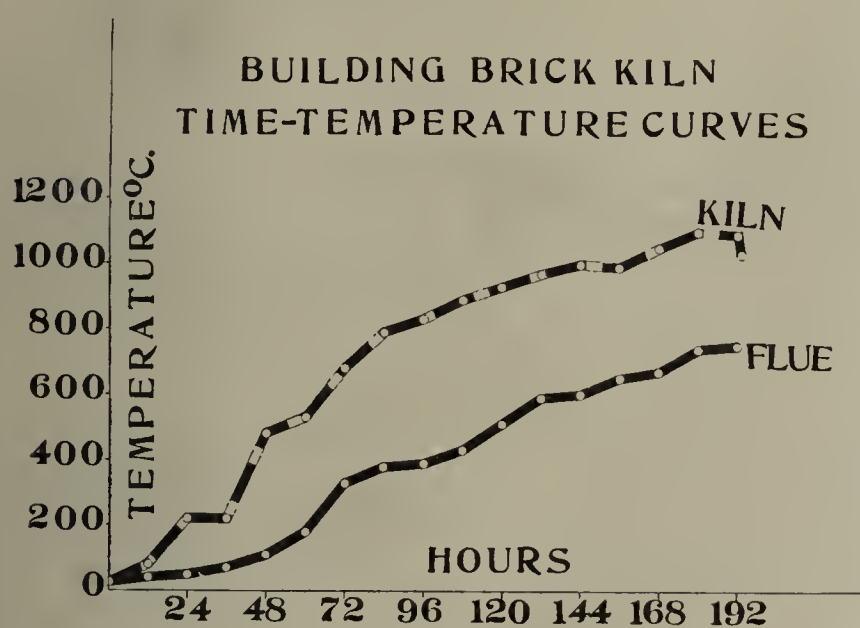


Diagram 4.

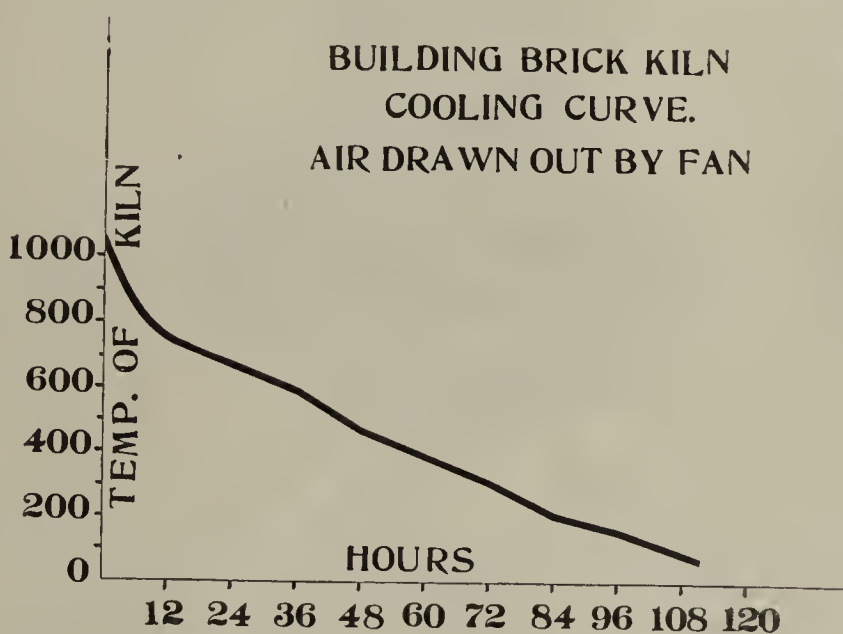


Diagram 7.

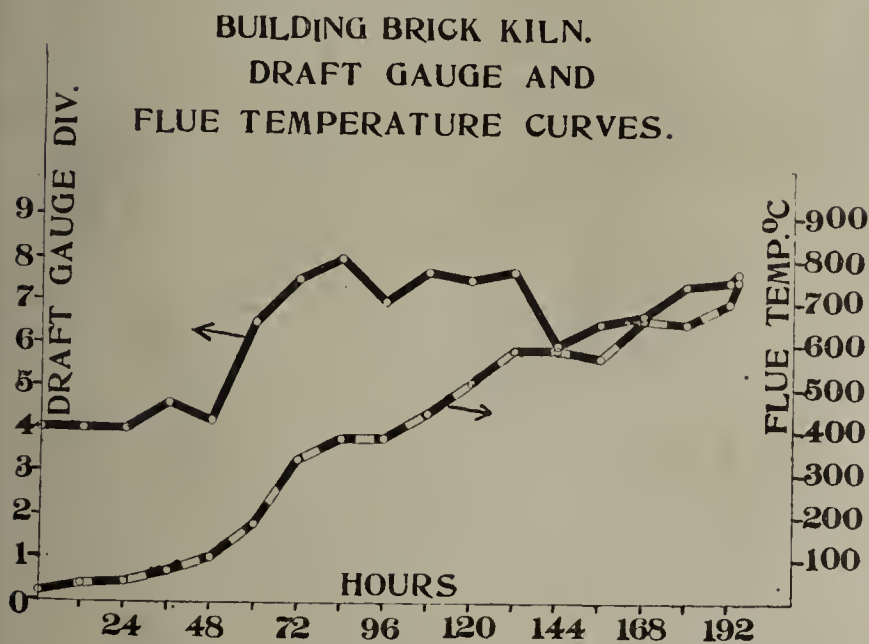


Diagram 5.

BUILDING BRICK KILN

Heat carried through stack	27.33 %
Theoretical heat required by brick	19.55 "
Heat lost in ashes	3.51 "
" taken up by kiln and lost by radiation	49.61 "
	100.0 %

1000 Kg. brick - 1449174 Kg. calories

1 ton brick - 1318748 " "

" " " " 468 pounds of coal

Temp. - 1090° C

Diagram 8.

its best draft when its mean temperature is 273 degrees C., the atmospheric temperature being near the freezing point of water.

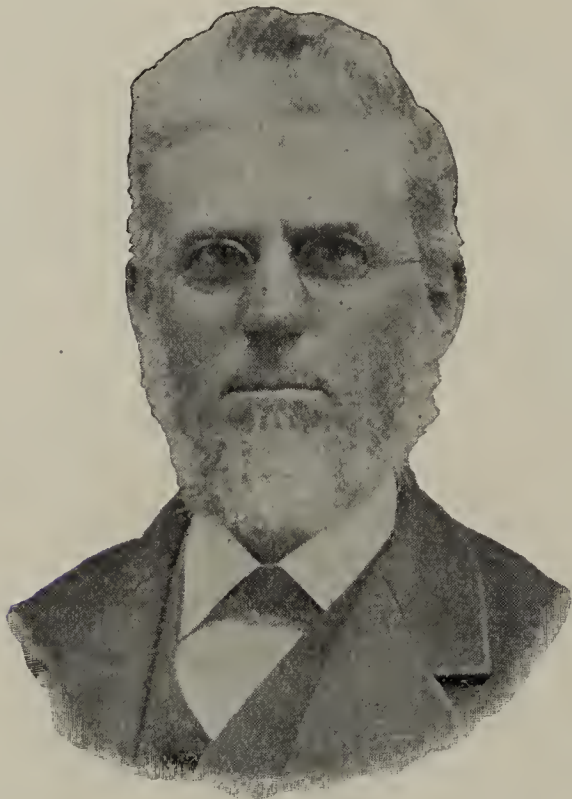
From the flue temperatures and the average air content of the gases the average heat lost through the stack was calculated for each period. If, say, at the period ending with the fifth day, the average loss was 35 per cent. during the last twelve hours, that is, from four days and twelve hours to five days, and the coal fired during this period was 5,790 pounds, the loss must have been $0.35 \times 5,790 = 2,026$ pounds. In other words, heat equal to this amount of coal was carried out through the stack. Diagram No. 6 shows the percentage of loss during the different periods.

The heat lost by the unburnt coal in the ashes was obtained by taking samples of the clinker and ashes after each cleaning, collecting them in a heap, and getting a good average sample. The ashes and clinker sample thus obtained was analyzed, and was found to have the following composition:

Moisture	0.92 per cent.
Ashes	80.02 per cent.
Sulphur	2.52 per cent.
Carbon	17.56 per cent.
Hydrogen	0.31 per cent.
Oxygen	1.33 per cent.

From these figures the amount of heat still left in the ashes was calculated.

Having now arrived at the losses it is possible to get at, and, having calculated the theoretical heat necessary to heat the bricks, it was now possible to balance up the various expenditures of heat in order to determine to what use it was put. In other words, we are ready to find out, now, where our 95,045 pounds of coal have gone. This is best expressed in percentage, 100 per cent



Edwin Brockway, Brockway, N. Y.

being equal to 95,045 pounds of coal. The heat was found to have been distributed as follows:

Heat carried out by gases.....	27.33 per cent.
Heat theoretically required to heat the brick.....	19.55 per cent.
Heat lost in the ashes.....	3.51 per cent.
Heat taken up by the kiln and lost by radiation....	49.61 per cent.
	100.00 per cent.

We observe, therefore, that only about one-fifth of the coal fired into the kiln is really used in heating the bricks. The theoretical amount of coal required in this case would be 18,581 pounds. It is foolish to claim that we can ever get along with so little fuel, but we can use these figures as an ideal towards which we can aim. But the fact remains that we are using far more heat than we really need, and we could get along nicely with half the coal we are now using if we were compelled to do so. In fact, there are many continuous kilns in use which use less than half of the coal it was necessary to fire in this case, indeed, some of them are getting quite close to the ideal figures. Summarizing the heat consumption in this kiln we can say that one ton of burnt clay required 1,318,748 kg. calories, which is equal to 468 pounds of the coal in question, the kiln temperature having reached 1,090° C.

When the kiln was closed, it was decided to continue observing the kiln temperature during cooling. In this case a gooseneck was attached to the kiln door, and the hot air drawn out to the dryer by means of the large fan of the plant. The rate at which the cooling took place is observed in diagram No. 7.

In conclusion it might be said that this burn represents good down-draft kiln burning practice, at least it is superior to the results obtained for other kilns.

In carrying out this investigation thanks are due Professor C. W. Rolfe for having granted the use of department funds for this purpose, and to Mr. C. E. Merry for having faithfully and intelligently carried out the work mapped out by the writer. (Applause.)

General Discussion.

President Gregory: I would like to have Mr. Richardson come up here and lead in the discussion of this paper.

Mr. W. D. Richardson, Columbus, Ohio: There is no question that is of greater importance to clayworkers than this question of economy of fuel, and Prof. Bleininger has shown here very closely how large a percentage of coal may be, and frequently is, lost in burning brick. Of course, much of the waste in down-draft kilns, or in up-draft kilns, may be avoided by the use of the continuous kiln, but as a large per cent. of the brickmakers of the United States will continue for years to come to burn in up-draft and down-draft periodical kilns, the question that will come up is how to save any large proportion of the fuel now being wasted in these kilns. I suppose if any brickmaker were asked how much fuel he was using, he would say so many pounds per thousand brick burned. Most manufacturers have ascertained this, though perhaps some of them have not; but that does not give us any definite idea of the economy of burning. If brickmakers would ascertain exactly how much coal they are burning per thousand, and then report it in such a way that it might be determined whether they were burning economically or not, it would be a great help in carrying on an investigation for the saving of fuel. If they would give all the facts, the type of kiln and furnace, the kind of fuel the cone to which they burn, the weight of their brick, and the weight of coal per thousand brick, so that what the per cent. of the weight of the coal is of the weight of the burned brick, could be calculated, we would have a definite expression of the relative economy of the burning operations. In reporting the consumption of fuel in burning clay products, the Germans always state all the conditions and give the per cent. of fuel used. The statement that a brick manufacturer burns to cone two, with ten per cent. of bituminous coal, the conditions being given enable the engineer to tell him at once how much of a saving he can make for him by improvements in the kiln, or in the manner of operating it. It is greatly to be desired that brick manufacturers in this country make their report of fuel consumption in this manner. One of the large losses in a down-draft kiln that is unavoidable is the loss from the gases escaping from a kiln at high temperature. In addition to that there is a large preventable loss of fuel that should be studied by every progressive brick manufacturer. In down-draft kilns, this preventable loss comes mostly from the admission into the furnace and kiln during the settling, or full fire period, of an amount of air largely in excess of that required for combustion of the fuel. The means of ascertaining this loss and of reducing it to the minimum has been explained graphically by Professor Bleininger. Much more might be said, but hour is at hand for closing this last session of this convention. It has been shown that economy of fuel can only be intelligently studied by means of simple apparatus that should be upon every brickyard. The use of this apparatus will enable the burner to control the heat losses in his kiln, and save many tons of coal that is now waster. (Applause.)

Presentation of Loving Cup to Mr. Richardson.

Prof. Edward Orton: I would like to ask the privilege of making a reply to Mr. Richardson, and have him stand up here and answer me, and, what is more, I would like to have him stand here in front of me, if he will.

Ladies and Gentlemen of the National Brick Manufacturers' Association—In the year 1888, a young college man, without any special training in the art of clay manufacture, undertook to organize and manage a pressed brick enterprise, called the Central Pressed Brick Co., at North Baltimore, Ohio. He began operations with a corps of such labor as he could find in the little Northern Ohio village. But there was something

as the most precious souvenir of my brickmaking experience. (Applause.)

about his character and mental attitude which took forcible hold on the imagination of his men—that entered deeply into their hearts, inspiring them with an affectionate regard that sank deep into their minds and made them his apt pupils, something that entered into their souls, and made them sharers of his lofty purposes, his pure unselfish ambitions, his never wavering desire to help his fellow men.

Among those who were fortunate in working for this kind master were six young fellows in particular. They came from the machinist's bench, from the carpenter shop, from the country school teacher's desk, from the farm and village, and by his instruction and his example, and responsibility wisely placed upon them as they became able to bear it, he developed them from unskilled workers, with no special future, into calm, self-reliant, capable men, themselves able in turn to go forth into the world, not only as competent brickmakers—but as competent leaders of men—men fitted by self discipline to hold in their grasp the control of others—men fitted by moral purpose and firmness to instill into others that respect and obedience to authority without which no enterprise can prosper.

Twenty years have passed swiftly away. They have silvered the head of this kindly brickmaker, but they have not paled his ruddy cheek, nor bent his sturdy shoulders, nor have they diminished his genial optimism—his serene faith in his work—nor his altruistic love of his fellow men. And while these years have thus laid their toll lightly on him, they have brought advancement, prosperity and responsibility to his old time subordinates—his pupils, we may say—for all schoolmasters do not dwell in college halls. It is needless to say that you are the man. These men, who look upon you as their teacher and their inspiration, desire to express to you thus publicly the gratitude, the admiration and the affection which they owe you. As a symbol of their feelings, they have purchased this loving cup and placed upon it this inscription:

"In appreciation of good done your fellow men."

Geo. H. Morton.	John W. Chandler.
S. M. Gould.	William Drayton.
George E. Goldner.	I. M. Justice.

1888-1908

Willard D. Richardson.

In their behalf I present you this cup. It is full to the brim with the love and gratitude of its donors. May you drain it to the very dregs. (Loud applause.)

In addition, I want to say, that if this cup were proportionate in size to the many persons whom you have benefited in a similar way, it would have to be as large as a barrel. (Laughter and applause.)

Mr. Richardson: Gentlemen, I think you all know this has taken me entirely by surprise. There are few such moments that come to any man on an occasion like this, before an association of men with whom he has been working for the better part of his life. It is not often that those who have worked with him and been his associates in the brickyard, and in all the work connected with the manufacturer of brick, would so appreciate any service which might have been done for them. It has always been to me a great pleasure to think that these young men who started with me twenty years ago, have done so well, and I have frequently pointed with pride to their achievements and to the responsible positions which they hold. I can not say more, I never before in all my life have had anything to touch me so deeply as this has. I can only thank the givers of the loving cup for this beautiful and substantial testimonial of their regard and appreciation. I shall ever cherish it

Secretary Randall: The next in order is Prof. Orton's report on Technical Investigation.

Report of Committee on Technical Investigation.

BY PROF. EDWARD ORTON, JR., COLUMBUS, OHIO.

A year ago, at St. Louis, I made a promise to this Association that I would not undertake any kind of work, any matter of investigation for this association, until I had at least completed the work I had undertaken in years gone by, and not yet published. That promise was made in good faith and it has been carried out so far as my ability and power has allowed. Before you came to this convention, there was mailed to every member of this association a copy of the report of the Committee on Technical Investigation, which undoubtedly must have reached you so recently that I presume few if any of you have had time to look into it, but you will find this report on your desks. It contains food for a great deal of reflection. I think you will find while the investigations are not at all spectacular, or such as would claim public interest, nevertheless the report contains important conclusions to those people who are dealing with clays, especially impure clays, and will probably give them some idea of how to avoid certain troubles they now have.



Ross C. Purdy, Columbus, Ohio.

In regard to the present year's work: About a year ago, I found from my old friend, W. D. Richardson, that he had in mind to build a test dryer, the purpose of which should be to enable us to measure the capacity of clay to stand drying conditions. Every clayworker knows that is one of the most troublesome problems with which he has to deal.

Prof. Orton then described in detail the test dryer, showing by chart its method of construction, and announced that the committee's investigations along this line would be completed in the very near future, when a full report, in book form, would be submitted to the members of the Association.

Questions for General Discussion.

Secretary Randall: If there is no discussion on this report we will take up the regular program. We have now reached the questions for general discussion. The first is, "Is it feasible to dry brick with waste heat from cooling kilns on plants burning in up-draft, open-top kilns?"

Mr. Blair: I think there is no question but that can be answered in the affirmative.

Secretary Randall: The next is Question 23, "Which is best, to draw waste heat from the top or from the bottom of an up-draft open-top kiln, for drying purposes?" Mr. Clippert, of Detroit has answered this question before. Have you any occasion to change your mind, Mr. Clippert?

Mr. George H. Clippert, Detroit, Mich.: We are drawing our heat from the bottom, so cannot speak anything about drawing the heat from the top of a kiln. I still endorse the paper which I presented at the convention at Philadelphia, in which I said it was a good thing, and we are still using it, taking waste heat from the bottom of our kilns to dry our brick.

Mr. W. S. Purington: This matter has been discussed for many years, and I have always upheld the overhead principle of taking the heat. I am reminded of the story of the man who was very sick and sent for a doctor. The doctor told him to eat a very hearty meal just before he went to bed, and he told the doctor he was surprised, for the doctor had previously advised not to eat anything for some time before retiring. "Well," said the doctor, "I have changed my mind, science has made wonderful strides since I last doctored you." (Laughter.) We are now taking the heat from the bottom of the kilns, and it is the only way to do because of the loss of heat in taking it from the top.

Secretary Randall: There is an item on the program, "Report of Committee on Trade Schools." Mr. Ittner is chairman of this committee, but I presume he has no report to make. However, we can safely say that the movement started Wednesday will result in the establishment of a



G. H. Clippert, Detroit, Mich.

school for bricklayers at The Winona Technical Institute. We already have enough scholarships to insure the success of the enterprise. I will say for Mr. Ittner, that this work will be continued immediately after the return home of the Secretary. I will issue another letter to all the members enclosing cards and requesting all who have not done so to subscribe to the scholarship fund. No one need hesitate for fear of having too many scholarships.

Mr. Ittner: I had not read this program through, and did not know there was such a report expected. The members of this committee present at this convention have been much pleased to see the interest manifested in this subject, especially at the Wednesday afternoon session. I was disappointed, though, not to get sixty scholarships subscribed at the Wednesday afternoon session when Dr. Dickey was with us. We fell short twenty. I decided to write a letter and send to about eighty-five or ninety men who are present at at this convention, so they might consider the matter while they were here, and in hopes that we might get the additional twenty scholarships. I do not know whether the President or Secretary or Mr. Dickover, the other member of the committee, has heard from any of the men to whom this letter was sent, but I have not received any scholarships. I hope when the members get back home they will take this matter

up with their people and let us hear from them favorably. Dr. Dickey hopes to open this school February 24th, so you see our time is short. As I have said before this Association on other occasions, I hope every true American citizen will take this matter of industrial education in hand, not only for Dr. Dickey's school, but for other schools throughout every hamlet, village, town and city of the United States, to the extent that every American boy with a desire and an ambition to learn a trade in any branch of the industry will have opportunity to do so, and that no man may say him "Nay." (Applause.)

President Gregory: The next is the report of the Committee on Resolutions, by J. Parker Fiske, chairman.

REPORT OF COMMITTEE ON RESOLUTIONS.

Mr. President:

Your committee begs to report as follows:

WHEREAS, This Twenty-Second Annual Convention has exceeded all its predecessors in point of attendance and has been marked with the greatest enthusiasm and interest in all its meetings, and with the keenest pleasure in all its social functions, thereby indicating in an unmistakable manner the steady growth of the clayworking industries of this country, and the universal brotherhood of all clayworkers; and

WHEREAS, The success of this convention has been largely due to the untiring efforts of the officers of the association, and particularly to our faithful and indefatigable Secretary, and his able assistant; therefore, be it

Resolved, That the hearty congratulations and thanks of the entire association be extended to the officers for the splendid results they have attained.

Resolved, That we extend to the local committee and particularly to its chairman, Prof. Edward Orton, Jr., and to the chairman of the entertainment committee, Mr. Charles H. Frank, our sincere thanks for their hospitality and good cheer, for the entertainments we have enjoyed at their hands, and for their interest in our comfort and pleasure, which has been so successfully manifested throughout our entire stay in this city.

Resolved, That we extend to the local ladies' committee our hearty thanks for their generous entertainments at theater and club, and for the marked kindness and attention which they have shown our visiting ladies during this convention week.

Resolved, That we extend to the executive board of the Ohio State University our thanks for its interest in our association, and its hospitable reception and entertainment of our members and ladies at the university.

Resolved, That the association is deeply indebted to all those who have contributed papers and added otherwise to the interest of the meetings, and that our special thanks be extended to the following persons: Professor Edward Orton, Jr., for his entertaining and instructive lecture on "The Clay Industries of the Central Ohio District," a pleasing departure from our usual method of visiting the neighboring plants, and one which will long be remembered with the keenest delight; to Mr. James E. Randall, for his photographic work in connection with this lecture; to Mr. J. E. Howard, Engineer of Tests at the Watertown Arsenal, for the interest he has taken in the matter of tests on brick piers, and for the able paper he has again contributed on this subject; to Mr. G. G. Wheat, for his interesting and valuable lecture on "The Deterioration of Concrete Construction Under the Influence of Water," a paper which will be of material assistance to us in the promotion of the cause we represent; to Prof. T. K. Lewis, for his services in connection with the use of the stereopticon lantern during these meetings.

Resolved, That we heartily endorse the work of the Committee on Technical Investigation, and thank them for the able report they have rendered.

Resolved, That, having the greatest sympathy for the work of Dr. Dickey in the establishment of his trade school at Winona, and particularly his course of practical bricklaying, we urge the members of this association to contribute as liberally as possible to the founding of the scholarships necessary for the prosecution of this work. That we endorse the work of the committee on trade schools, that this committee be requested to communicate with the secretaries of the various builders' exchanges of the country regarding the matter of trade schools, for the teaching of bricklaying similar to that now being established at Winona, and that this committee take such further action regarding the general subject of trade schools as may, in its opinion, be for the best interests of this association.

WHEREAS, We deem that the matter of bringing to the attention of the general public the superior merits of burned clay as a building material in all forms of structural work to be of great importance, be it

Resolved, That a committee of five be appointed by the chair to consider ways and means of securing this desired publicity in the most effective manner possible; that the president and secretary of this association be ex-officio members of said committee and that the committee report to the executive committee, with the view of securing action, if same seems desirable, at the earliest date practicable; and be it further

Resolved, In view of the large appropriations which the general government has made for tests of materials of construction, that the said committee be instructed to ascertain what tests on clay

products are being made at the Government testing laboratories, where facilities now exist for such work, and to make such recommendations and to take such action as may be expedient and necessary to secure an amount of work on the strength and other physical properties of burned clay, as shall be proportionate to that expended on other materials of construction.

WHEREAS, During the past year one of our number, Mr. Chas. Graham, of Brooklyn, N. Y., has been called to the better land, and, whereas, we mourn his loss and desire to express our sincere sympathy to his family, therefore, be it

Resolved, That this tribute to the love and esteem for our departed brother be spread upon our records, and that a copy of this resolution be sent to his family.

WHEREAS, Amid the many pleasures and duties of this convention we have not been unmindful of our absent brethren;

Resolved, That our greetings be extended at this time to those of our members who have been unable to be present, with the hope that at our next annual convention they may be able to rejoin us, to the end that the next meeting may be even larger and better than the one just closing.

J. PARKER B. FISKE, Massachusetts, Chairman,
F. P. MARSHALL, North Carolina,
R. F. GRADY, Missouri,
C. F. MONFORT, Pennsylvania,
R. D. LINDSAY, Colorado,
J. E. BUTLER, Texas,
W. S. SMIT, Minnesota.

President Gregory: What will you do with this report?

Mr. W. P. Blair: I move the adoption of the report, as a whole.

Mr. Penfield: I second the motion.

Mr. Blair: I want to say a few words in regard to one resolution. It is one that should have the hearty endorsement of every member of this Association, and that is the resolution providing for the appointment of a committee to report back to this convention, ways and means of advertising and promoting the use of brick as a material for the purpose for which they are made. This Association has never heretofore taken a direct step in this direction. It is a step long needed in my judgment and it ought to receive the hearty, careful and considerate support of every brick manufacturer in this country. There has never been a systematized plan to reach the intended builder, that gives to him information and reasons why he should use burned clay. We should devise some manner of reaching the American public, by which, instead of the conditions which now exist, we would have a great many more brick buildings in this country than we now have, in proportion to other buildings. We know that lumber is way out of sight, and yet the people continue to build frame houses merely as a matter of custom, when they might get a far better house and a cheaper house if built of brick, and I therefore hope something will come of this resolution.

Motion put to the convention by President Gregory and carried.

President Gregory: I will appoint as the members of this Publicity Committee:

J. Parker B. Fiske, New York City.
Wm. D. Gates, Chicago, Ill.
Will P. Blair, Terre Haute, Ind.
John W. Sibley, Birmingham, Ala.
Charles W. Bloomfield, Metuchen, N. J.

I cannot close this convention without speaking in regard to the size of our convention. It is the largest we have ever held. We have passed the five hundred and fifty mark on the registration book, we have had more members in the sessions than for some time, and many new members have joined the Association, showing an interest in the clayworker's art. I also wish to thank my friends who have so kindly honored me by the election to this office, and for the uniform courtesy you have extended me. I shall take home with me a pleasant recollection of my little stay in this city and the kindness of the brickmakers to me. (Applause.) The convention is now adjourned.

Any one looking for a good bargain in the way of a first-class clayworking plant should correspond with C. L. Searcy, who is advertising his plant at Waco, Ky., for sale. Mr. Searcy states that he has good reasons for selling. The clay is suitable for the manufacture of sewer pipe, drain tile, hollow block, front and common brick and terra cotta.

Written for THE CLAY-WORKER.

DETROIT BRICK AND BUILDING NEWS.

AFTER THE MOST successful year in building operations in Detroit's history, the month of January, 1908, opened the new year with construction work greatly curtailed. The continued cold weather is, of course, the greatest factor in keeping back construction operations, and little encouragement for starting new work has been offered. Total permits issued in January, 1908, amounted to \$294,750, for 175 buildings, as against \$370,055, for 143 buildings, for the same month in 1907. Detroiters, however, take some comfort in the fact that this record, although below that of last year, is larger than Cleveland's, a city considered as a formidable rival.

Brick men, of course, had an excellent year in 1907 in Detroit, and a much touted question is whether 1908 can hold up the record. Value of permits issued during 1907 is \$14,225,000, which is practically \$2,000,000 in advance of 1906. The city has been growing wonderfully and in the last three years there have been erected new buildings to the value of over \$36,000,000, an average of \$1,000,000 per month.

There is, however, some cheer to offer brick men in the outlook for spring. It has been frequently stated that there would not be much doing in the building business until the banks began to make real estate construction loans. Several real estate men here are able to report such loans and money is coming out for building purposes in an encouraging volume.

Practically all of the brick plants in this vicinity are closed at present, as there is scarcely any demand for brick now. A few of the closed plants are turning out brick for spring stock, while a number of other plants are busy making repairs and enlargements. Building operations in 1907 naturally taxed the capacity of local plants, and the wise ones will not be caught again this year.

The Lonyo Brick Company, of Springwells, has recently been reorganized. Those interested at present are John A. Mercier, Joseph Larkins and C. H. Bryan. Mr. Mercier is one of Detroit's best known general contractors.

Officers for the Detroit Builders' and Traders' Exchange have been elected for the ensuing year, as follows: President, John L. Austin; Vice-President, Richard Porath; Secretary, C. L. Batchelder; Treasurer, George D. Nutt; Superintendent, George Wallace. The following, with the above, were elected directors: John S. Haggerty, John F. Putman, A. C. Goodall, J. C. Candler, William Malow. The Exchange now has eighty-three members.

Recent bids submitted to the Public Works Department show great reductions in comparison with last year. Cement bids were thirty cents per barrel cheaper, and the city expects to save \$20,000 on cement alone. An average reduction of \$2 per thousand feet is made in lumber.

Although Commissioner Haarer has already made contracts for \$250,000 worth of paving brick for the coming year, there is some talk of readvertising for this brick, as prices are a half cent higher, on an average. Among the companies with whom contracts were made are the Malvern Clay Company, the Metropolitan Paving Brick Company, the Collinwood-Deckman-Duty Company, the Wooster Shale Brick Company and the Massillon Stone and Fire Brick Company. F. B. Holmes & Co., of Detroit, who were among the lowest bidders, did not get a contract, Commissioner Haarer says, because their brick is not what is required by the city.

The firm of C. W. Filer & Co., organized about a year ago, with offices in the Peninsular Bank building, has recently been dissolved. Mr. Filer has again taken up his position as traveling representative for the Logan Brick Company.

Among Detroit brick men who attended the recent N. B. M. A. convention at Columbus are the following: John S. Haggerty, Richard Porath, George Clippert, and C. W. Filer. All reported a very good time.

WOLVERINE.

Detroit, Mich., February 11, 1908.

LIST OF MEMBERS N. B. M. A., 1908.

Executive Committee, 1908-1909.

President—M. E. Gregory, Corning, N. Y.
 First Vice President—Lemon Parker, St. Louis, Mo.
 Second Vice President—Wm. P. Blair, Terre Haute, Ind.
 Third Vice President—Chas. M. Crook, Youngstown, Ohio.
 Secretary—Theodore A. Randall, Indianapolis, Ind.
 Treasurer—John W. Sibley, Birmingham, Ala.

EX-PRESIDENTS.

W. A. Eudaly (1886) Cincinnati, Ohio.
 D. V. Purington, (1887) Chicago, Ill.
 Robt. Speed (1888) Memphis, Tenn.
 T. B. McAvoy (1888-89) Philadelphia, Pa.
 C. B. Pearson (1892) Washington, D. C.
 Anthony Ittner (1893) St. Louis, Mo.
 F. H. Eggers (1895) Cleveland, Ohio.
 W. H. Brush (1897) Buffalo, N. Y.
 Wm. Flinn, (1898) Pittsburg, Pa.
 W. D. Richardson (1899) Columbus, Ohio.
 Wm. D. Gates (1900) Chicago, Ill.
 W. H. Hunt (1901) Cleveland, Ohio.
 George M. Fiske (1902) Boston, Mass.
 R. G. Eisenhart (1903) Horseheads, N. Y.
 W. S. Purington (1904) Galesburg, Ill.
 J. M. Blair (1905) Cincinnati, Ohio.
 J. R. Copeland (1906) Birmingham, Ala.
 Wm. Conway (1907) Philadelphia, Pa.

*W. H. Alsip (1894) Chicago, Ill.
 *R. B. Morrison (1896) Rome, Ga.
 *J. C. Adams (1890-91) Indianapolis, Ind.
 *C. P. Merwin (1888-93) Berlin, Conn.
 *Deceased.

Committee on Technical Investigation.

Prof. Edward Orton, Jr., Columbus, Ohio, (permanent secretary).
 W. D. Richardson, Columbus, Ohio, (term expires 1912).
 Anthony Ittner, St. Louis, Mo., (term expires 1911).
 D. V. Purington, Chicago, Ill., (term expires 1910).
 C. A. Bloomfield, Metuchen, N. J., (term expires 1909).

State Vice Presidents.

ALABAMA.

J. M. Jenkins.....Wetumpka

CONNECTICUT.

R. Clifford Merwin.....New Britain

DISTRICT OF COLUMBIA.

John Miller.....Washington

GEORGIA.

George O. Berry.....Columbus

ILLINOIS.

A. V. Bleining.....Champaign

INDIANA.

Fred Adams.....Indianapolis

IOWA.

C. J. Holman.....Sergeant Bluff

KANSAS.

Robert Nesch.....Pittsburg

KENTUCKY.

H. W. Katterjohn.....Paducah

LOUISIANA.

F. Salmen.....Slidell

MARYLAND.

Victor Cushwa.....Williamsport

MASSACHUSETTS.

E. L. Cook.....State Farm

MICHIGAN.

George Clippert.....Detroit

MISSOURI.

I. C. Wheeler.....Carthage

NEBRASKA.

J. Fred Smith.....Omaha

NEW YORK.

Prof. Charles F. Binns.....Alfred

NEW JERSEY.

Prof. C. W. Parmelee.....New Brunswick

NORTH CAROLINA.

E. A. Poe.....Fayetteville

OHIO.

Orville N. Townsend.....Zanesville

PENNSYLVANIA.

Grant Dibert.....Pittsburg

TENNESSEE.

T. L. Herbert.....Nashville

TEXAS.

A. R. Harwood.....San Antonio

VIRGINIA.

J. W. Davis.....Newport News

WISCONSIN.

L. H. Taylor.....Milwaukee

Membership Roster.

J. R. Copeland.....Birmingham, Ala.
 Graves Shale Paving Brick Co.....Birmingham, Ala.
 J. W. Sibley.....Birmingham, Ala.
 T. H. McMichael.....Irondale, Ala.
 L. L. Stephenson.....Lovick, Ala.
 C. J. Sudduth.....Opelika, Ala.
 A. G. Kahn.....Selma, Ala.
 Cornelius Young.....Selma, Ala.
 Julius J. Koch.....Warrior, Ala.
 W. L. Sibley.....Warrior, Ala.
 Jenkins Brick Co.....Wetumpka, Ala.
 A. Brewster.....Pine Bluff, Ark.
 E. N. Maxwell.....Texarkana, Ark.
 Los Angeles Pressed Brick Co.....Los Angeles, Cal.
 E. O. Simon.....Los Angeles, Cal.
 P. McG. McBean.....San Francisco, Cal.
 John B. Millar.....Doncaster, Ont., Can.
 Eastern Township Brick Mfg. Co.....Lennoxville, P. Q., Can.
 W. P. Haake.....Lennoxville, P. Q., Can.
 W. McCredie.....Lyons, Ont., Can.
 J. S. McCannell.....Milton, Ont., Can.
 J. W. Ball.....Mimico, Ont., Can.
 J. S. McLennan.....Petersfield, Sydney, Can.
 D. G. Loomis & Sons.....Sherbrooke, Que., Can.
 W. C. Trotter.....St. Johns, P. Q., Can.
 Anton Berg.....Toronto, Ont., Can.
 Joseph Russell.....Toronto, Ont., Can.
 B. E. Bechtel.....Waterloo, Ont., Can.
 William Alsip.....Winnipeg, Man., Can.
 W. P. Alsip.....Winnipeg, Man., Can.
 Wm. F. Tallman.....Winnipeg, Man., Can.
 James Knox.....Argo, Colo.
 A. R. Foxley.....Denver, Colo.
 William Geddis.....Denver, Colo.
 Denver Pressed Brick Co.....Denver, Colo.
 James McNeen.....La Junta, Colo.
 F. J. Helwig.....Pueblo, Colo.
 J. H. Connley.....Berlin, Conn.

Park Brick Co.....Hartford, Conn.
 R. Clifford Merwin.....New Britain, Conn.
 Virgil M. Palmer.....New Britain, Conn.
 Eastern Machinery Co.....New Haven, Conn.
 J. Wheaton Stone.....New Haven, Conn.
 The Stiles & Hart Brick Co.....North Haven, Conn.
 The I. L. Stiles & Son Brick Co.....North Haven, Conn.
 Delaware Terra Cotta Co.....Wilmington, Del.
 Jas. B. Oberly.....Wilmington, Del.
 John J. Daniels.....Terra Cotta Sta., D. C.
 E. R. Haight.....Washington, D. C.
 T. L. Holbrook.....Washington, D. C.
 Kendall & Flick.....Washington, D. C.
 Jefferson Middleton.....Washington, D. C.
 John Miller.....Washington, D. C.
 John H. Miller.....Washington, D. C.
 E. S. Morse.....Washington, D. C.
 C. B. Pearson.....Washington, D. C.
 H. A. Walters.....Washington, D. C.
 West Bros. Brick Co.....Washington, D. C.
 Geo. W. Wise.....Washington, D. C.
 Wm. J. Zeh.....Washington, D. C.
 Wm. Moore Angas.....Jacksonville, Fla.
 C. T. Hussey.....Athens, Ga.
 Chattahoochee Brick Co.....Atlanta, Ga.
 Lincoln S. Morrison.....Atlanta, Ga.
 The Atlanta Terra Cotta Co.....Atlanta, Ga.
 Georgia Vitrified Brick & Tile Co.....Augusta, Ga.
 John C. Hagler.....Augusta, Ga.
 J. L. Hankinson.....Augusta, Ga.
 Chas. F. McKenzie.....Augusta, Ga.
 John H. McKenzie.....Augusta, Ga.
 Howard M. Stafford.....Augusta, Ga.
 Geo. O. Berry.....Columbus, Ga.
 George H. Drew.....Columbus, Ga.
 C. S. Estes.....Ludowici, Ga.
 W. E. Dunwoody.....Macon, Ga.
 J. W. McMillan.....Milledgeville, Ga.
 H. B. Skeele.....Savannah, Ga.
 J. Hart Sibley.....Union Point, Ga.
 Alsey Brick & Tile Co.....Alsey, Ill.
 Alton Paving, Building & Fire Brick Co.....Alton, Ill.
 S. H. Alsip.....Belleville, Ill.
 The Belleville Brick Co.....Belleville, Ill.
 Warren Wayne Ittner.....Belleville, Ill.
 J. R. Caudry.....Benld, Ill.
 O. W. Dunlap.....Bloomington, Ill.
 W. H. Swett.....Blue Island, Ill.
 J. L. Hull.....Cambridge, Ill.
 F. O. Corbin.....Carbon Cliff, Ill.
 W. F. Gerhardt.....Carbon Cliff, Ill.
 A. V. Bleining.....Champaign, Ill.
 J. W. Stipes.....Champaign, Ill.
 George J. Walters.....Chatsworth, Ill.
 R. D. Aitchinson.....Chicago, Ill.
 L. D. Binyon.....Chicago, Ill.
 Charles Bonner.....Chicago, Ill.
 D. J. Christopher.....Chicago, Ill.
 H. J. Flood.....Chicago, Ill.
 W. D. Gates.....Chicago, Ill.
 Robt. L. Gifford.....Chicago, Ill.
 M. T. Goss.....Chicago, Ill.
 J. H. Gray.....Chicago, Ill.
 Harrington & King Perf. Co.....Chicago, Ill.
 George H. Hartwell.....Chicago, Ill.
 Chas. F. Hays.....Chicago, Ill.
 The Jenkins & Reynolds Co.....Chicago, Ill.
 A. J. Kautz.....Chicago, Ill.
 Kenfield Publishing Co.....Chicago, Ill.
 E. C. Kimbell.....Chicago, Ill.
 Thomas B. Lehon.....Chicago, Ill.

- Herman L. Matz.....Chicago, Ill.
 John J. Moroney.....Chicago, Ill.
 Thomas C. Moulding.....Chicago, Ill.
 National Brick Co.....Chicago, Ill.
 D. V. Purlington.....Chicago, Ill.
 Chas. S. Reed.....Chicago, Ill.
 L. E. Rodgers.....Chicago, Ill.
 H. S. Simpson.....Chicago, Ill.
 P. L. Simpson.....Chicago, Ill.
 F. S. Thompson.....Chicago, Ill.
 F. Wagner.....Chicago, Ill.
 Frank W. Butterworth.....Danville, Ill.
 Wm. H. Neff.....Danville, Ill.
 John C. Shea.....Danville, Ill.
 Wm. P. Whitney.....Danville, Ill.
 Chas. T. Hicks.....Drake, Ill.
 D. C. Heager.....Dundee, Ill.
 E. T. Jones.....East St. Louis, Ill.
 Dr. J. Baron.....Edwardsville, Ill.
 M. M. Bushong.....Edwardsville, Ill.
 Ben H. Richards.....Edwardsville, Ill.
 Frost Manufacturing Co.....Galesburg, Ill.
 F. G. Matteson.....Galesburg, Ill.
 W. S. Purlington.....Galesburg, Ill.
 E. L. Swett.....Galesburg, Ill.
 Martin Halpin.....Greenville, Ill.
 La Salle Pressed Brick Co.....La Salle, Ill.
 William Hammerschmidt.....Lombard, Ill.
 A. W. Gates.....Monmouth, Ill.
 A. Veiock.....Monmouth, Ill.
 Henry Read.....Mt. Carmel, Ill.
 R. D. Mernaugh.....Mt. Vernon, Ill.
 McNeil Pressed Brick Co.....Newbern, Ill.
 Jansen & Zoeller.....Pekin, Ill.
 F. R. Carter.....Peoria, Ill.
 Frank J. Kanne.....Peoria, Ill.
 George C. Kanne.....Peoria, Ill.
 John T. Hummert.....Quincy, Ill.
 Clifford Chase.....Russell, Ill.
 A. L. Converse.....Springfield, Ill.
 L. E. Snodgrass.....Springfield, Ill.
 Underwood Pressed Brick Co.....Springfield, Ill.
 C. C. Barr.....Streator, Ill.
 C. A. Miller.....Streator, Ill.
 Samuel Anderson.....Taylorville, Ill.
 Robert Twells.....Walnut Hills, Ill.
 Anderson Foundry & Machine Works.....Anderson, Ind.
 Fred Minish.....Aurora, Ind.
 Ayer-McCarel Clay Co.....Brazil, Ind.
 C. W. Crawford.....Brazil, Ind.
 J. M. Hoskins.....Brazil, Ind.
 T. S. Rouse.....Brazil, Ind.
 A. H. Zimmerman.....Brazil, Ind.
 J. M. Powell.....Brooklyn, Ind.
 J. W. Robb.....Clinton, Ind.
 Poston Paving Brick Company.....Crawfordsville, Ind.
 Geo. M. Krick.....Decatur, Ind.
 John C. Boss.....Elkhart, Ind.
 H. C. Klemeyer.....Evansville, Ind.
 A. A. McClamrock.....Frankfort, Ind.
 F. G. Banker.....Greenfield, Ind.
 Adams Brick Co.....Indianapolis, Ind.
 D. F. Billingsley.....Indianapolis, Ind.
 Robert Elliott.....Indianapolis, Ind.
 Ed. Gerard.....Indianapolis, Ind.
 Jas. W. Hensley.....Indianapolis, Ind.
 Indianapolis Terra Cotta Co.....Indianapolis, Ind.
 Marion Brick Works.....Indianapolis, Ind.
 C. & A. Potts & Co.....Indianapolis, Ind.
 James E. Randall.....Indianapolis, Ind.
 Theo. A. Randall.....Indianapolis, Ind.
 O. H. Root.....Indianapolis, Ind.
 W. W. Winslow.....Indianapolis, Ind.
 Jake A. Behrick.....Mt. Vernon, Ind.
 Jacob Keller.....North Judson, Ind.
 Chas. H. Read.....Oakland City, Ind.
 G. S. Brubaker.....Perrysburg, Ind.
 J. G. Jones.....Pittsboro, Ind.
 W. M. Read.....Princeton, Ind.
 Madden & Co.....Rushville, Ind.
 E. A. Morse.....South Bend, Ind.
 Will P. Blair.....Terre Haute, Ind.
 J. A. Dally.....Terre Haute, Ind.
 C. W. Hoff.....Terre Haute, Ind.
 J. C. Kelley.....W. Terre Haute, Ind.
 Lawrence F. Culver.....Veedersburg, Ind.
 R. D. Culver.....Veedersburg, Ind.
 Granite Brick Co., The.....Burlington, Iowa
 R. W. Besley.....Council Bluffs, Iowa
 E. A. Wickham.....Council Bluffs, Iowa
 C. A. Marshall.....Cresco, Iowa
 H. L. Tramp.....Creston, Iowa
 E. A. Brecht.....Des Moines, Iowa
 Eagle Iron Works.....Des Moines, Iowa
 Flint Brick & Coal Co.....Des Moines, Iowa
 C. A. Rawson.....Des Moines, Iowa
 H. A. Rawson.....Des Moines, Iowa
 S. K. Leacox.....Keota, Iowa
 D. F. Morey.....Ottumwa, Iowa
 C. J. Holman.....Sergeant Bluff, Iowa
 G. N. Fairchild.....Sioux City, Iowa
 Tom W. Green.....Sioux City, Iowa
 Paul Beer.....So. Des Moines, Iowa
 C. B. Platt.....Van Meter, Iowa
 Victor C. Vance.....West Point, Iowa
 Sanshi-Muto.....Tokyo, Japan
 Otto Brett.....Buffalo, Kan.
 Claude E. Fuller.....Buffalo, Kan.
 H. J. Huinskamp, Jr.....Buffalo, Kan.
 Wm. H. Francis.....Cherryvale, Kan.
 W. L. Buckles.....Coffeyville, Kan.
 E. R. Dick.....Coffeyville, Kan.
 B. E. LaDow.....Fredonia, Kan.
 J. J. Amos.....Humboldt, Kan.
 Charles Francis.....Independence, Kan.
 L. L. Ponsler.....Iola, Kan.
 George White.....Lawrence, Kan.
 B. W. Ballou.....Neodesha, Kan.
 A. R. Batley.....Paola, Kan.
 Thomas H. Gwynne.....Pittsburg, Kan.
 Willis Edson.....Topeka, Kan.
 J. A. McDermott.....Barbourville, Ky.
 D. Stewart Miller, Jr.....Cloverport, Ky.
 A. Meier & Co.....Covington, Ky.
 T. W. Spinks.....Covington, Ky.
 E. R. Dillehay.....Danville, Ky.
 G. S. Perdue.....Firebrick, Ky.
 Klemeyer & Klutzy Brick & Tile Co.....Henderson, Ky.
 George D. Dalton.....Hopkinsville, Ky.
 H. W. Katterjohn.....Paducah, Ky.
 Givens Brick Co.....Providence, Ky.
 E. S. Hitchins.....Olive Hill, Ky.
 C. Godchaux.....Abbeville, La.
 C. N. Adams.....Alexandria, La.
 J. R. Randolph.....Ruston, La.
 F. Salmen.....Slidell, La.
 Baltimore Brick Co.....Baltimore, Md.
 Samuel R. Busey.....Baltimore, Md.
 Jno. H. Geis.....Baltimore, Md.
 John W. Hall.....Baltimore, Md.
 Independent Brick Co.....Baltimore, Md.
 Jacob Klein.....Baltimore, Md.
 Louis N. Rancke.....Baltimore, Md.
 Chas. W. Slagle, Jr.....Baltimore, Md.
 Union Mining Co.....Baltimore, Md.
 Otto Hensel.....Mt. Savage, Md.
 T. H. Mitchell.....Salisbury, Md.
 Glen Perdue.....Salisbury, Md.
 Victor Cushwa & Sons.....Williamsport, Md.
 Edward D. Emerson.....Boston, Mass.
 Geo. M. Fiske.....Boston, Mass.
 John W. Hahn.....Boston, Mass.
 Parry Brick Co.....Boston, Mass.
 A. D. Rogers.....Boston, Mass.
 Alfred J. Rogers, Jr.....Boston, Mass.
 Spiers-Fish Brick Co., The.....Boston, Mass.
 A. J. Wellington.....Boston, Mass.
 F. L. Wright.....Boston, Mass.
 Ernest S. Yates.....Boston, Mass.
 William Mahanna.....Lenox, Mass.
 W. A. Bailey.....Northampton, Mass.
 Wm. Sanborn.....Somerville, Mass.
 T. D. Potter.....Springfield, Mass.
 E. L. Cook.....State Farm, Mass.
 B. C. Pierce.....Taunton, Mass.
 E. E. Johnson.....Sanborn, Vera Cruz, Mexico
 J. J. Miller.....Benton Harbor, Mich.
 G. H. Atherton.....Boync City, Mich.
 Thos. Oliff.....Clio, Mich.
 A. Wagner & Son.....Dearborn, Mich.
 D. Diver.....Deerfield, Mich.
 American Blower Co.....Detroit, Mich.
 George H. Clippert & Bro.....Detroit, Mich.
 Jacob Daniel.....Detroit, Mich.
 John S. Haggerty.....Detroit, Mich.
 F. B. Holmes.....Detroit, Mich.
 Thomas Bros. Co.....Detroit, Mich.
 Edward H. Vitaluis.....Detroit, Mich.
 W. W. Wallace.....Detroit, Mich.
 F. H. Wolf Brick Co.....Detroit, Mich.
 W. J. King.....Grand Blanc, Mich.
 J. F. Lewis.....Jackson, Mich.
 Michigan Brick & Tile Machine Co.....Morenci, Mich.
 Holton Brick Co.....Muskegon, Mich.
 American Sandstone Brick Machinery Company.....Saginaw, Mich.
 Merston, Schuette, Parker & Co.....Saginaw, Mich.
 Saginaw Paving Brick Co.....Saginaw, Mich.
 H. Brewer & Co.....Tecumseh, Mich.
 Davis Brown.....Tecumseh, Mich.
 Zeeland Brick Co.....Zeeland, Mich.
 H. H. Farnham.....Briekton, Minn.
 F. J. Nixon.....Duluth, Minn.
 Ira C. Jones.....Minneapolis, Minn.
 A. C. Ochs.....Springfield, Minn.
 W. Siwart Smit.....St. Paul, Minn.
 E. L. Young.....Aberdeen, Miss.
 Walter Clark.....Clarksdale, Miss.
 S. A. Williams.....Clarksdale, Miss.
 W. B. Taylor.....Jackson, Miss.
 R. W. Davis.....Brookfield, Mo.
 I. C. Wheeler.....Carthage, Mo.
 J. E. Meek.....Chillicothe, Mo.
 C. E. Miller.....Festus, Mo.
 John A. Hensley.....Fulton, Mo.
 H. A. Bastein.....Illmo, Mo.
 Walter S. Dickey.....Kansas City, Mo.
 Robert Nesch.....Kansas City, Mo.
 Geo. H. Smith.....Kansas City, Mo.
 J. J. Hoffman.....Milan, Mo.
 L. C. Moore.....Memphis, Mo.
 Frank Hudson.....Moberly, Mo.
 O. W. Renkert.....Moberly, Mo.
 Carroll Connett.....St. Joseph, Mo.
 A. Eagon Arbuckle.....St. Louis, Mo.
 Frederick E. Bausch.....St. Louis, Mo.
 Marion W. Blair.....St. Louis, Mo.
 A. C. Boughton.....St. Louis, Mo.
 John P. Camp.....St. Louis, Mo.
 Jno. Dell.....St. Louis, Mo.
 Evens & Howard.....St. Louis, Mo.
 Fernholtz Brick Machine Co.....St. Louis, Mo.
 J. J. Gledhill.....St. Louis, Mo.
 R. F. Grady.....St. Louis, Mo.
 W. P. Grath.....St. Louis, Mo.
 E. L. Hess.....St. Louis, Mo.
 H. A. Johann.....St. Louis, Mo.
 A. O. Jones.....St. Louis, Mo.
 Hydraulic Press Brick Co.....St. Louis, Mo.
 Anthony Ittner.....St. Louis, Mo.
 Laclede-Christy Clay Products Co.....St. Louis, Mo.
 Luce Engineering Co.....St. Louis, Mo.
 S. Mitchell.....St. Louis, Mo.
 Mississippi Glass Co.....St. Louis, Mo.
 National Pressed Brick Co.....St. Louis, Mo.
 Otto C. Oehler.....St. Louis, Mo.
 Lemon Parker.....St. Louis, Mo.
 Edward J. Ryan.....St. Louis, Mo.
 W. F. Scott.....St. Louis, Mo.
 J. Stocke.....St. Louis, Mo.
 G. E. Thomas.....St. Louis, Mo.
 H. J. Wedel.....St. Louis, Mo.
 H. A. Wheeler.....St. Louis, Mo.
 A. F. Williams.....St. Louis, Mo.
 J. M. Williams.....St. Louis, Mo.
 M. F. Williams.....St. Louis, Mo.
 Versailles Fire Brick & Clay Mfg. Co.....Versailles, Mo.
 J. G. Hammer.....Butte, Mont.
 Charles H. Bray.....Helena, Mont.
 J. W. Turner.....Burnham, Neb.
 A. Koehler Company.....Geneva, Neb.
 Western Brick & Supply Co.....Hastings, Neb.
 C. F. Kaul.....Madison, Neb.
 S. A. Corneer.....Omaha, Neb.
 H. J. Edwards.....Omaha, Neb.
 V. R. Gould.....Omaha, Neb.
 John L. Neble.....Omaha, Neb.
 G. E. Goldner.....Omaha, Neb.
 J. Fred Smith.....Omaha, Neb.
 George Frank Ball.....Keene, N. H.
 William E. Turner.....Rochester, N. H.
 Hubert Somers.....Atlantic City, N. J.
 Elton Braddock.....Bakersville, N. J.
 Geo. C. Pedrick.....Flemington, N. J.
 Otto F. Gelhaus.....Keyport, N. J.
 C. A. Bloomfield.....Metuchen, N. J.
 Cullen W. Parmelee.....New Brunswick, N. J.
 W. W. Blanchard.....Newark, N. J.
 A. S. Reed.....Newark, N. J.
 D. H. Applegate.....Red Bank, N. J.
 C. W. Kilborn.....Rosenhayn, N. J.
 C. T. Clarke.....Trenton, N. J.
 Joseph Walker.....Trenton, N. J.
 Charles F. Binns.....Alfred, N. Y.
 Edwin Brockway.....Brockway, N. Y.
 Henry Bender.....Buffalo, N. Y.
 J. H. Black.....Buffalo, N. Y.
 S. C. Brush.....Buffalo, N. Y.
 W. H. Brush.....Buffalo, N. Y.
 J. L. Cooper.....Buffalo, N. Y.
 George L. Schmidt.....Buffalo, N. Y.
 George W. Schuesler.....Buffalo, N. Y.
 John E. Schuesler.....Buffalo, N. Y.
 V. H. Whitney.....Buffalo, N. Y.
 Hervey Haigh.....Catskill, N. Y.
 Lambert Haigh.....Catskill, N. Y.
 Caleb C. Marshall.....Catskill, N. Y.
 M. E. Gregory.....Corning, N. Y.
 Walter E. Hilton.....Dunkirk, N. Y.
 Clarence P. Hendricks.....E. Kingston, N. Y.
 Joseph L. Cite.....Fishkill-on-Hudson, N. Y.
 W. G. Dove.....Geneva, N. Y.
 D. P. De Long.....Glens Falls, N. Y.
 Frank E. Wiles.....Grassy Point, N. Y.
 Matthew Gormley.....Haverstraw, N. Y.
 John E. Lynch.....Haverstraw, N. Y.
 John Peck.....Haverstraw, N. Y.

- H. C. Preston.....Hornell, N. Y.
 R. G. Eisenhart.....Horseheads, N. Y.
 Levi Marshall, Jr.....Horseheads, N. Y.
 J. E. Mecusker.....Jamestown, N. Y.
 Henry B. Loveland.....Jewettville, N. Y.
 George H. Morton.....Jewettville, N. Y.
 Albert Terry.....Kingston, N. Y.
 Jay Terry.....Kingston, N. Y.
 M. M. Hayden.....Newburg, N. Y.
 Wm. Lahey.....Newburg, N. Y.
 Hiram H. Walsh.....Newburg, N. Y.
 American Process Co.....New York, N. Y.
 Andrew A. Ayers.....New York, N. Y.
 Jas. G. Beemer.....New York, N. Y.
 William C. Black.....New York, N. Y.
 J. Frances Booream.....New York, N. Y.
 Ed. H. Callaway.....New York, N. Y.
 W. B. Chapman.....New York, N. Y.
 J. Parker B. Fiske.....New York, N. Y.
 M. Gabriel.....New York, N. Y.
 E. E. Gorton.....New York, N. Y.
 A. Koppel.....New York, N. Y.
 H. D. Lounsbury.....New York, N. Y.
 Robert Main.....New York, N. Y.
 Ohio Mining & Mfg. Co.....New York, N. Y.
 R. C. Penfield.....New York, N. Y.
 Orin D. Person.....New York, N. Y.
 Pfotenhauer & Nesbit.....New York, N. Y.
 D. S. Plummer.....New York, N. Y.
 J. A. Ridgway.....New York, N. Y.
 H. J. Roth.....New York, N. Y.
 Carl E. A. Trommer.....New York, N. Y.
 Ernst Weiner.....New York, N. Y.
 Edward G. Acheson.....Niagara Falls, N. Y.
 Geo. F. Tafel.....North Tarrytown, N. Y.
 New York Press Brick Co.....Rochester, N. Y.
 W. H. H. Rogers.....Rochester, N. Y.
 W. W. Parry.....Rome, N. Y.
 John B. Rose.....Roseton, N. Y.
 Philip Goldrick.....Saugerties, N. Y.
 John T. Washburn, Jr.....Saugerties, N. Y.
 Thomas Kieran.....Stapleton, N. Y.
 James L. Breed.....Syracuse, N. Y.
 William Cannon, Jr.....Syracuse, N. Y.
 J. Frank Plumb.....Syracuse, N. Y.
 National Roofing Co.....Tonawanda, N. Y.
 A. R. Campbell.....Tottenville, S. I., N. Y.
 James B. Crowell.....Walkill, N. Y.
 G. B. Mentz.....Walkill, N. Y.
 D. S. Hilderbrand.....Asheville, N. C.
 J. E. Carson.....Charlotte, N. C.
 R. A. Brown's Sons.....Concord, N. C.
 F. G. Thompson.....Elizabeth City, N. C.
 E. A. Poe.....Fayetteville, N. C.
 F. P. Marshall.....Greensboro, N. C.
 W. E. Jeffrey.....Rocky Mt., N. C.
 J. C. Steele & Son.....Statesville, N. C.
 Red River Valley Brick Co.....Grand Forks, N. D.
 McCausland Bros.....Akron, O.
 Robinson Clay Products Co.....Akron, O.
 R. E. Weaver.....Akron, O.
 Alliance Clay Product Co.....Alliance, O.
 George H. Bruns.....Brecon, O.
 F. L. Hopley.....Bucyrus, O.
 C. B. Sharer.....Bucyrus, O.
 A. A. Oldham.....Canton, O.
 The Bonnot Co.....Canton, O.
 The Metropolitan Paving Brick Co.....Canton, O.
 J. M. Blair.....Cincinnati, O.
 W. A. Eudaly.....Cincinnati, O.
 L. P. Hazen & Co.....Cincinnati, O.
 Suer & Bros.....Cincinnati, O.
 Atlas Car Mfg. Co.....Cleveland, O.
 Cleveland Brick and Clay Mfg. Co.....Cleveland, O.
 Robert J. Dawson.....Cleveland, O.
 G. W. Denison.....Cleveland, O.
 Dover Fire Brick Co.....Cleveland, O.
 Spencer M. Duty.....Cleveland, O.
 F. H. Eggers.....Cleveland, O.
 Wm. H. Hunt.....Cleveland, O.
 Albert D. Klein.....Cleveland, O.
 Ohio Ceramic Engineering Company.....Cleveland, O.
 R. L. Queisser.....Cleveland, O.
 F. H. Robinson.....Cleveland, O.
 C. B. Stowe.....Cleveland, O.
 John Wilson.....Cleveland, O.
 J. W. Candler.....Collinwood, O.
 J. M. Adams.....Columbus, O.
 F. Henry Angell.....Columbus, O.
 S. M. Chase.....Columbus, O.
 John A. Conard.....Columbus, O.
 C. H. Doan.....Columbus, O.
 T. W. Elser.....Columbus, O.
 Warren B. Ferris.....Columbus, O.
 Milton N. Grant.....Columbus, O.
 C. B. Harrop.....Columbus, O.
 S. J. Heafield.....Columbus, O.
 Gustave J. Holl.....Columbus, O.
 New Process Metal Co.....Columbus, O.
 The Ironsides Co.....Columbus, O.
 The Kilbourne & Jacobs Mfg. Co.....Columbus, O.
 The Jeffrey Mfg. Co.....Columbus, O.
 L. G. Kilbourne.....Columbus, O.
 Ellis Lovejoy.....Columbus, O.
 Prof. Edward Orton.....Columbus, O.
 Ross C. Purdy.....Columbus, O.
 W. D. Richardson.....Columbus, O.
 T. B. Dunn.....Conneaut, O.
 The Keller Brick Co.....Cuyahoga Falls, O.
 Chas. W. Raymond, Jr.....Dayton, O.
 Geo. M. Raymond.....Dayton, O.
 The C. W. Raymond Co.....Dayton, O.
 J. L. Schroll.....Dayton, O.
 Teigler Bros.....Dayton, O.
 L. L. Denison.....Delaware, O.
 Mitchell Brick Co.....Delhi, O.
 Samuel F. Spencer.....Dresden, O.
 J. E. Gamble.....East Liverpool, O.
 Geo. Gleckler.....Elmore, O.
 Minor Beardsley.....Findlay, O.
 D. Earl Child.....Findlay, O.
 D. M. Potter.....Fremont, O.
 E. M. Freese & Co.....Gallion, O.
 B. E. Place.....Gallion, O.
 The Wassall Clay Co.....Glouster, O.
 C. H. Forry.....Hanover, O.
 The Hamilton Brick Co.....Hamilton, O.
 J. W. Jones.....Haydenville, O.
 The Orchard Knob Clay Works Co.....Ironton, O.
 Wm. Drayton.....Kachelmacher, O.
 P. J. Fish.....Kenmore, O.
 Thos. A. Burrows.....Leavittsburg, O.
 W. J. Boyd.....Logan, O.
 A. Magoon.....Logan, O.
 R. D. McManigal.....Logan, O.
 Jacob Pfeiffer.....Logan, O.
 W. I. Foster.....London, O.
 Thew Automatic Shovel Co.....Lorain, O.
 N. A. Lewton.....Malvern, O.
 Marion Steam Shovel Co.....Marion, O.
 D. A. Martindill.....McArthur, O.
 C. H. Carpenter.....Martin's Ferry, O.
 Geo. J. Markley.....Mineral City, O.
 A. J. Frey.....New Bremen, O.
 D. J. C. Arnold.....New London, O.
 B. F. Rodgers.....New Lexington, O.
 Jno. D. Martin.....New Straitsville, O.
 The Horton Mfg. Co.....Painesville, O.
 J. D. Fate & Co.....Plymouth, O.
 Adam Buch.....Portsmouth, O.
 H. S. Grimes.....Portsmouth, O.
 The Peebles Paving Brick Co.....Portsmouth, O.
 Portsmouth Brick and Tile Co.....Portsmouth, O.
 A. J. Darbyshire.....Sabina, O.
 C. W. Turner.....Sciotovalley, O.
 S. M. Gould.....Shawnee, O.
 J. D. Rumsey.....Stryker, O.
 Warren Boice.....Toledo, O.
 James E. Fox.....Toledo, O.
 W. A. Howell.....Toledo, O.
 A. R. Kuhlman.....Toledo, O.
 A. A. Reilly.....Toledo, O.
 W. S. Russell.....Toledo, O.
 The Trimble Brick Manufacturing Co.....Trimble, O.
 A. E. Spear.....Uhrichsville, O.
 Ben S. Fisher.....Union Furnace, O.
 C. F. Walker.....Warren, O.
 F. W. Bennett.....Wellington, O.
 R. C. Bennett.....Wellington, O.
 C. G. Stevenson.....Wellsville, O.
 The Cleveland Car Co.....West Park P. O., O.
 W. J. Carmichael.....Willoughby, O.
 L. W. Penfield.....Willoughby, O.
 W. R. Bornhurst.....Wooster, O.
 C. C. Blair.....Youngstown, O.
 Charles M. Crook.....Youngstown, O.
 American Encaustic Tile Co.....Zanesville, O.
 C. S. Baldwin.....Zanesville, O.
 R. H. Rutherford.....Zanesville, O.
 O. N. Townsend.....Zanesville, O.
 A. T. Blatchford.....Allegheny, Pa.
 F. R. Kanengeiser.....Bessemer, Pa.
 Geo. W. Fleming.....Bradford, Pa.
 Chas. E. Foster.....Bradford, Pa.
 W. M. Hodges.....Bradford, Pa.
 T. J. Melvin.....Bradford, Pa.
 Chas. C. Stratton.....Bradford, Pa.
 C. P. Mayer Brick Co.....Bridgeville, Pa.
 Shull & Badger Brick Co.....Butler, Pa.
 George J. Fickes.....Carnegie, Pa.
 Clearfield Clayworking Co.....Clearfield, Pa.
 G. W. Lenkerd.....Clymer, Pa.
 U. J. Matson.....DuBois, Pa.
 C. K. Williams & Co.....Easton, Pa.
 H. C. Dunn.....Erie, Pa.
 J. B. Beshore.....Gettysburg, Pa.
 Henry Hasbrouck.....Johnsonburg, Pa.
 R. E. Keady.....Johnstown, Pa.
 Thos. E. Lewis.....Kane, Pa.
 American Road Machine Co.....Kennett Square, Pa.
 G. W. McNeas.....Kittanning, Pa.
 H. P. Martin.....Lancaster, Pa.
 Wm. R. Martin.....Lancaster, Pa.
 O. R. Hartel.....Lewisburg, Pa.
 M. C. Leinbach.....Lock Haven, Pa.
 John P. McIntyre.....McKeesport, Pa.
 T. W. D. Addenbrook.....New Brighton, Pa.
 P. A. Smith.....New Brighton, Pa.
 Beaver Clay Mfg. Co.....New Galilee, Pa.
 H. S. White.....New Kensington, Pa.
 W. C. Alwine.....New Oxford, Pa.
 I. L. Harvey.....Orvis, Pa.
 Cyrus Chambers, Jr.....Overbrook, Pa.
 George B. Waite.....Parsons, Pa.
 Patton Clay Mfg. Co.....Patton, Pa.
 Thomas B. McAvoy, Jr.....Pawling P. O., Pa.
 E. H. Carroll.....Philadelphia, Pa.
 P. F. Carroll.....Philadelphia, Pa.
 J. H. Chambers.....Philadelphia, Pa.
 I. N. Conkling.....Philadelphia, Pa.
 Wm. Conway.....Philadelphia, Pa.
 S. B. Dobbs.....Philadelphia, Pa.
 Murrell Dobbins.....Philadelphia, Pa.
 E. D. Dorsey.....Philadelphia, Pa.
 John H. Earley.....Philadelphia, Pa.
 Equitable Brick Co.....Philadelphia, Pa.
 E. F. Houghton & Co.....Philadelphia, Pa.
 John R. Huhn.....Philadelphia, Pa.
 O. W. Ketcham.....Philadelphia, Pa.
 Edwin A. King.....Philadelphia, Pa.
 Mack Manufacturing Co.....Philadelphia, Pa.
 T. B. McAvoy.....Philadelphia, Pa.
 A. R. Root.....Philadelphia, Pa.
 Webster & Keyser.....Philadelphia, Pa.
 Central Brick Co.....Pittsburg, Pa.
 Darlington Brick & Mining Company.....Pittsburg, Pa.
 Grant Dibert.....Pittsburg, Pa.
 Frank G. Evatt.....Pittsburg, Pa.
 Wm. Flinn.....Pittsburg, Pa.
 A. A. Hersperger.....Pittsburg, Pa.
 Evan Jones.....Pittsburg, Pa.
 I. M. Justice.....Pittsburg, Pa.
 Kittanning Brick & Fire Clay Company.....Pittsburg, Pa.
 Phillips & McLaren.....Pittsburg, Pa.
 D. T. Riffe.....Pittsburg, Pa.
 Sankey Bros.....Pittsburg, Pa.
 Thomas W. Wilson.....Pittsburg, Pa.
 E. S. Fox & Co.....Reading, Pa.
 W. S. Ravenscroft.....Ridgway, Pa.
 R. C. Reynolds.....Savlersburg, Pa.
 Union Brick Co.....Shamokin, Pa.
 Alfred Yates.....Shawmut, Pa.
 Lewis H. Alwine.....Spring Forge, Pa.
 Thomas Hampton.....West Elizabeth, Pa.
 George T. Dickover.....Wilkesbarre, Pa.
 Wm. S. Dickover.....Wilkesbarre, Pa.
 D. P. Guise.....Williamsport, Pa.
 David Stuenkel Sons.....Williamsport, Pa.
 J. W. Minnich.....Wrightsville, Pa.
 York Shale Press Brick Co.....York, Pa.
 Wm. L. Studley.....Providence, R. I.
 W. G. Titcomb.....Providence, R. I.
 G. G. Guignard.....Columbia, S. C.
 John F. R. Villalta.....Barcelona, Spain
 O. S. Adams.....Chattanooga, Tenn.
 Rush A. Jones.....Gilmore, Tenn.
 X. B. Wickersham.....Gilmore, Tenn.
 Knoxville Brick Co.....Knoxville, Tenn.
 T. C. Lundy.....Knoxville, Tenn.
 Alex. A. Scott.....Knoxville, Tenn.
 John G. Walters.....Martin, Tenn.
 Tennessee Brick Co.....Memphis, Tenn.
 Robert A. Speed.....Memphis, Tenn.
 Frank H. Reid.....Memphis, Tenn.
 W. G. Bush & Co.....Nashville, Tenn.
 Joe P. Fulcher.....Nashville, Tenn.
 T. L. Herbert.....Nashville, Tenn.
 E. T. Lewis Co.....Nashville, Tenn.
 W. D. Le Sueur.....Nashville, Tenn.
 J. V. Montrieff.....Bridgeport, Texas
 Kal Schwartz.....Corsicana, Texas
 J. E. Whiteselle.....Corsicana, Texas
 J. M. Harry.....Dallas, Texas
 Fraser-Johnston Brick Co.....Dallas, Texas
 Elgin Butler Brick & Tile Company.....Elgin, Texas
 Arthur S. Goetz.....Ft. Worth, Texas
 C. W. Williams.....Laredo, Texas
 A. L. Bronson.....Marlin, Texas
 A. R. Harwood.....San Antonio, Texas
 J. P. Cahoon.....Salt Lake City, Utah
 George Curley.....Salt Lake City, Utah
 Justis Jungk.....Salt Lake City, Utah
 Wm. S. Simpkins.....Salt Lake City, Utah
 C. H. Yohe.....Alexandria, Va.
 National Paint and Manganese Co.....Lynchburg, Va.
 J. W. Davis.....Newport News, Va.
 F. W. Dennis.....Norfolk, Va.
 D. G. Robinson.....Richlands, Va.
 W. Benj. Davis.....Richmond, Va.
 A. V. Sturgeon.....Reid's Ferry, Va.
 H. L. Jacobs.....Suffolk, Va.
 Denny-Renton Clay & Coal Company.....Seattle, Wash.
 Ellis Gates.....Seattle, Wash.
 S. Geijsbeek.....Seattle, Wash.
 Wm. C. Mitchell.....Seattle, Wash.
 S. P. Baird.....Charleston, W. Va.
 W. A. Stephens.....Fairmount, W. Va.
 J. E. Seller.....Middlebourne, W. Va.
 Geo. E. Snowden.....New Cumberland, W. Va.
 A. H. Finnegan.....Green Bay, Wis.
 Oscar Wilson.....Menomonie, Wis.
 Ricketson Mineral Paint Works.....Milwaukee, Wis.
 George J. Schwarz.....Milwaukee, Wis.
 L. H. Taylor.....Milwaukee, Wis.
 Ferdinand Vogt.....Milwaukee, Wis.
 P. L. Youngren.....Milwaukee, Wis.
 Gunther Bros.....Port Washington, Wis.
 Henry W. Carter.....Oshkosh, Wis.
 Oscar Zimbal.....Sheboygan, Wis.
 John Ringle.....Wausau, Wis.

In Memoriam.

- Charles Graham.....Brooklyn, N. Y.
 S. S. Kimbell.....Chicago, Ill.
 John Murray.....Paducah, Ky.

Written for THE CLAY-WORKER.

TENTH ANNUAL MEETING OF THE AMERICAN CERAMIC SOCIETY.

Held at Columbus, Ohio, February 3 to 5, 1908.

THE TENTH ANNUAL CONVENTION of the American Ceramic Society, which convened at the Hotel Hartman, Monday, February 3d, was the most largely attended in the history of the society. Ceramists from all sections of the country, representing many different clay industries, were present and entered enthusiastically into the excellent program, which had been prepared by Prof. Orton. Even those who arrived early found the hotel well filled, and by Monday noon many experienced difficulty in securing rooms, and were obliged to seek quarters at other hotels. The room provided for the session proved inadequate, not even providing standing room. The evening session was, therefore, held in the elegantly appointed parlor of the hotel, which afforded luxurious accommodations. There were sixty-five members present at the first session, when President Stanley Burt called the convention to order.

Monday Morning Session.

The convention opened with President Burt's address, in which he spoke in an interesting manner of the success which had come to the society during its first decade. He gave in detail the progress of the society from year to year, and the marked influence it had exerted upon the ceramic industries. He declared that the social features were of equal importance with the strictly technical side, and urged that in the future the evenings be devoted exclusively to Section Q, or social sessions, to permit the members to indulge in the interchange of personal experiences, and suggested that lay members be called on to preside over these sessions, with a view of enabling those who desired to introduce informally and consider in detail the particular lines in which they were the most interested. He argued that in this way information might be obtained on matters not included on the regular program, though of much importance, nevertheless. He advised the presentation of specimens of ware and experimental pieces in connection with the technical papers, and closed by thanking the society for the distinguished consideration shown him during the nine years of his official connection.

After the appointment of scrutineers, whose duty it was to look over the ballots and make ready for their announcement as to the results of the election of officers, Prof. Orton read the minutes of the previous meeting in his usual thorough and entertaining manner. His review of the mid-summer meeting of last year was most interesting, and showed the ceramists who were not there what a treat they missed. The ones who were fortunate enough to be present at the mid-summer meeting, enjoyed the retelling of those past pleasures.

Prof. R. C. Purdy, chairman of the scrutineers, then read the results of the election, and the installation took place as follows:

Officers Elected.

President—Prof. Albert V. Bleining, Champaign, Ill.
Vice President—Chas. Weelans, Trenton, N. J.
Secretary—Prof. Edward Orton, Jr., Columbus, Ohio.
Treasurer—Ellis Lovejoy, Columbus, Ohio.
Manager, for 1908-1911—Prof. C. W. Parmelee, New Brunswick, N. J.

The newly elected officers were then called upon for remarks. Prof. Bleining, on taking the chair, thanked the society for the honor, and promised to serve the association to the best of his ability. His speech was brief and to the point, and displayed how keenly he felt the honor.

After remarks by the different officers, the President called for the report of the Board of Trustees.

Prof. Orton, as secretary, read the report, which, in the main, referred to the strength and quality of Vol. 9 of the Transactions. He made special reference to the papers presented by Prof. Purdy and Mr. Fox, which were gotten out in pamphlet form immediately after the convention, in order that they might be used to advantage in the Illinois Legislature, for promoting the interests of the ceramic school in that State. The board also pointed out the fact that it was necessary for the society to secure the services of a salaried editor for the transactions, as the duties of Prof. Orton had become such that it was not possible for him to devote as much time as he thought should be put on this work. The Board urged the members to greater activity in acquainting the public with the society's work, and the need of a clay testing laboratory in Washington. The society has built up a strong organization, published valuable literature, beaten down the barriers of trade secrecy, and now, only needs better advertisement.

In his report, Treasurer Ellis Lovejoy showed a balance of \$112.24 in the treasury. An auditing committee was appointed to look over his report, in the usual manner, and soon made a satisfactory report, which was accepted unanimously.

The report of the Committee on Co-operation between the society and the Federal and State Geological Surveys, re-



President-elect Prof. A. V. Bleining, Champaign, Ill.

ported that no definite success had been attained in the matter of a Federal clay testing laboratory at Washington, but that a lively campaign had been begun, and that the indications looked very promising.

Speaking of the report of the Committee on Ceramic Schools of New Jersey, Prof. Parmelee stated that the legislature of his State had increased the appropriation.

Twenty-one new members were then voted in, and the society adjourned for lunch.

Monday Afternoon Session.

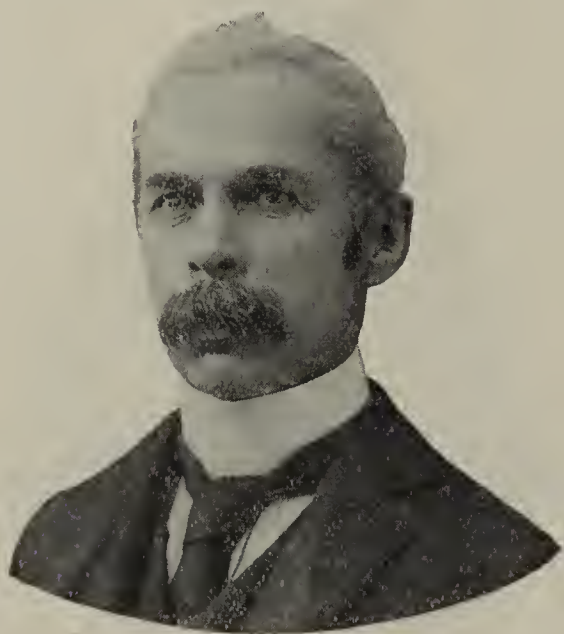
The first paper of the convention was read at the beginning of this session by Prof. Binns, on the subject, "The Function of Boron in the Glaze Formula." He reviewed data concerning boron in glazes which have been presented by Professors Burt and Purdy, showing that B_2O_3 , or boracic acid, acts as a base instead of an acid, so far as its effect on the coefficient of expansion and contraction is concerned. He demonstrated by unique experiments that boron appears to act as a base in regard to heat of combination. By direct empirical glaze experiments he showed that fritted glazes containing boron follow the same law of valence that he advanced as to raw lead glazes some years ago.

Mr. Arthur Watts, of Victor, N. Y., followed with a paper

on "The Action of Different Compounds of Calcium as Fluxes for Porcelain Manufacture." He demonstrated the relative fluxing effects of noncrystalline calcium carbonate (whiting), crystalline calcium carbonate (marble), calcium fluoride (fluorspar), calcium sulphate (plaster paris), in ordinary porcelain mixtures. The flowing effect of each of these did not prove to differ as much as did their physical structure. This he showed by specific gravity curves, which proved that the calcium fluoride caused a very large development of spongy structure, and calcium sulphate the least.

Prof. A. V. Bleininger's paper on "The Melting Intervals of Some Silicates," is similar to the work that is being done by Dr. Rieke, whose results are being published in the German papers, and which is proving to be most pregnant with practical results. Prof. Bleininger says this is the A. B. C of our ceramic knowledge. In fact, he demonstrated the most fusible mixture of our common ceramic minerals when taken in groups of two and also three each.

In Mr. Bryan's paper, "The Influence of Zinc Oxide on the Colors Produced by Chromium Oxide in Matt Glazes," he demonstrated that the brown color produced by chromium is not, as has been heretofore considered, due to the co-existence of iron, but rather to the oxidizing effect of zinc



Prof. Charles F. Binns, Alfred, N. Y.

oxide. This is an important discovery, especially because the matt glazes, now so popular, often contain large amounts of zinc oxide.

All the papers were discussed at length after being read, so that it was late in the afternoon before the convention adjourned for supper.

Monday Evening Session.

At eight o'clock the convention was again called to order, with the introduction of Prof. Purdy's paper on "Notes on Specific Gravity vs. Porosity Changes With Increasing Heat Treatment in Flint Fire Clays." In his paper, Prof. Purdy demonstrated that although flint clays increase in specific gravity with increasing heat treatment, they really follow the general laws found by Professors Purdy and Moore last year to govern the plastic fire clays and shales. The idea involved here is that the decrease in specific gravity indicates development in the spongy structure, because they increase in specific gravity rather than decrease, as in the general case. But by volume calculations, Prof. Purdy showed that flint clays were not free from the spongy structure.

Prof. Orton read Mr. Harrison E. Ashley's paper on "Notes on Pottery Plaster," that gentlemen being unable to be present at the convention. The paper gave the cause for and

tests of the irregularities of plaster, which he claims are due to imperfect calcination.

Mr. Arthur Mayer, New Brighton, Pa., read a paper on "Notes on a Texas Kaolin," which pointed out its unusual character and good qualities. This was followed by a paper by Prof. Bleininger on "Notes on the Viscosity of Clay Slips, Measured by the Coulomb Method." In this he gave the most simple and direct means of measuring this property, and stated in numerical terms the relative plasticity of clays. In his own words, this test was so simple that any one, with no previous knowledge, could carry it out. It is merely measuring the resistance offered by the clay when in slip form, to the revolution of a flat disc which is suspended by a wire, and which had an initial twist.

A Day at the University.

Early Tuesday morning, the crowd boarded cars for the Ohio State University, under the guidance of the genial Secretary, Prof. Orton. The crowd went direct to the Mines building, on alighting at the university, and the morning session was called to order at ten o'clock. One of the large recitation rooms in the ceramic department was used as the meeting place. Mr. Watts read the first paper, the title of which was, "The Use of Cornwall Stone vs. Feldspar as a Flux for Porcelain." He demonstrated how American materials could be combined in a fritt (melted glass), and serve the same purpose for which Cornwall stone is now being used. He found it essential that at least five per cent. of fluorspar be used in his glass in order that it might have the same fluxing behavior as Cornwall stone. He found that raw Cornwall stone was not as good a flux as this compounded fritt, or as raw feldspar, either in regard to the color and translucency of ware or fluxing effect of the ingredients mentioned.

After a long discussion on this subject, Mr. Karl Langenbeck read a paper on "Glass vs. Ceramic Wall Tiling," which demonstrated that the cause of cracking in glass tile of all sizes, when placed in walls, was due to the great difference in expansion of glass and mortar. On the other hand, he showed that the success of clay tiles for this purpose was due to the fact that the coefficients of expansion of clay tiles and mortar were almost the same. He illustrated this paper with a number of fine photographs, which clearly demonstrated the superiority of clay tile over glass tile.

The session then adjourned, and a most acceptable luncheon was served the ceramists in a large hall on the third floor of the building.

The time after luncheon until 2:30 was spent inspecting the ceramic department and university buildings. The afternoon session was held in the auditorium of the Physics building, as the morning session was overcrowded, and a larger hall was necessary for comfort and convenience.

Prof. Orton read the first paper of the afternoon session. In this paper on "Notes on a Type of Matt Glaze Maturing at Cone Five," he described the production of matt glazes of a very varied composition, and demonstrated that the mattness was due to the temperatures used in firing, as every matt glaze produced could be made to run bright by more heat. Mattness was, therefore, merely in maturity in glazes of this type.

Mr. Jos. K. Moore, of the Illinois Ceramic School, then read the paper prepared by Prof. Bleininger and himself on "The Influence of the Fluxes and Non-Fluxes Upon the Changes in the Specific Gravity of Some Clays." This paper pointed out the effect on the fusibility and the physical structure of burned ware of the various minerals commonly occurring in clays. The method followed was that devised and described by Prof. Purdy last year. Among the many interesting facts developed was that iron oxide instead of acting as a flux, as it was ordinarily considered, seems to have very little

fluxing effect, and actually causes an increase in density. This increase in density means decrease in the spongy structure, which has been shown to be the cause of weakness in paving brick. This paper was copiously illustrated with curve sheets. In the actual work of this experiment, the authors made 4,000 trial pieces.

This paper was followed by Prof. Orton and Mr. H. B. Henderson's paper on the subject of "Tests on Assay Crucibles, With Notes on Their Proper Composition." The most important fact developed in this paper was that many impure clays and shales are just as serviceable for assay crucibles as the refractory fire clays. This finding is very important and will create considerable interest among manufacturers of crucibles.

Dr. Zimmer, of Limoges, France, then read a most interesting paper written by Dr. Koerner, of Coburg, Germany, on the subject, "The Coloring Action of Certain Rare Oxides." He demonstrated that tungsten serves as a good crystallizer, and also exhibited and described a unique red crystalline glaze made from a mixture of uranium and bismuth.

Another very valuable paper on "Crystalline Glazes," by Dr. William Pukall, of Bunzlau, Germany, was to have been read, but did not arrive until a day after the meeting. It will appear in the transactions.

The session ended with a finely illustrated stereopticon lecture by Frank H. Riddle, of Colorado Springs, superintendent of the Van Briggie Pottery, on the subject, "The New Pottery and Art Terra Cotta Plant of the Van Briggie Art Pottery Company." His lecture was most interesting and the slides very entertaining, possessing the rich colors of the Colorado country around Pike's Peak.

The Society's First Banquet.

In the evening the society enjoyed a banquet at the Ohio Club, in celebration of the tenth anniversary of the society. Seventy-four members sat down to a prettily decorated table and partook of a much enjoyed repast. Eight of the ten ex-presidents of the society were present and were called upon for impromptu speeches, which were humorous and well received.

Last Session.

Wednesday morning the society met for its final session, which lasted until late in the afternoon. The first paper was "A Note on Drying Clays," by Edward F. Lines, of Champaign. In his paper he demonstrated by curves that very little of the water of plasticity exceeded that required to fill the pores of the green brick. This might be one means of measuring drying safety of clays.

Mr. W. A. Hull read a paper prepared by Mr. Ellis Gates, of Seattle, Wash., entitled, "The Arrangement of Manufacturing and Selling Costs." Mr. Gates merely showed the method employed by him in keeping track of the daily cost of manufacture in various departments of a terra cotta factory. His paper was fully illustrated.

Mr. R. F. Grady, of St. Louis, Read a paper on "Some Memoranda on the Crushing Strength of Terra Cotta." He gave interesting data on the crushing strength of terra cotta clays, when made up in the form of two-inch cubes and tested.

Prof. Bleininger's paper on "A Study of the Heat Distribution in Four Industrial Kilns," proved to be one of the most interesting papers of the convention, in that it showed the heat economy practiced in terra cotta and paving brick kilns. This is the first careful heat balance on a kiln ever made in America, and will prove to be a most valuable paper when published. It is, perhaps, the most valuable contribution that has ever been made to ceramic literature on burning.

In Mr. Geo. N. Jeppson's paper, read by Mr. Griffin, of Worcester, Mass., comparative figures were given on cost of installation and operation of gas versus steam power, when

used in a large way. It was fully illustrated with drawings and photographs, as well as by data culled from the records of a large factory, of which the author is superintendent.

Mr. Griffin's paper on "Notes on Crude Oil for Kiln Firing," demonstrated clearly that crude oil for kiln firing is not as economical as coal. This closed the most interesting and best attended convention in the history of the American Ceramic Society.

At the close of the last session, the following elections to full membership were made:

Dr. Jos. A. Koerner, editor Eprechsaal, Coburg, Germany, and Dr. Wm. Pukall, Director of Royal School of Ceramics, Bunzlau, Germany. Mr. Jos. K. Moore, student, Ceramic Department of the University of Illinois, Champaign, was promoted from the grade of associate to full membership.

Thirty-eight associate members were elected, two being foreign. The present standing of the society is as follows:

Honorary members.....	2
Resident and foreign members.....	50
Resident associate members.....	223
Foreign associate members.....	25

Making a grand total of..... 300

This shows a gratifying increase of thirty-six over that of last year. Many of the ceramists remained over for the



Toastmaster F. W. Walker, Beaver Falls, Pa.

N. B. M. A. sessions, and expressed their pleasure at being present at such a successful convention. They are now looking forward to the midsummer meeting, the exact date and place of which will be decided later by the Board of Trustees. Southern Canada and Denver, Colo., have been mentioned as desirable points for a summer meeting.

BARRON DRYER COMPANY MOVES INTO NEW OFFICES.

The Barron Dryer Company, established in 1879, has moved its offices from 84 La Salle street, to 18 Sloan street, Chicago, in order to consolidate same with their recently enlarged manufacturing plant. With all the details of the business under one roof, and with an efficient organization and equipment, together with a thorough understanding of the treatment of testing clays, they are in a position to construct and install dryhouses complete, a large portion of their facilities being given to the manufacture of cars, decks, track and steam specialties. The Barron Dryer Company installed the first steam dryhouse in this country over twenty-five years ago, and their business has been of a steady and increasing nature, built upon a thorough knowledge of dryhouses and equipment, the basis of which has been determined by experience.

Written for THE CLAY-WORKER.

THE ANNEX AND ANNEXERS.

ONE OF THE main attractions of the National Brick Manufacturers Convention this year was the Exhibition Room, where the machinery men had on display many attractive exhibits and were ever ready to receive the visitor, extend cordial greetings and present souvenirs of which there was a wide variety, such as pocketbooks, pencils, memorandum books, rules, knives, card cases, watch fobs, etc.

The convention hall proper was located in the northwest corner of the top floor of the Southern Hotel, while the exhibition room or annex occupied the remaining space on this floor, which extended around a court. This gave the machinery men the needed space for their exhibits which were surrounded by throngs of delegates at all hours, except when the convention was in session or the late hours of the night had scattered them to their places of rest.

Every inch of available space was used and some of the Annexers found it necessary to have private rooms for the buttonholing and entertainment of their friends and new acquaintances. Advertising literature such as placards, calendars, pamphlets, blue prints and bulletins were to be seen on every hand.

The Chambers Brothers Company, Philadelphia, had perhaps the largest display in the exhibition room, that of their small No. 6 automatic side cutting table, which has but recently been put on the market. This was operated by means of electricity and gave the visitors a good idea of the fine work accomplished by their machinery. Mr. J. H. Chambers, A. R. Root, and C. A. Newman, of Philadelphia, and E. R. Frazier, of Chicago, were to be seen in the vicinity of the exhibit at all times, wearing the smile that won't come off and ready to explain the merits of Chambers machinery to all comers.

George W. Fleming, Bradford, Pa., came early and stayed late. It was his first convention, but he earnestly declares that he will not willingly miss another. He started right by joining the "Easy Mark" Club, and then proceeded forthwith to initiate a number of his newly made friends and acquaintances, between while, presenting to delegates pamphlets describing and illustrating a new device for cutting ornamental and shape brick, which evidently is to fill a long felt want among press brick manufacturers. Mr. Fleming also represented the Leader Specialty Manufacturing Company, of Smithport, Pa., who is offering the trade an improved gas burner. Those operating in districts where natural gas is to be had will be interested in this burner, for, by its use, better burns can be made at less cost.

The American Clay Machinery Company, Bucyrus, Ohio, exhibited a number of small models of their machines, including a brick machine, Eagle repress and automatic cutting table, all run by electricity. This firm also had a special room for visiting clayworkers, where they had on exhibition blue prints, and photographs of their different makes of machinery. The company was represented by R. C. Penfield, and L. W. Penfield, S. J. Heafield, C. B. Sharer, F. L. Hopley G. C. Stoll and W. W. Whiting. They presented as souvenirs a beautiful watch fob and pocket knives.

The Henry Martin Brick Machinery Manufacturing Company, Lancaster, Pa., had a novel display in miniature, of their rack pipe brick dryer. This made quite a hit with the visitors, as did also the beautifully gotten up catalog and magazine distributed freely by James P. Martin and Frank McClellan, who wore number buttons 9 and 10.

The Stevenson Company, Wellsville, Ohio, was represented by Mr. Charles Stevenson, who was conspicuous both in the exhibition room and the lobbies throughout the week, and if there was any delegate desiring information in regard

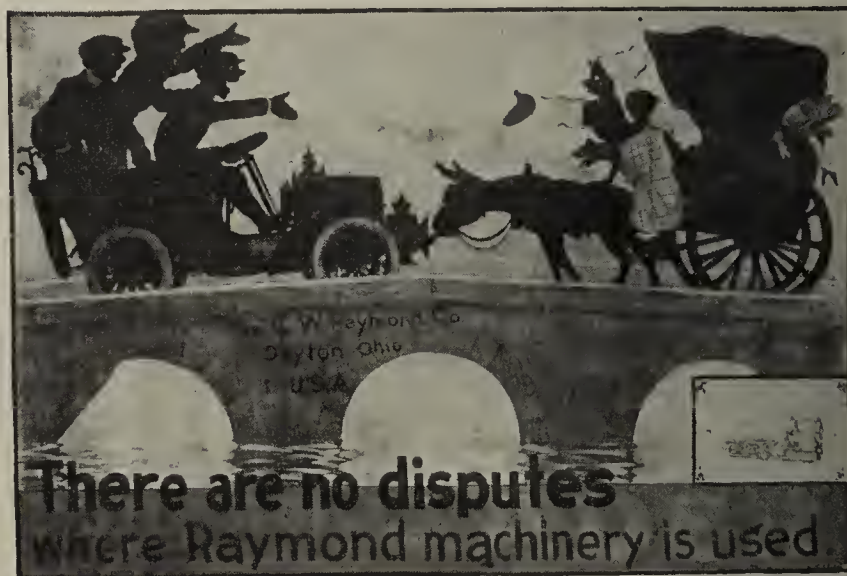
to Stevenson dry pans, sewer pipe machinery, etc., who did not get what he was looking for, it was no fault of "Charlie's."

Mr. W. A. Eudaly, of Cincinnati, exhibited some colored drawings of his kiln and presented visitors with his circulars. He is one of the oldest members of the N. B. M. A., being a charter member, and having missed but one or two of the twenty-two meetings, is, like his kiln, known to every one.

Mr. Harvey Haigh, of Catskill, N. Y., represented the Haigh Continuous Kiln. He distributed a reprint from THE CLAY-WORKER of the "story" entitled, "A Sure Cure for the Smoke Nuisance," which tells that his continuous kiln has been successfully operated on ex-President Conway's yard at Philadelphia. Mr. Haigh exhibited photographs of his kiln on a table in the annex.

The Marion Steam Shovel Company, Marion, Ohio, was represented by Mr. F. H. King, who decorated a small section of the wall space with their attractive poster calendar for 1908, near which their printed matter could be had for the taking.

A most unusual exhibit was made by the C. W. Raymond Company, of Dayton, Ohio, who displayed on the walls of the exhibition room and other available places large colored posters of very catchy designs, imported from Europe. This firm had a special room, Parlor E, where the visitors were invited



One of the C. W. Raymond Company's Imported Posters.

to register and procure a special souvenir—a beautifully glazed stein, on one side of which was the picture of a monk, while on the opposite side was a view of a Raymond brick machine. The visitors were also favored with giant cigars, nearly a foot long. Charles and George Raymond, and D. H. Downey, of Dayton, I. M. Justice, Pittsburg, Geo. Smith, of Kansas City, and J. L. Schroll, Dayton, ably represented this well-known clayworking machinery company.

The Standard Dry Kiln Company, Indianapolis, Ind., was represented by Mr. H. Wirsching, who distributed with impartial hand the literature of that company, telling of the advantages of the Standard steam dryer.

The J. D. Fate Company, Plymouth, Ohio, had their old faithfuls, H. H. Fate and Geo. B. Drennan, as representatives. These men of large parts circulated their new finely printed catalog, which is radically different from those heretofore issued, being bound in leather and of a size (about 5 by 8 inches) to be carried in a coat pocket. It contains illustrations of their entire line of stiff clay brick and tile machinery of a character seldom equaled in any trade catalog.

The Michigan Brick and Tile Machine Company, Morenci, Mich., was presented by Mr. A. J. Boyles, the gentleman behind Number Button 511, to whom parties desiring information in regard to Eli brick and tile machinery did not go in vain.

The Horton Manufacturing Company, Painesville, Ohio, was represented by H. W. Cole, who, though attending a N. B. M. A. convention for the first time, experienced no difficulty in finding takers for their printed matter setting forth the merits of the Hercules soft mud brick machine.

The Bonnot Company, Canton, Ohio, had as its representatives Messrs. A. A. Oldham and A. W. Aylesworth, who greeted the visitors with a pleasant smile and attractive black leather pocket bill books, and, incidentally, gave those desiring it full particulars of their line of stiff clay brick, tile and cement machinery, which is making Canton famous.

The Main Belting Company, of Philadelphia, representatives were much in evidence at the convention and presented the clayworkers with neat little leather pocket books. In the exhibition hall this firm exhibited photographs and catalogs, while in their rooms they gave their guests the glad hand and we might say, their pocket books. Messers F. S. Thompson, D. S. Thompson and E. P. Foster represented this firm famous for its Leviathan belting and conveyors.

The Luce Engineering Company, of St. Louis, was well represented by G. E. Luce, Peter B. Gibson, Elmer C. Peper



Marion Blair Exhibiting Blue Prints of Brickmaking Appliances in Parlor O.

and Marion W. Blair. In a special room they exhibited blue prints and photographs of brick machinery and plants, placed in revolving screens, while in the Annex they spread their advertising literature to advantage.

John C. Boss, of Elkhart, Ind., had space in the annex, where he exhibited his catalogs, which set forth the advantages of using the Boss system of burning, while in his rooms he received his friends and business acquaintances and explained to the prospective buyer the many advantages of his method of burning.

The E. M. Freese & Co., Galion, Ohio, was represented by H. H. Freese, B. E. Place and J. J. Gledhill, who distributed attractive catalogs and souvenir leather bill books.

The American Blower Company, of Detroit, Mich., was represented by A. A. Scott, C. H. Vitaluis and W. W. Wallace, who distributed catalogs for both this firm and the Scott Kiln Drying Company. They had on exhibition two unique models of their drying systems. They presented to the delegates a little tablet on which was modeled in bas-relief the

figure of a child blowing out a candle, and the title of which was "A Little Blower."

Arthur Koppel, New York City, had an exhibit in the left wing of the annex, of one of their large industrial railroad cars and a section of track. Their representatives gave out an attractive memorandum book, which was one of the handsomest souvenirs given out at the convention.

The Chisholm, Boyd & White Company, of Chicago, was represented by H. J. Flood, the president of the company, who is one of the most popular and familiar figures to be seen around the annex from year to year. His genial qualities have endeared him to the hearts of the old-time members.

The H. Brewer Company, Tecumseh, Mich., was represented by Charles Burrige, G. S. Brubaker and Davis Brown, who displayed a series of views of their plant and its products in swinging frames. It was a novel and pleasing innovation that provoked many compliments.

Mr. Albert Potts, of C. & A. Potts & Co., Indianapolis, Ind., a member of the N. B. M. A. of long standing, ably represented his firm and lost no opportunity to expound the good qualities of the Potts Horizontal Brick machines, clay disintegrators, molds, sanders, etc.

The Scott Manufacturing Company, of St. Louis, Mo., gave as a souvenir a neat combination pencil and pen holder. Mr. "Dixie" Scott, needless to say, represented this firm in his usual characteristic jovial manner, and distributed, with liberal hand, literature which showed the merits of the "Press that Scott Builds."

Mr. L. E. Rodgers, the "Dryer Man," of Chicago, represented his firm, the L. E. Rodgers Engineering Company, in his pleasing, friendly manner. He was ably seconded by Mr. J. O. Trautwein. The "Dryer Man" has been unusually busy during the past year.

The Thew Automatic Shovel Company, Lorain, Ohio, was represented by D. D. Deeds. He spread freely his company's advertising pamphlets, catalogs and other literature, telling of the success of the Thew steam shovel in the clay plants of America.

The Illinois Supply and Construction Company, of St. Louis, who manufacture the Grath Brick Press, was represented by W. P. Grath, who gave the delegates an attractive souvenir in the shape of a memoranda book. In the annex this firm displayed three model presses, which afforded the visitors the opportunity of observing the modus operandi of the Grath presses.

Mr. Anton Berg, of Toronto, Ont., Canada, the head of the A. Berg & Sons Co., was a familiar figure about the lobbies, and confined his efforts to distributing his catalog and other printed matter.

The Williams Patent Crusher and Pulverizer Company, of St. Louis, was represented by A. F. Williams. On a table in a corner of the annex this firm displayed catalogs and advertising literature, which set forth the many good points of the Williams crushers and pulverizers. This firm has had remarkable success, not only in the clay industry, but also in the cement, coal and cotton fertilizing and tanning industries.

The Fernholtz Brick Machinery Company, of St. Louis, was represented by Wm. L. Rodgers, who distributed catalogs and other literature bearing testimony to the good qualities of their brick machinery. In the annex they exhibited two models of their presses. Mr. Rodgers reported a very satisfactory year's business.

Mr. P. L. Youngren, of Milwaukee, Wis., the inventor of the Youngren Gas-Fired Continuous Kiln, with others of the frozen north, was late in arriving, owing to snow blockades encountered en route, but was kept very busy after he did get there answering questions about producer gas firing, etc.

Mr. J. W. Arbuckle represented the old, well-known firm of Madden & Co., Rushville, Ind. He thinks well of this

year's prospects for a good business in his line, and declared that he had more orders than he could handle last season, but which can be taken care of, now that they have their new shops going.

The Atlas Car and Manufacturing Company, of Cleveland, Ohio, was represented by S. A. Williams and R. S. Richards, who distributed their advertising literature, which consisted of their catalog No. 1040, and a few leaflets of testimonials of their line of high-grade dump and dryer cars, turn tables, pallets, etc.

The Wellington Machine Company, Wellington, Ohio, was represented by R. C. and F. W. Bennett, who were kept busy the entire week entertaining the clayworkers and distributing their advertising literature. They had an exhibit of their brick trucks in the left wing of the annex.

The Dunlap Manufacturing Company, Bloomington, Ill., exhibited two of their screens in the annex, and handed out to the visitors their neat catalog. O. W. Dunlap represented this firm and gave as a souvenir a practical pocket rule.

The Anderson Foundry and Machine Works, Anderson, Ind., was ably represented by W. N. Durbin, who, being Secretary of the Machinery Men's Association, and the sole representative of his firm, necessarily put in a busy week.

Mr. J. J. Gledhill represented the Drymore System, of St. Louis, and distributed catalogs freely.

The Ohio Ceramic Engineering Company, of Cleveland, Ohio, was represented by Frank H. Robinson, who was among the later comers, but made up for lost time, all right, after arrival.

The Cleveland Car Company, Cleveland, Ohio, was represented by W. F. Caskey and R. L. Dumeldinger. They distributed catalogs and other advertising literature.

The Chicago Brick Machinery Company, Chicago, Ill., as usual, was ably represented by John J. Moroney, the "King of Ireland," as he is known, and he lived up to his reputation as a "glad hand" artist.

The American Road Machine Company, Kennett Square, Pa., was advertised by means of a neat catalog, which contained a number of illustrations of their crushers and dry pans.

The National Brick Machinery Company, of Chicago, was represented by P. L. and H. S. Simpson, who distributed a new and very attractive catalog of their brick machinery.

The G. B. Mentz Company, Walkill, N. Y., exhibited a number of their pallets and molds in the left wing of the annex. Mr. George B. Mentz was his own representative, and presented the delegates with a neat pamphlet of his brick molds and brickmakers' supplies.

The Arnold-Creager Company, an old established clayworking machinery firm of New London, Ohio, distributed their blue covered Twenty-seventh Annual Budget, which was well received. Mr. D. J. C. Arnold renewed his youth, joined the "Easy Mark" club and proved a worthy candidate.

The Wallace Manufacturing Company, of Frankfort, Ind., through its industrious representative, Mr. A. McClamrock, told those who cared to know of the merits of Wonder brick and tile machinery.

The Richardson-Lovejoy Engineering Company, of Columbus, was ably represented by W. D. Richardson, the well-known engineer, and Ellis Lovejoy. The latter, as chairman of the local entertainment committee, had little time for business, but devoted himself unselfishly to the needs of the delegates.

The Pulsometer Steam Pump Company, of New York City, had their literature on display in the exhibition hall.

The Ernst Weiner Company, New York City, spread widely their catalogs, which contained a number of illustrations of their car tracks, turntables, etc.

Bechtels, Limited, of Waterloo, Ont., exhibited a number of photographs in the annex, which set forth the advantages

of their machinery in an attractive way. C. H. Bechtel, secretary of the company, and ex-secretary of the Canadian Clayworkers' Association, was well-nigh omnipresent.

The Massachusetts Fan Company, Watertown, Mass., were represented by Mr. R. G. Ferguson, Cleveland, Ohio, who proved an adept enlightener on all matters pertaining to waste heat drying.

The Matthews Gravity Carrier Company, St. Paul, Minn., exhibited a large section of their device in the left wing of the annex, which proved quite an attraction to all delegates.

The Western Electric Company, Chicago, distributed catalogs and circulars of their motors and electrical machinery.

There were a number of exhibits of brick, consisting, for the most part, of dry press face brick.

Mr. Alfred Yates, of Shawmut, Pa., had on exhibition samples of his paving brick, which challenged the admiration of every clayworker, due to their fine quality. His company manufactures a high-grade vitrified paving brick and block.

The Oakland Pressed Brick Company, of Zanesville, Ohio, exhibited a number of their fine press brick, as did also the Ohio Mining and Manufacturing Company and the Shawnee Flash Brick Company, Shawnee, Ohio, the Hanover Press Brick Company, Hanover, Ohio, and the Kittanning Clay Manufacturing Company, Kittanning, Pa. The Twin City Brick Company, of St. Paul, Minn., exhibited a line of face brick of an unusual color and texture that attracted much attention.

Other well-known manufacturers represented were: Taplin-Rice-Clerkin Co., Akron, Ohio; Crawford & McCrimmon, Brazil, Ind.; Link Belt Machinery Company, Chicago, Ill.; Kilbourne & Jacobs Manufacturing Company, Columbus, Ohio; The National Roofing Company, Tonawanda, N. Y.; James B. Crowell & Sons, Walkill, N. Y.; The American Process Company, New York City; The New Process Metal Company, Columbus, Ohio; The Ohio Galvanizing and Manufacturing Company, Niles, Ohio, and many others.

Points of Perfection.

Rear Mr. Randall:

In our recent published letter, we promised to let the readers of your journal know who the winner of our motto contest would be, and the only reason why we have not let you hear from us sooner was due to the fact that the selection was not made until too late to get it into the columns of the journals for the January issue.

Mr. John H. Woods, of 2048 Carroll st., St. Paul, Minn., formerly of Jacksonville, Ill., is the winner, the following motto, which he submitted, having been adopted:

"Perfection consists not in doing extraordinary things, but in doing ordinary things extraordinarily well."—Arnauld.

We want the idea expressed in this motto to become a part of our organization, and, likewise, wish the clayworkers throughout the United States to know that what we are striving after in our field is better brick plants, whether old or new.

We will send this motto, mounted on a combination desk card and hanger, to any reader of your journal who will send us his name, occupation and address.

We wish to thank all of the parties who contested, and, lest we should have missed getting any of their names on our list, will ask them to write us and we will be sure that they receive one of these mottos.

Yours very truly,
LUCE ENGINEERING COMPANY,
PETER B. GIBSON, Secretary.

St. Louis, Mo., February 12, 1908.

A CORRECTION.

In the January number, on page 63, in the write-up of the Hanover Brick Company's plant, the type made us say that the company has been making 35,000 brick per day, when it should have read 85,000 brick per day.

Written for THE CLAY-WORKER.

THE SIDE TRIP TO BUCYRUS.

A Pleasing Event Participated in by Two Hundred Delegates Who Enjoyed a Trip Through the Immense Plant of the American Clay Machinery Company.

THE SPECIAL TRAIN generously provided by R. C. Penfield, president of the American Clay Machinery Company, left the Columbus Union Station on schedule time, 8:00 A. M., Friday, bearing two hundred of the delegates of the N. B. M. A. Convention to Bucyrus, some sixty odd miles north of Columbus. The trip was made in about two hours and if all the trade lore swapped back and forth during that time could be put in print, it would make a volume of equal size and importance to Seger's Translations.

The large number who participated in this side trip is in

through the various departments of the factory. Those who had not previously visited the plant were amazed at its extent and capacity. In the shipping department, there were in one group nine large dry pans ready for shipment, while in the assembling room were many machines, large and small, in varying stages of completion.

When the whistle blew at noon time, the party was divided into three groups and taken to as many hotels, where dinner was served with the compliments of the A. C. M. Co., after which the visitors again repaired to the factory and spent another two hours in inspecting the various departments of the works, not the least interesting of which was the clay testing department, equipped with almost every known device for tempering, molding, drying and burning all manner of clay wares made in the factory from clay received for the purpose from all sections of the world.

The extensive and well equipped offices were visited, and



Group of Excursionists in the Immense Foundry Department of the American Clay Machinery Company, Bucyrus, Ohio.

itself an indication of the success of the Columbus meeting. Older members will not have to tax their memories to recall the time when a total attendance of two hundred was considered gratifying. While comparisons are odious, it may be noted that this side trip party exceeded in numbers the attendance at the splendid State convention at Des Moines. In fact, the total attendance of clayworkers at all three of the recent State conventions exceed but little, if any, the number carried on this special train.

Arriving at Bucyrus, the party was marshalled under the lead of Messrs. R. C. Penfield, F. L. Hopley, G. C. Stoll, W. W. Whiting, S. J. Heafield, and C. B. Sharer, cigars were passed to the gentlemen, and a pleasant walk over excellent brick paved streets, brought the party to the immense plant of the American Clay Machinery Company, where they were welcomed by Secretary R. O. Perrott and Superintendent W. R. Cunningham and others of the local force and conducted

the company's literature, of which they have an infinite variety, was presented to those who cared for it. Those who had not previously been so favored were presented with a very pretty souvenir watch fob. Each visitor had previously been decorated with a carnation and a small silk flag, Old Glory in miniature. All in all, the trip was one of unmixed pleasure, and at 2:30 P. M., the American special returned Columbusward, bearing those of the party who had not arranged to proceed directly home from Bucyrus, as did some fifty of the Eastern delegates. Before saying final adieus, a rousing vote of thanks was tendered to the American Company for their splendid hospitality by the visitors.

Any man can jump into business, though he may not possess any great quantity of brains or money, but he will likely find an urgent need of a fair share of both to either stay in or get out of it.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

CONVENTION ECHOES.

The Kansas Delegation Had a Fine Time.

Dear Mr. Secretary:

Permit me to say that Mr. Francis and I returned from our long trip safe and sound, having had the time of our lives at the convention. I feel that our good time was really due to the splendid efforts of yourself, aided, of course, by some of the other leading members of the Association. Mr. Francis and I were both impressed with your fairness and good sense in managing the convention; you are entitled to every credit for the skill and tact shown. I think you had better enter our order for half a dozen extra copies of THE CLAY-WORKER containing the proceedings of the convention.

Thanking you kindly for the courtesy shown us at Columbus, I beg to remain, Very sincerely,

W. G. BUCKLES.

The National Convention a Great Success.

My Dear Randall:

The writer wishes to extend to you and other good members of the N. B. M. A. his hearty thanks for many courtesies shown him at Columbus. It certainly was the most successful convention of any kind I have ever had the pleasure of attending and was far beyond my expectations. The members of the N. B. M. A. are certainly a body of broad-gauged business men, of whom we all may be proud.

You can hardly keep me from attending next year, be it where it may. My only regret is that I did not have the pleasure of attending in previous years, as all seem to have such pleasant recollections of those occasions. I can assure you that my visit to Columbus was a great success, both from the standpoint of pleasure and business.

Sincerely yours, GEO. W. FLEMING.
Bradford, Pa., Feb. 13, 1908.

The President's Appreciation.

My Dear Randall:

Mrs. Gregory and I arrived home Tuesday noon exceptionally well pleased with our trip. I assure you that I appreciate the honor conferred upon me by my fellow brickmakers, and wish to thank all my intimate friends for their assistance in this matter, and especially do I wish to thank you, because I think you had a large part in bringing this matter about. I enclose you clippings which came out in our papers immediately after receipt of the news in Corning.

With kindest regards to you and your entire family, in which Mrs. Gregory joins me, and again thanking you, I remain,
Yours fraternally,

Corning, N. Y., Feb. 13, 1908. M. E. GREGORY.

Notes the Absence of Many Old Friends.

Dear Mr. Secretary:

Enclosed find check and subscription card filled out for the Winona Technical Institute bricklaying department. This, you understand, is for the subscription I made at the convention at Columbus.

Since my return from Columbus I have been thinking over the program of the convention, and I think it has been one

of the most instructive and interesting that we have ever held. The only thing to mar the pleasure of the occasion was the absence of so many of our old friends.

With best wishes for the success of the N. B. M. A. and the Winona Technical Institute, I remain,

Sincerely yours, GEO. T. DICKOVER.
Wilkes-Barre, Pa., Feb. 19, 1908.

No Kick at All on Columbus.

My Dear Randall:

I have cut another notch in the stick on which I keep the record of the conventions I have attended, and I have cut it deep and broad, because it certainly was enjoyable, and our Columbus friends did all they possibly could to make it so. Even the Southern Hotel managers treated us liberally and did all they could to make it pleasant for us.

I was exceedingly pleased with the action taken by our Association with reference to trade schools and inland waterways, two things the necessity for which can not be too strongly impressed upon the community at large.

Two faces I missed very much—our old friends, Purington (D. V.) and Brother Gates. I sincerely trust we shall see them both when we meet again. With best wishes to you and all yours, including our Assistant Secretary, I am, as ever,

Sincerely yours, CHARLES A. BLOOMFIELD.
Metuchen, N. J., Feb. 18, 1908.

Suggests Charlotte, N. C., for the Next Meeting.

Dear Mr. Randall:

I was delayed a day in reaching Columbus, thus losing the first day's sessions, which I regret exceedingly, knowing now that I missed something good. I attended the play and the meeting at the university, and enjoyed both. But the thing I enjoyed most was meeting and talking in the lobby with men high in the profession, gaining knowledge that I could not have gotten otherwise. I was so pleased with everybody and everything that I became a member of the Association, and hope I may be permitted to attend many more meetings, and not miss one.

Had you ever thought of our city as a possible place of meeting? We have fine hotels, delightful climate and a hospitable people. Would be glad to have the brickmakers with us, and would strive to make all of them have a pleasant time. If there would be any use, I would go at the matter in a business way.

Wishing all the brickmakers and allied trades a very prosperous year, I am,
Yours truly, J. E. CARSON.
Charlotte, N. C., Feb. 18, 1908.

The Lobby Talks the Source of Most Information—Suggestions for the School of Bricklaying.

My Dear Randall:

Now that the volume of unanswered correspondence accumulated on my desk during my absence has been disposed of, I wish to write you a few lines, giving my impression of the convention.

I always imagined that by reading the proceedings I would practically secure the same benefit as by attending the convention. My visit to Columbus has changed my mind completely.

It is the buttonhole talk, the personal contact, the exchange of ideas, which are the real benefit of the convention. I came back broadened in my views, with a better understanding of the relation of my work to the clayworking industry in general, with the foundation laid for many new business connections, and with a kindlier feeling for many of my competitors.

The visit to the university alone was worth the trip. It was stimulating and instructive.

I fully realize that the success of the convention is largely due to the efforts of yourself and a few men who have done the larger part of the work. Your tact, patience,

firmness and courtesy made everything run smoothly, and I am sure that each delegate will feel personally indebted to you for all you have done to make his stay profitable, agreeable and instructive.

Before closing let me offer a few suggestions: I hope that next time the exhibit room will not be open during the sessions. The noise disturbs the proceedings. I plead guilty myself on one or two occasions.

I was disappointed that the papers read did not bring out a fuller discussion of the subjects. Could discussion be stimulated by changing, in some instances, from papers to debate? I hear you say, why did you not take a more active part in the discussions. I wish to state that my work is largely commercial, although I occasionally have charge of the manufacturing end, and, since hardly any commercial topics were brought up, I did not find occasion to state my views.

I rather wonder that so few dared to express an opinion on the trade school subject. A fearless expression of any one interested, on any subject worthy of discussion, will strengthen our organization.

In a conversation with a well-known union bricklayer, I was told that, in his opinion, trade schools have come to stay, and should not be condemned unreservedly by the union. We ought to try to come in closer contact with the Bricklayers' Union on this subject, and I think that we will find that many of them are willing to change their views, and will acknowledge that since we, as brickmakers, find it profitable to support the Ceramic Department of the Ohio State University, they, as bricklayers, from the larger point of view, will, in the end, find it to their advantage to assist in the establishment of trade schools. I am of the opinion that the Bricklayers' Union is ready to co-operate with us in the gathering and spreading of information to the use of clay burned material, and the true nature of concrete construction. But I must close.

Sincerely yours,
TWIN CITY BRICK COMPANY,

W. SIWART SMIT, General Manager.

St. Paul, Minn., February 20, 1908.

Wants to Hold Next Convention in Colorado.

Dear Mr. Randall:

I want to thank you for the good time I had at Columbus. I trust you will carry out your suggestion and meet at Colorado Springs next year, as I would like to have a ride on those canaries myself, which you showed us in the pictures. I believe it would meet with general approval. Excuse the suggestion, but why wouldn't it be a good idea to take a vote by mail on Buffalo or Colorado Springs. However, wherever you decide to go I expect to be with you, and you can depend on my doing everything I can for the Association.

Yours truly,

Philadelphia, Pa., Feb. 19, 1908

S. S. DOBBS.

Gives the Clay-Worker Much Credit.

Editor THE CLAY-WORKER:

Yours in regard to the expiration of our subscription and inquiry as to how business was with us last year at hand. Find enclosed postal money order for renewal, with thanks for reminder.

Our plant is a sawmill and clay works combined, and has proved to be economical in several ways. We burn surplus sawdust in the boiler furnace for running the clay machinery and drying the manufactured products, and we burn the slabwood in the kilns and sell some to the local trade.

We ran one or the other of the two plants for about ten months last year, and our trade was all that could be expected. This year the lumber outlook is not so bright, but, on account of lower wages, we look for the drain tile trade to be better.

Our plant consists of a sixty horse power boiler and engine, made by the Frost Manufacturing Company; a sawmill, with a capacity of 25,000 feet; and a J. D. Fate combined "D" machine, with vertical attachments for large tile; Ben-

sing's automatic cut-off for block and tile, and a board delivery brick cutting table, a winding drum, with a cable, and rocker dump car.

The dry rooms are heated by steam. We have two round center-draft, single-stack kilns, that burn to our entire satisfaction, often less than one per cent. of waste. THE CLAY-WORKER is always a welcome visitor, and our success is largely due to information gained from it.

Wishing you success in your good work, we remain,

Yours respectfully,

Hillsboro, Ore., February 6, 1908. GROWER & ROWELL.

Address of Benj. L. Reid Wanted.

Editor THE CLAY-WORKER:

I have a brother by the name of Benj. L. Reid, from whom I have not heard in twenty-six years, but learn that he was in Laredo, Texas, a year or so ago. I think he is in the brick business, probably bookkeeper or foreman. I am very desirous of learning his present address. Likely some of THE CLAY-WORKER readers may know him. If you will publish this and inform me as to result, I will thank you very kindly.

Marietta, Ga.

J. P. REID.

A Thousand and One Other Items of Benefit.

Editor THE CLAY-WORKER:

Enclosed find \$2.00 to pay subscription for another year for THE CLAY-WORKER. I could not keep house at a clay plant without it. It would be like farming by hand or without a team of horses. It brings us our main strength and power, and out of it we get our ideas of what other men are doing. It's where we find our machinery, our new inventions, our ideal kilns; and we find the doings and papers of all the clayworkers' conventions, and a thousand and one other items of benefit and interest to the brickmaker. Indeed, I should be lost without it. I watch and look for its arrival each month, even more than I do my daily paper. I say, hurrah for THE CLAY-WORKER, for it is growing better every year, and would be cheap at twice the amount it costs. Let it come, and long may it live.

Riverside, Iowa, February 8, 1908.

Sincerely,

H. L. SWIFT.

Written for THE CLAY-WORKER.

BUFFALO BRICK AND BUILDING SITUATION.

MR. JOHN H. BLACK, who has an office in the Builders' Exchange, Buffalo, and is representative of the Atlantic Terra Cotta Company, of New York City, recently secured several contracts to supply terra cotta for various buildings in this vicinity. He is furnishing terra cotta to the value of \$15,000 for the Hotel Rochester being built in Rochester, N. Y., at an expense of \$500,000. Brick, terra cotta and granite are the principal materials used in the building. Mr. Black also has an \$11,000 contract for terra cotta to be used on the new gymnasium being built for the University of Syracuse, in Syracuse, N. Y., at a cost of \$200,000. The terra cotta furnished by Mr. Black for the Duffy-McInnerney Company's department store of Rochester, N. Y., was valued at \$40,000. The store cost upward of \$500,000. It is now completed. Upward of \$10,000 worth of terra cotta is being supplied by Mr. Black for the new building being erected in Hamilton, Ont., by the Landed Banking and Loan Company of that city.

According to a rumor, a new skyscraper may be built on the sight of the Gruener Hotel property at Washington and Huron streets, Buffalo.

The Board of Supervisors at Schenectady, N. Y., will offer prizes amounting to \$1,000 to induce many architects to compete in the drawing up of plans for the new county court house to be built in that city.

According to a communication sent to the Aldermen of Buffalo, the Bricklayers' Union wants the fire limit of this

city extended. The union also wants the building ordinances of Buffalo amended to permit of brick walls eight inches thick on dwellings two stories high.

According to a report from Rochester, N. Y., within the next two years, a new school building, the estimated cost of which will be nearly a quarter of a million dollars, will be completed on the site of the present Washington School, No. 26, on Clifford avenue of that city. Col. S. P. Moulthrop is principal of the school.

A. JOSEPH.

Buffalo, N. Y.

Written for THE CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND THE NORTH-WEST.



HERE HAS BEEN some improvement in the building situation in the Twin City field since the first of the year and at the present time the prospects seem to be good for a season nearly, if not quite as good as was experienced in 1907. The action of the banks of St. Paul and Minneapolis the first of the year in announcing that they had resumed full payments without restriction, and without waiting for other financial centers to do likewise, has accentuated the great prosperity of the northwest and has caused a rapid return of confidence which is already making itself felt in renewed plans for extensive construction work. The winter has, thus far, been a mild one, and, with an early spring, building operations should begin considerably earlier than usual. At present outside building operations are practically suspended, but those who had formed tentative plans early in the fall for building have renewed them, and there are a good many who are contemplating construction work who had not planned it heretofore. The winter months in this section are always dull, so far as actual work is concerned, but the month of January usually sees most of the important work of the year planned and the past month has been no exception to the rule. February is also generally dull, although some of the more important work is usually started near its close.

There are several reasons why building will be active during the present year, and which will more than offset the effects of the temporary loss of confidence. Labor conditions are in excellent shape, the recent stringency having made the laboring class less independent and exacting, the open shop principle has been fully established in the twin cities and there is practically no danger of a prolonged labor struggle. Building materials are also considerably lower than they have been for a number of years. It is also felt that money will be more plentiful, less being diverted into the stock markets, and that which has been hoarded will gradually find its way back into the legitimate channels of trade. The northwest is growing steadily and there is a constant demand for new residence and business structures. And a feature of the building work here in recent years is the substantial methods employed in construction. Buildings are no longer erected as they were during the boom days, but office buildings, factories and dwellings are all being built with an idea of permanency and substantialness. This feature is well shown in the annual report of Jas. G. Houghton, City Building Inspector of Minneapolis. In the past year, the report shows that there was forty-six buildings erected which were fireproof throughout, and thirteen more were fireproof except as to their roofs. Of the \$12,000,000 spent in building last year, about twenty per cent. went into fireproof structures. When it is noted that Minneapolis had only eleven completely fireproof buildings four years ago, the significance of the above figures is made very apparent.

It has been Mr. Houghton's constant endeavor since taking charge of the department of building inspection to interest architects, contractors and property owners in modern methods, and to build permanent structures that will withstand the ravages of time, reduce the fire hazard and make the city one of substantial structures. To that end he has

advocated the most stringent ordinances, and, in the main, his ideas have been adopted by the City Council, and as a result the building code of Minneapolis is surpassed by few of the larger cities.

Mr. Houghton's annual report shows that there were 4,958 building permits secured last year, exclusive of those for plumbing. The total cost of this work was estimated at \$10,006,485, making it by far the largest season in the building history of Minneapolis.

The annual meeting of the Minneapolis Builders' and Traders' Exchange was held on January 7th. The Secretary's report showed a gain in membership during the year of thirty-three, bringing the total up to 247. The following officers were elected for the ensuing year: President, W. A. Elliott; vice-presidents, S. G. Tuthill and Jas. A. Tyler; treasurer, H. B. Cramer; sergeant-at-arms, H. C. Christensen; directors, H. N. Leighton, M. Schumacher, S. G. Tuthill; committee on complaints, Geo. Cook, A. M. Crittenden, R. F. Jackson, H. F. Johnson, J. L. Robinson.

Considerable new building is projected at Fort Snelling, and Congress will be asked to appropriate \$125,000 for new buildings.

The building permit totals for St. Paul for 1907 were \$8,057,981. This is a slight decrease from 1906, although the number of permits issued increased from 2,812 to 2,974.

Harry W. Jones, architect, of Minneapolis, has returned from a trip around the world. Mr. Jones was nearly killed in an automobile accident last summer and the trip was taken largely for recuperation. Mr. Jones returned with his health fully recovered.

James Leck has been elected president of the Minneapolis Master Builders' Association for 1908. James Tyler is vice president, C. E. Prince secretary, and John Wunder treasurer.

S. A. Phillips and others, of St. Paul, have incorporated the Co-operative Construction Company. Capital, \$100,000.

Minneapolis constructed \$48,232 worth of brick paving during the past year.

There is talk of establishing a fire-brick manufactory at Fertile, Iowa, and of utilizing the extensive peat beds in that vicinity for fuel.

The Red Wing (Minn.) Sewer Pipe Company is reported to be contemplating establishing a clay products plant at Kalo, Iowa.

The Wausau (Wis.) Brick and Tile Company will rebuild its plant at once, which was recently damaged by fire.

The Lehigh Clay Works plant has been sold to the Lehigh Clay Manufacturing Company, of Lehigh, Iowa. New machinery will be installed.

John Pollatzcki, or Bellingham, Minn., may open a brick yard at Barnum, Minn.

Woodcock & Oakes, brick manufacturers of Brickton, Minn., have been succeeded by Woodcock & Shellhorn.

The Riedle Brick Company, of Watkins, Minn., has retired from business.

A plant for the manufacture of porcelain brick may be started at Oskaloosa, Iowa.

T. WIN.

TRADE NOTES.

The C. W. Raymond Company, of Dayton, Ohio, has placed Mr. H. G. Layng, of New York, in charge of that district office, superseding Mr. A. E. Davidson, who has been identified with them for a number of years. Mr. Layng has, for the past ten years, been a purchaser for large western interests, and, as a consulting engineer, built numerous plants, some of them being the largest brick plants on the Pacific Coast. The location of the office, Room 40, 39-41 Cortland st., will be maintained for the present.

Charles A. Smith, for a number of years connected with the Mohr-Minton Brick Company, McArthur, Ohio, has resigned his position and has gone into the brick contracting business, making a specialty of the building of down-draft kilns. The Mohr-Minton Company, which has been closed down for some time, is now making arrangements to operate their plant early in the spring. The McArthur Brick Company's plant, located at the same place, which has been closed down for the past month in order to make some necessary repairs, will soon be ready for operation again.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



BUILDING OPERATIONS, the great consumer of brick, are at their lowest ebb now, yet something has been done most of the time during the winter. February put a stop to most of this kind of work. The cold weather actually began with February and it has continued unabated most of the time since. The only respite has been occasional days when the temperature went up to something more nearly approaching January's record. No one is quite willing to say that the reduction in building development will last much longer than the winter season. On the other hand, few capitalists are offering to risk their capital on building operations, which may not turn out profitably. It is worthy of note, too, that contractors are conservative and show no disposition to undertake operations which might not satisfy the owners.

Navigation on the Hudson river is closed. One of the difficulties encountered by the ocean steamers in getting into port the past week has been the huge floes of floating ice. Men who have crossed the North River daily for years, say they never saw it worse. Further up the river the stream is bridged with ice from shore to shore. It remained open so much longer than usual this winter that shippers and receivers make little complaint. No schooners are fast in the ice, excepting at their own docks, and all operations for the season were concluded in ample time for the winter dullness. Up the Hudson, in the region of the brickyards, the winter has been severe, with deep snows and intense cold and all activity about the plants ceased until the milder weather of spring makes it possible to proceed.

Sensational newspapers have been attempting to create another scare in Haverstraw by asserting that another land slide is imminent. It has been said that cracks had appeared in streets adjacent to the clay pits and that the thaws of spring will undoubtedly make worse havoc than occurred before. While everyone will admit that there is always some danger when streets are located over coal mines or clay pits, it is no worse than it has been and there appears to be no imminent danger of a landslide. The immense brick plants at Haverstraw have made great gaps in the clay supply there, the pits being vast excavations. Every year the makers are confronted with additional difficulties in obtaining raw material, nor does it promise to improve in this particular vicinity.

No manufacturer is talking development for the coming season. In fact, it seems probable that conservatism, if not retrenchment, will govern business in 1908. The stock on hand at the yards and in storage is understood to be heavy, and that will have a tendency to make manufacturers move more slowly than usual. After several fat years, when profits have been good, perhaps one or two lean ones will be the lot of makers. It is too early yet to obtain much information, but there appears to be a leaning toward conservatism in making this year, which it is deemed will be beneficial for the trade.

BURTON.

POSTPONE RAISING RATE ON BRICK.

FREIGHT RATES ON BRICK transported to and from points in the Central Freight Association will not be raised, according to an announcement which comes from Cleveland. A meeting of the association was held early in February, when it was decided to indefinitely postpone making any alteration in the rates of either brick or sand. This probably means that the 1907 rates will not be altered for this year, at least.

No guarantee has been made, however, that the boost will not come at the end of the present season. There are several questions pending before the Interstate Commerce Commission which may affect the decision of the railroads. These

relate particularly to eastbound freight. Paving brick manufacturers have asked for a rehearing of the celebrated Stowe-Fuller case, which resulted in a decrease on fire brick, and a boost on the paving variety. Both were placed on a basis of twenty-two and one-half cents per hundred pounds.

The railroad companies interpreted the ruling to mean that a brick should be considered a brick the country over and under all conditions. If this decision is reversed there will be a change in eastbound rates, and, in such an event, the increase will surely come in the Central Association's territory.

The railroads have evidently made the concession to prevent further rate disturbance at a time when manufacturers are preparing to take contracts. In the vicinity of Cleveland, where the paving brick industry is very large, most of the larger concerns have been holding back, pending some settlement. The announcement that the rate will not be boosted has had the effect of making the dealers liven up and look about for business.

ST. LOUIS BRICK AND BUILDING NEWS.

THE CLAYWORKING industry is rather quiet. There is very little business being done. Manufacturing, however, is going on, most of the brick plants working to accumulate stock for the coming spring trade, which from all indications will be large, as plans are under way for a great deal of building, just as soon as the weather will permit operations to begin and the financial stringency becomes easier.

While the building permits for January showed a falling off as compared with the corresponding month last year, the difference was not so much as it was expected to be. The Building Commissioner issued permits for structures to cost in the aggregate \$797,071. Last year in the same month the permits represented \$1,600,926. The difference is \$802,955, but the early part of the year 1907 was an unusually prosperous period in the building line. The fact that during the month just ended permits were granted for buildings to cost more than three-quarters of a million dollars has served to stimulate interest in the building trades.

The will of Calvin M. Christy was filed recently. He left his household furnishings and other personal effects to his wife and gave her the rest of the estate in trust for their children, except to his stepdaughter, Ellen M. Christy. In the event that his wife should die before the youngest child becomes 30 years old, the will provides that John B. Clements and William C. Morris should be trustees. When the youngest child becomes 30, the trust will cease and the property be divided equally among the children. A codicil recites that, as Mr. Clements having died, his wife and Mr. Morris shall act as trustees. The will was executed February 14, 1896. Mrs. Christy declined to serve as trustee and Mr. Morris will act. Mr. Christy died last December. He was chairman of the executive board of the Laclede-Christy Clay Products Company.

A. SAINT.

Explanation in Regard to Gas Producers of an Ohio Brick Plant.

Friend Randall:

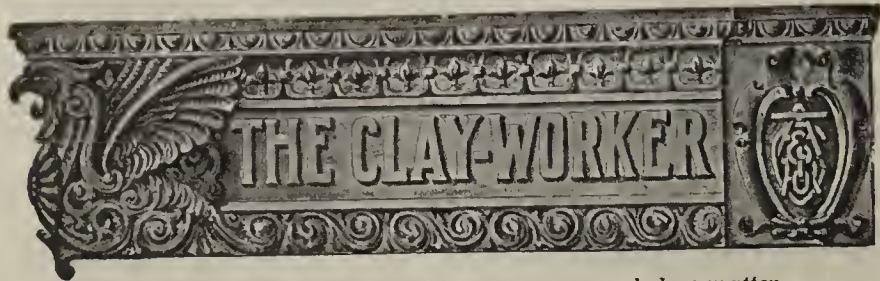
I desire to call your attention to a statement that appeared in the January issue of THE CLAY-WORKER, which proved to be susceptible of misconstruction, and required explanations on my part on several occasions during the convention at Columbus.

In the statement referred to, the inference is drawn that there has been some trouble experienced with the gas producers in connection with the continuous kiln erected under my supervision for the Columbus and Hocking Clay Construction Company, at Greendale, Ohio, and I desire to inform interested parties that this kiln is not completed, and the gas producers for same have not yet been installed.

Some trouble has been experienced at this plant with the scrubbing of the gas for the gas engines at the electrical power plant, but this installation is in no way connected with the continuous kiln, and is not under my supervision.

Yours very truly,

Milwaukee, Wis., January 10, 1908. P. L. YOUNGREN.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

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Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. XLIX.

FEBRUARY, 1908

No. 2.

CURRENT COMMENT.

There is a certain Crook who is really straight.

* * *

A paved street or road is one thing an auto can run over without doing damage.

* * *

One Columbus made a happy voyage, and another made a lot of voyagers happy.

* * *

One thing is certain, the next national convention will have to go some to beat the last one.

* * *

When brickmakers in convention assembled can't crack a "lid," there is no use of anybody else trying.

* * *

It is not only in brick for walls, but also tile for decorations and many other things that the clay product is supreme.

* * *

The panic didn't hit Treasurer Sibley very hard—but then, what can a panic do when pitted against such a body of good fellows as the N. B. M. A.

* * *

For structural purposes, cement products are subject to just suspicion, and who is there who will knowingly build permanent buildings of questionable materials.

* * *

It has been demonstrated that a man can miss things by not taking his better half along with him to the N. B. M. A. Conventions—china hat pin holders for example.

* * *

The Resolution Committee mentions several things for which thanks are due, and it would take a whole lot more

of such mentioning to express the feelings of those who went to Columbus.

* * *

Keep that trade school idea both in mind and in action. Do it, and "Do it Now."

* * *

We might say that we are now on terra firma as to the definition of terra cotta.

* * *

One delegate came two thousand miles to the convention, and he got his money's worth, too.

* * *

What if one of the old taskmasters who drove the Israelite brickmakers could have seen the workers at Columbus?

* * *

When we get machinery that will set brick in the wall as well as in the kiln, and do it as well as modern machinery and methods make brick, there'll be "something doing" in the building world.

* * *

The more architects agitate fireproofing and the more testing that is done by engineers, the better it is for brick and other clay ware, because this is not only the best material that can be used for such work, but such tests bring out these facts prominently and impress them more firmly on the minds of prospective builders.

* * *

Along with the annual building records for the year, which are being made public by the leading cities, there should be placed other data which was compiled about the same time in reference to the annual loss by fire and the expense of maintaining fire departments in different cities, so that the public may be duly impressed with what it costs to build with other than fireproof material.

* * *

Of course, brick machinery wears out and has to be replaced with new. Sometimes one probably feels like some of it wears out sooner than it ought to, but then if any of it didn't wear out some people would run old machinery until it got so far out of date that they would lose more for this reason than it would cost to put in new machinery. So the man who has to replace machinery quickly has at least the one consolation left of being up-to-date right along.

"WHERE FIRES ARE SCARCE."

Under the above heading, Samuel E. Moffett, who edits the department of Collier's entitled, "What the World is Doing," says:

"An American fire that causes a loss of less than a million dollars is hardly worth an item in the telegraphic news. The Parker building blaze, in New York, which swallowed several millions, attracted some attention simply because it also cost several lives, and because it inconvenienced several hundred thousand people by tying up subway and surface cars. It is with envy, therefore, almost tinged with incredulity, that we read the record of British fires for the year 1907. In the entire United Kingdom of Great Britain and Ireland, there was not a single fire in that whole year that caused a loss of over \$400,000, and there was only one that went over \$300,000, and one more that exceeded \$250,000. There were only thirty-five in which the losses went above \$50,000 each, and not more than six of those that came in any one month. In the most disastrous month of all the total fire loss for the three kingdoms in conflagrations of the \$50,000 class and upward amounted to \$780,000. There were three months, in each of which only one serious fire occurred in the British Isles, and in two of these the loss was only \$50,000 apiece. For the entire year the combined losses in all thirty-five fires of consequence

was \$3,785,000, or just about the amount burned in the Parker building in New York alone.

"Americans boast that their fire departments are the finest in the world, but there is less to boast of in the fact that such fine departments are needed, and that with all their skill and all their protection of appliances (not meaning New York's rotten hose), they are unable to prevent losses in single catastrophies that balance the entire destruction in a great foreign country in a year. If a fraction of our annual fire loss, not to speak of our payments for protection that does not protect, were devoted to the construction of really fireproof buildings, a great conflagration might eventually be as rare a spectacle here as it is abroad, and most of our insurance premiums could be devoted to other uses."

This is in accord with what we have been advocating right along, and we are glad to see such papers as Collier's falling in line and waking up to a realization of what it means—building houses that are not fireproof and then paying more money in trying to protect them, without getting any real protection. Would it not be vastly more sensible to build fireproof houses in the beginning?

WHERE WILL THE NEXT N. B. M. A. CONVENTION BE HELD?

And now the question is, where will we meet next year? A Buffalo boomer, decorated many of the delegates with a large and gorgeous button, on which was pictured a buffalo rampant, and beneath it the word "Next," so quite a number have said: "Let us go to Buffalo and again visit Niagara Falls." Others say: "Let us go to Colorado Springs and get our pictures taken on the Rocky Mountain canaries." One enthusiastic "Buckeye" said: "Take us to New Orleans, Randall, and I will guarantee forty delegates from the Columbus district alone." Others said: "Please go to Washington, so we may again see the sights of the National capital," while still others urge the selection of Atlantic City, with its great hotels, and a side trip to the metropolis. The Kansas City delegation are enthusiastic and insist that if we want to have a still larger convention, we have but to come to that city, and St. Paul holds out the allurements of splendid hotels and delightful winter entertainments. The Canadian contingent suggests an international convention at Toronto. Which shall it be, is a question not easy to decide, but one thing is admitted by all—we must have the very best hotel accommodations.

THE ORIGIN OF "HE'S A BRICK."

Calling a man a "brick" as an expression of admiration, or of the superior qualities of manhood, is a bit of classic slang that originated way back somewhere before the days of Christ. Writers differ somewhat as to the exact origin and manner of first using the term. One authority has said that Plutarch, in his life of Agesilaus, the King of Sparta, gives this origin of the quaint and familiar expression. "On a certain occasion, an ambassador from Epirus, on a diplomatic mission, was shown by the king over his capital. The ambassador knew that though only nominally King of Sparta, he was ruler of Greece, and he looked to see massive walls rearing aloft their embattled towers for the defense of the chief towns, but he found nothing of the kind. He marveled much at this, and spoke of it to the king. 'Sire,' he said, 'I have visited most of thy principal towns, and find no walls reared for defense. Why is this?' 'Indeed, Sir Ambassador,' replied Agesilaus, 'thou canst not have looked carefully. Come with me tomorrow morning, and I will show you the walls of Sparta.' On the following morning the king led his guest out upon the open plains, where his army was drawn up in full battle array, and pointing proudly to the serried host, he said, 'There, sir, thou behold-

est the walls of Sparta—ten thousand men, and every man a brick.'"

MUSEUM OF SAFETY DEVICES.

The sacrifice of human life in coal mines is a subject that is inviting the attention of the authorities, as well as the people directly connected with such industries, more seriously now than ever before. According to a recent bulletin issued by the Geological Survey, 7,000 men were killed or wounded in coal mines during 1906, and 1907 seems to have added considerably to this figure. The coal industry is an enormous business, in which great numbers of men are employed, but even so, the fatalities are rather staggering when the figures are all gathered up. There doesn't seem to be any question in anybody's mind but what more precautions should be taken to safeguard the workers in mines. Speaking of these accidents and others, including accidents that happen in connection with building skyscrapers, Collier's says that the American industrial conscience is at last waking to its duties in these matters and a museum of safety devices has been opened in New York, with a view to educate the public with the ways and means as well as the necessity to lessen opportunities for accidents in every industry.

THE SOUVENIR BADGE.

One of the prettiest badges ever worn at an N. B. M. A. convention was that presented to the visitors by the Columbus entertainment committee. The medallion was of bright gold,



bearing the monogram on one side and a view of the old State House on the other, suspended from a pin of the same material by a rich red ribbon. Being worn conspicuously, they added a bit of color to the occasion; a bright, warm color in keeping with the convention spirit. In the words of the comic ditty, there was a "hot time" in Columbus convention week, and the badge was a fitting symbol and is a pretty souvenir. Those of the members who were not present, but desire to add this badge to their collection of convention reminders, can obtain one on application to the Secretary. The number of membership fees paid at Columbus was the largest in the history of the Association. Nevertheless, there are a number who have failed as yet to pay their dues for the

current year, and they are each and every one requested to send the Secretary a check for \$3.00. It is a rule of the Association that only those who pay the fee are continued on the membership roster, so those who have not already done so are earnestly invited to communicate with the Secretary without further delay.

ART WORK IN TILE.

We are advised by the American Encaustic Tiling Company, Ltd., of New York, that the statement made in the November CLAY-WORKER, that a ceramic picture entitled, "Cupid Bearing the Crest," had been sold to Tiffany & Co., for \$16,000 is in error. The picture is the property of the American Encaustic Tiling Company, and was executed at that company's art studio by workmen under the supervision of Mr. Felix Alcan.

NATIONAL ASSOCIATION MANUFACTURERS CLAY-
WORKING APPLIANCES.

The manufacturers of clay machinery and dealers in brickyard supplies, etc., met in annual convention in Parlor B, at the Southern, February 4th and 5th. Harmony prevailed here, as in all the other meetings, convention week. When asked, "What did you do?" Secretary Durbin replied: "We had a splendid meeting, and there were many things discussed, among the important ones was the appointing of a committee to take up the matter of getting better weighing service in coal, coke and iron, and a better classification for shipping rates on machinery. We also heartily endorsed the movement for a School in Bricklaying at Indianapolis, and our members subscribed for a number of scholarships. There were several papers read of such interest that they were ordered printed for distribution among our members in book form, among them being the President's Address, also a paper by H. J. Flood, Chicago, and one by J. H. Chambers, of Philadelphia. For once, everything was lovely in the exhibition room, there was no trouble or complaint of any sort, even the late comers were taken care of satisfactorily."

The old officers were re-elected, the roster being as follows: President, L. W. Penfield, Willoughby, Ohio; vice president, W. A. Eudaly, Cincinnati; secretary, W. N. Durbin, Anderson, Ind.; treasurer, J. H. Chambers, Philadelphia, Pa. Mr. B. E. Place, of Galion, Ohio, was elected a member of the Executive Board, the other members being Wm. F. Scott, of St. Louis, and F. W. Bennett, of Wellington, Ohio.

THE SOUTH GOING DRY.

Lay the jest about the julep in the camphor balls at last,
For the miracle has happened and the olden days are past.
That which makes Milwaukee famous doesn't go in Tennessee
And the lid in old Missouri is as tight-locked as can be.
O, the comic paper colonel and his cronies well might sigh,
For the mint is waving, gayly and the South is going dry.

By the stillside on the hillside in Kentucky all is still,
For the only damp refreshment must be dipped up from the rill.
No'th Callina's stately ruler gives his soda glass a shove
And discusses local option with the South Callina gov.;
It is useless at the fountain to be winkful of the eye
For the cocktail glass is dusty and the South is going dry.

It's water—water everywhere and not a drop to drink;
We no longer hear the music of the mellow crystal clink
When the colonel and the major and the gen'l and the jedge
Meet to have a little nip to give their appetite an edge;
For the eggnog now is noggless and the rye has gone awry
And the punch bowl holds carnations and the South is going dry.

All the nightcaps now have tassels and are worn upon the head;
Not the nightcaps that were taken when nobody went to bed.
And the breeze above the bluegrass is as solemn as is death,
For it bears no pungent clove-tang on its odorific breath;
And each man can walk a chalkline when the stars are in the sky,
For the fizz glass now is fizzless and the South is going dry.

Lay the jest about the julep 'neath the chestnut tree at last
For there's but one kind of moonshine and the olden days are past.
Now the Water Wagon rumbles through the Southland on its trip
And it helps no one to drop off to pick up the driver's whip,
For the mintbeds make a pasture and the corkscrew hangeth high—
All is still along the stillside and the South is going dry.

—Exchange.

WANTED, FOR SALE, ETC.

FOR SALE—I will sell half interest in
brick and tile works to the right party.
Object is to increase plant to meet pres-
ent demands. C. S.,
2 1 cm Lock Box 11, Greentown, Ind.

WANTED—Position as general manager or
superintendent of soft mud or shale brick-
yard. Have had fourteen years' experience.
F. H. E.,
2 1 dm Care Clay-worker.

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ESTABLISHED COMPANIES, as well as beginners, find our services profitable. We correct faults of manufacture and keep plants up-to-date. Engagements for special service, or by the year.

THE RICHARDSON-LOVEJOY
ENGINEERING CO.

[See page 353.]

FOR SALE CHEAP.

One Monarch soft mud machine, granu-
lator, sander and molds, almost new; two
Atlas engines, one 25 h. p., and one 40 h. p.;
two boilers and fronts, one 30 h. p., and
one 60 h. p. Address
GARRISON BRICK & COAL CO.,
1 1 d Bloomington, Ind.

WANTED.

A position as burner by a man who thor-
oughly understands his business and is
capable of producing good results. Is also
an expert bookkeeper and office man, with
first-class references. Would prefer loca-
tion in the west or northwest, though will go
anywhere. Address
2 1 d TIM.
Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on
Pages 340, 341 and 342.

THE CONVENTION:

The N. B. M. A. closed its Twenty-second Annual Convention as one of the most successful meetings ever held by the Claycrafters, with an enthusiastic attendance of over six hundred of the "Best There Is," a good time and excellently prepared and instructive papers.

For some reason, the claycrafters simply swamped us, in fact, on Thursday of that week we were compelled to lock the doors to our headquarters and let the boys in in relays of about ten or a dozen, and our eight representatives were utterly unable to cope with the situation.

There is only one plausible explanation for this sudden outburst, and that is this—most of the claycrafters knew us by being our customers, and their pent up enthusiasm burst like a volcanic eruption, and they wanted to shake and say "Howdy."

We tried to see you all, but if there were any missed, it was not thru any intention of ours. And also if you wanted to tell us of any of your needs for this year and did not get to do so, just let us know by mail and we will take the very best care of you.

Here's for "800 or Bust" next year.

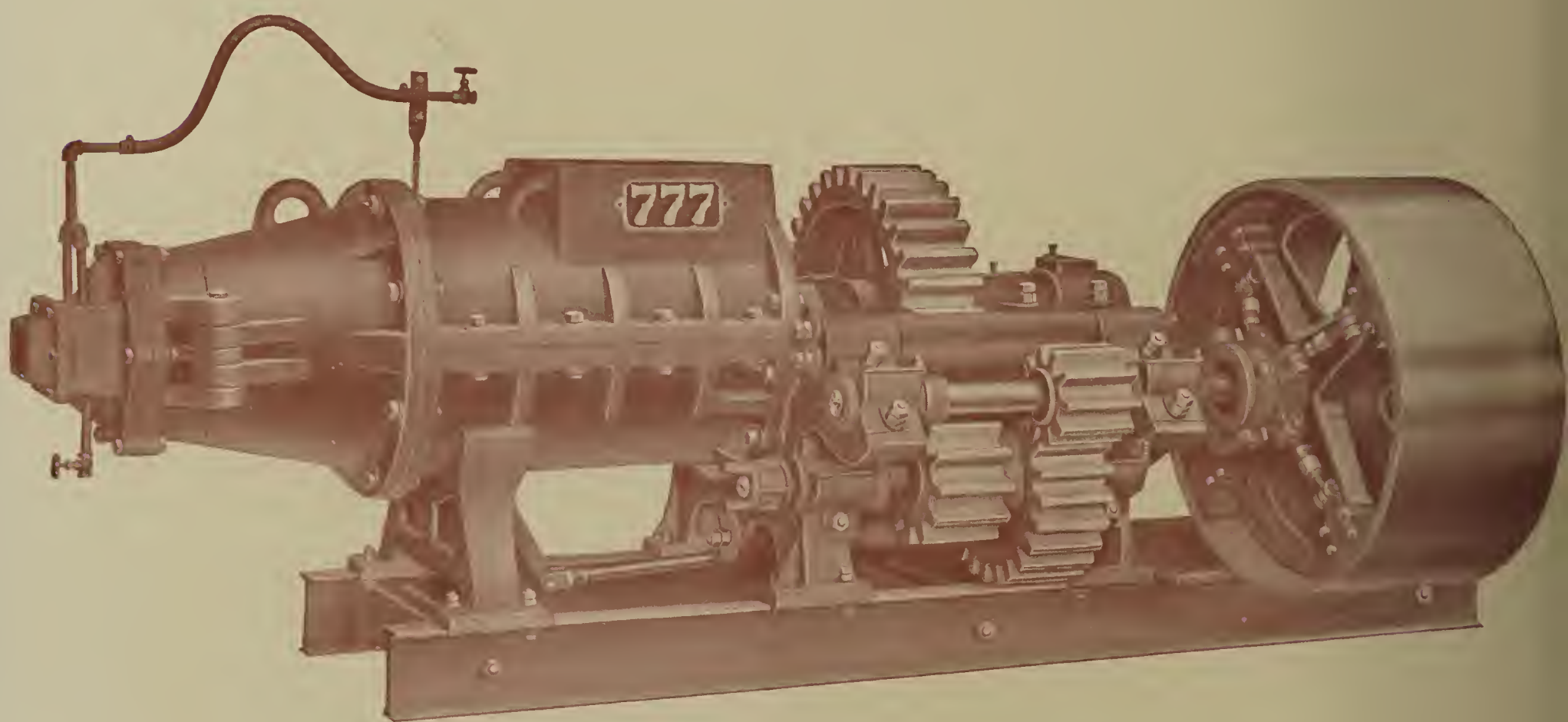
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The Largest Exclusive Builders of Clayworking Machinery in the World,

Dayton, Ohio, U. S. A.

YOUR OWN GOOD JUDGMENT

Should tell you that the best made is the cheapest to use. That the "Raymond 777" Brick Machine is the cheapest to use is amply shown by the long life it has maintained under every condition in which it has operated.



And Now This—All of the "Raymond" Brick Machines (as well as their entire manufacture) are consistently designed for the strenuous life, and time and performance have proven that they know no superior.

The C. W. Raymond Co.,

The Largest Exclusive Builders
of Clayworking Machinery in the World.

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THE RAYMOND HIGH CAPACITY CUTTING TABLE

Is especially designed to meet the most exacting requirements of those needing a machine for a large output.

SPEED: The productive speed of the "Raymond Cutter" is greater than that of any Rotary Cutter on the market.

MOVEMENT: The motion of the reel is continuous, producing an even wear in all parts, obviating any sudden breakages and closing down of the plant.

CONSTRUCTION: All parts are built amply strong, and wherever possible adjustments are provided to take up the ordinary wear.

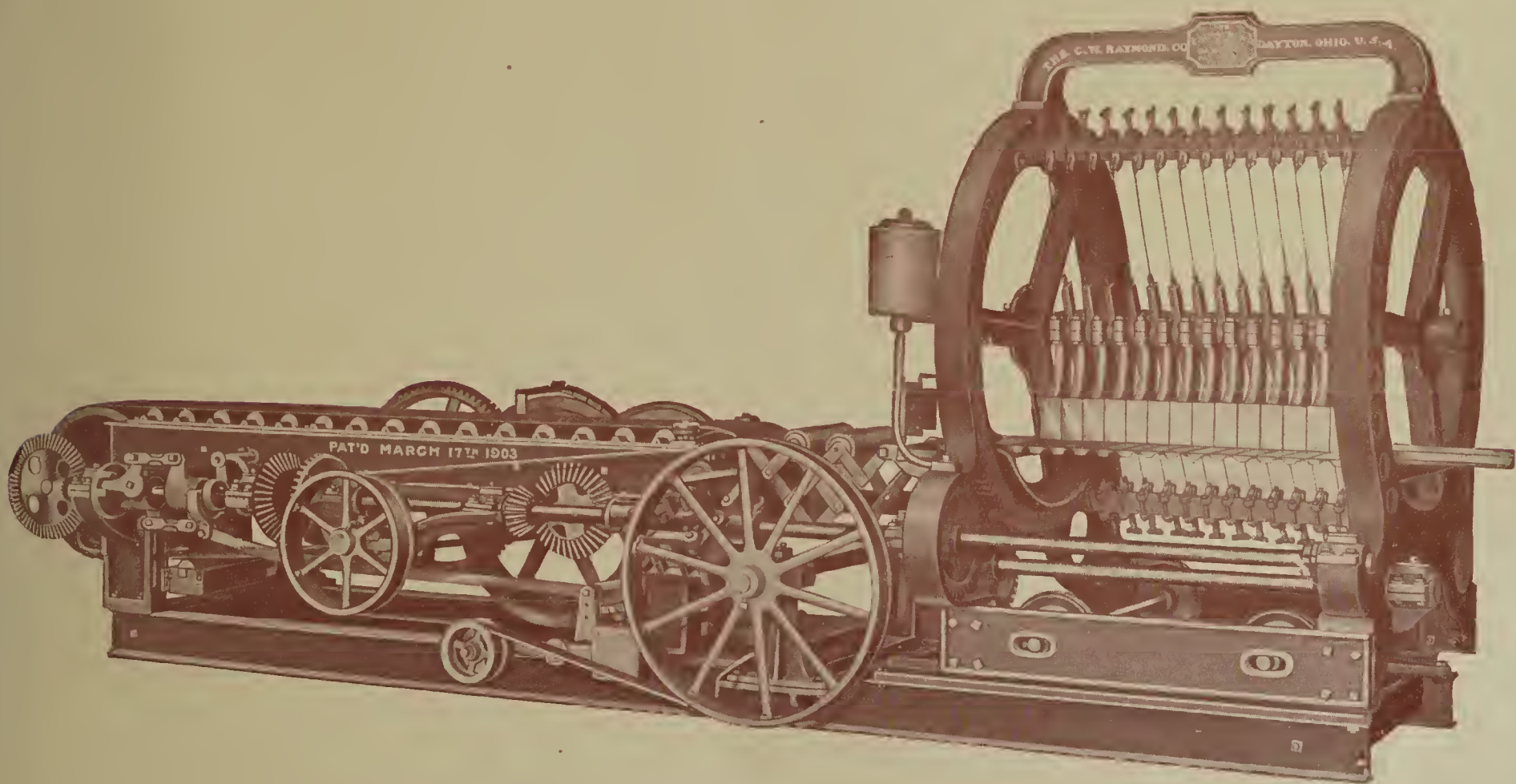
SIZES: Built in two sizes, the No. 2 for capacities up to seventy thousand, and the No. 1 for capacities greater.

REGISTER: The machine is sufficiently accurate to register perfectly at every cut at any capacity.

The C. W. Raymond Co.,

The Largest Exclusive Builders
of Clayworking Machinery in the World.

Dayton, Ohio, U. S. A.



200%

More Radiating Surface Than Any "Hot Air" Dryer Made.

Ask for Exhibit 2077.

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obtained upon application to our
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GENERAL CATALOG

CATALOG OF DRAWINGS AND SPECIFICATIONS

Exhibits

- 40. Heavy Duty Dry Pan.
- 41. Standard Dry Pan.
- 42. No. 2 Rotary Automatic Cutting Table.
- 43. Eight-ft. Wet Pan.
- 44. "999" Brick Machine.
- 45. Perfection Hand Represses.
- 46. Conveyors.
- 47. Four Roll Combination Crusher.
- 48. "777" Brick Machine.
- 49. Niagara Hollow Ware Machine.
- 50. Combination Brick Machine.
- 52. Victor Repress.
- 53. Bevel Geared Pug Mills and Clay Granulators.
- 55. Clay Elevators.
- 56. Portable Track.
- 58. Gear and Friction Hoist.
- 60. Roofing Tile Designs.

Exhibits

- 61. Dry Press Machinery.
- 63. Raymond System of Open Air Drying.
- 69. Peerless Smooth Roll Crusher.
- 70. No. 3 Daytonian Brick Machine.
- 71. Standard Pug Mills.
- 73. Single Geared Pug Mills.
- 2077. Radiated Heat Drier.
- 2078. Soft Mud Machines.
- 2079. Belt Cup Elevator.
- 2080. "555" Brick Machine.
- 2081. Automatic Wet Pan Emptier.
- 2082. Piano Wire Screen. (New design.)
- 2083. No. 1 Rotary Automatic Cutter.
- 2084. Dryer Cars.
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"LONG LIFE"

Pans, Screens, Presses, Dies, Wheelbarrows,
Sewer Castings, Paving Castings
and Municipal Castings of All Kinds.

"SIMPSON BROS."

Brick Dies, Molds and Piano Wire Screens are Positively

THE VERY BEST

and therefore are the most economical.

THE PORTSMOUTH MACHINE & CASTING CO.,

LET US FIGURE WITH YOU.

PORTSMOUTH, OHIO.

Mention The Clay-Worker.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



BUILDING ACTIVITIES in San Francisco are once more beginning to show signs of renewed life. The amount of new work to be undertaken so far since the first of the year is naturally small, as heavy rains have been the rule during last month, but the number of inquiries reported by the brick men show that a great deal of work is in contemplation, and will be undertaken as soon as the weather clears up and sufficient money is available. The architects' offices are busier than for some time past, and aside from San Francisco many hotels and public buildings are projected for the smaller cities and towns of the coast, many of which are to be brick. As to the financial situation, very little is being loaned for building purposes at present, at least to the most numerous class of property owners, but money is rapidly accumulating in the banks, and is likely to seek an outlet in this direction within the next few months. There is also considerable influence at work to secure eastern capital for the renovation of San Francisco. Loans recorded during the past week indicate that money is gradually becoming easier to get, as one of the leading banks of the city has loaned a million dollars for the completion of the St. Francis Hotel and the Shreve Building, and Patrick Calhoun has just returned from the east with \$5,000,000 for the completion of his street-car system.

One matter which will bring considerable work to the brick manufacturers within the year is the sale of San Francisco bonds, for the carrying out of numerous improvements that have been badly needed for some time. Tentative estimates for the proposed bond issue have been made, and items of interest to the trade are \$1,000,000 for fire department buildings, \$4,000,000 for a sewer system, \$4,250,000 for a new City Hall, and, for other buildings, most of which will probably be wholly or in part of brick, \$12,650,000. Of course this work would not come all at once, but pressing necessities will make the expenditure of a large part of it imperative.

For the past month there has been very little doing in the way of new business, and no new contracts of much importance have been taken on. Many of the companies, however, still have a great deal of back work on their hands, and with this and numerous small jobs there is enough to keep some of the kilns going for some months to come.

The situation on common brick shows gradual improvement. So far there has been no advance in price, and it is stated by some dealers that the present price is below the cost of production, and that nobody is selling who can afford to hold. Large stocks have been accumulated at many of the yards, and while some holders are forcing their goods on the market, others are keeping their output in expectation of better prices. The number of manufacturers in the field is still larger than could be desired, but with a better demand there is likely to be work for all at a fair profit. Partly on account of the low prices, and partly because of the wet weather, a good many works have shut down within the past month, but most of them propose to start up again early in the spring.

Pressed and faced brick are moving as well as could be expected, and prices are held at a satisfactory figure. With most of the output going at once for construction work now going on, stocks of most varieties are small, and the situation is considered favorable. The better known plants have kept running all winter, and no oversupply is in prospect.

The labor situation has eased considerably, and while there is no "army of unemployed" in San Francisco, the laboring men are beginning to appreciate conditions, and are less unreasonable in their demands than last summer. The recent disputes among bricklayers and tilemen were settled at the State meeting of the Building Trades Council in Santa Cruz. The right to set tilings on the outer surface of buildings which was claimed by the bricklayers, has finally been allotted to the tilesetters.

The Great Western Brick Company is making further ex-

tensive improvements in its plant at Richmond, Cal. A new drying system is being installed, with clamp-walled kilns. While this work is going on, the plant is not operating, but activity will be resumed about April 1, or sooner if the expected improvement takes place in the market. The company expects to run the plant about nine months in the year.

A feature of the business at present is the large number of glazed brick and ornamental tiles that are being used in the reconstruction of San Francisco. N. Clark & Sons are making a specialty of this class of work, and have taken many contracts, small and large, for specially designed material. One good-sized contract that is now being finished is for the Rose Building, a ten-story structure with two fronts, on Sutter street near Kearny, which is being faced with white glazed brick. This company is now delivering on many large jobs, which keep the plant working up to capacity, and reports that there has been more figuring on new work this month than for several months. Few new contracts have been closed, but the builders intend to start work as soon as possible.

The Holland Sandstone Brick Company's works have been closed since November, and will not open again for some time. The company is not taking much interest in the market at present, but is holding off for better prices.

The Stockton Fire and Enamel Brick Company is just getting out its first lot of fire brick. The enamel brick which was recently put on the market was highly satisfactory. The first lot was all taken by one party, and the order has been duplicated.

The United Materials Company reports a considerable increase in the number of orders from points outside San Francisco, which have not been much heard from for several months.

Cox Bros. & Co., of Tucson, Ariz., have secured the contract for the brick work on the new Indian school buildings at the Kohler ranch, near Tucson.

On February 1, the Los Angeles Brick Company, of Los Angeles, Cal., moved to new offices in the Security Building, at the corner of Fifth and Spring streets.

Brick seems to be gaining in favor as a paving material at North Yakima, Wash. Out of a total of 1,655 feet of frontage in a certain district on the West Side, 1,500 have signed as favoring brick and only 155 have favored asphalt.

The Columbia Clay Company, of Kennewick, Wash., is putting in new machinery, bringing its total investment at that place up to \$14,000.

Fire in a brick kiln at Chihuahua, Mex., owned by Col. Green, the copper magnate, got beyond control a few days ago and did considerable damage at the brick plant as well as to surrounding property.

Several important jobs for brick street paving at Los Angeles, Cal., are being held up apparently by the contractors, who would profit either by a change from brick to asphalt or by forcing the paving brick manufacturers to accept lower prices than those now ruling. The brick manufacturers deny the assertion of the contractors that there is a scarcity of paving brick. C. H. Frost, president of the Los Angeles Pressed Brick Company, says that all the brick spoken for with his company is ready for delivery and that a considerable portion of it was ready a month ago.

Articles of incorporation of the Humboldt Clay Manufacturing Company have been filed at Eureka, Cal. The company has an authorized capital stock of \$200,000 and the directors are L. F. McFarlan, E. W. Webster, C. Swanson, A. Halling and W. E. Dickson. These men are the controlling factors in the Humboldt Brick, Stone and Powder Company, which it is the purpose of the new corporation to take over. The articles just filed give a greater latitude in the matter of clay manufacturing. The management reports that the 1,500 pounds of clay from the company's beds, which was sent to the Steiger Pottery Company at San Francisco for experimental purposes, has turned out well and the terra cotta plant will be built at once. A contract has just been entered into with C. J. Dunton for superintending the construction of the plant, which will be put up at Freshwater, near Eureka, Cal.

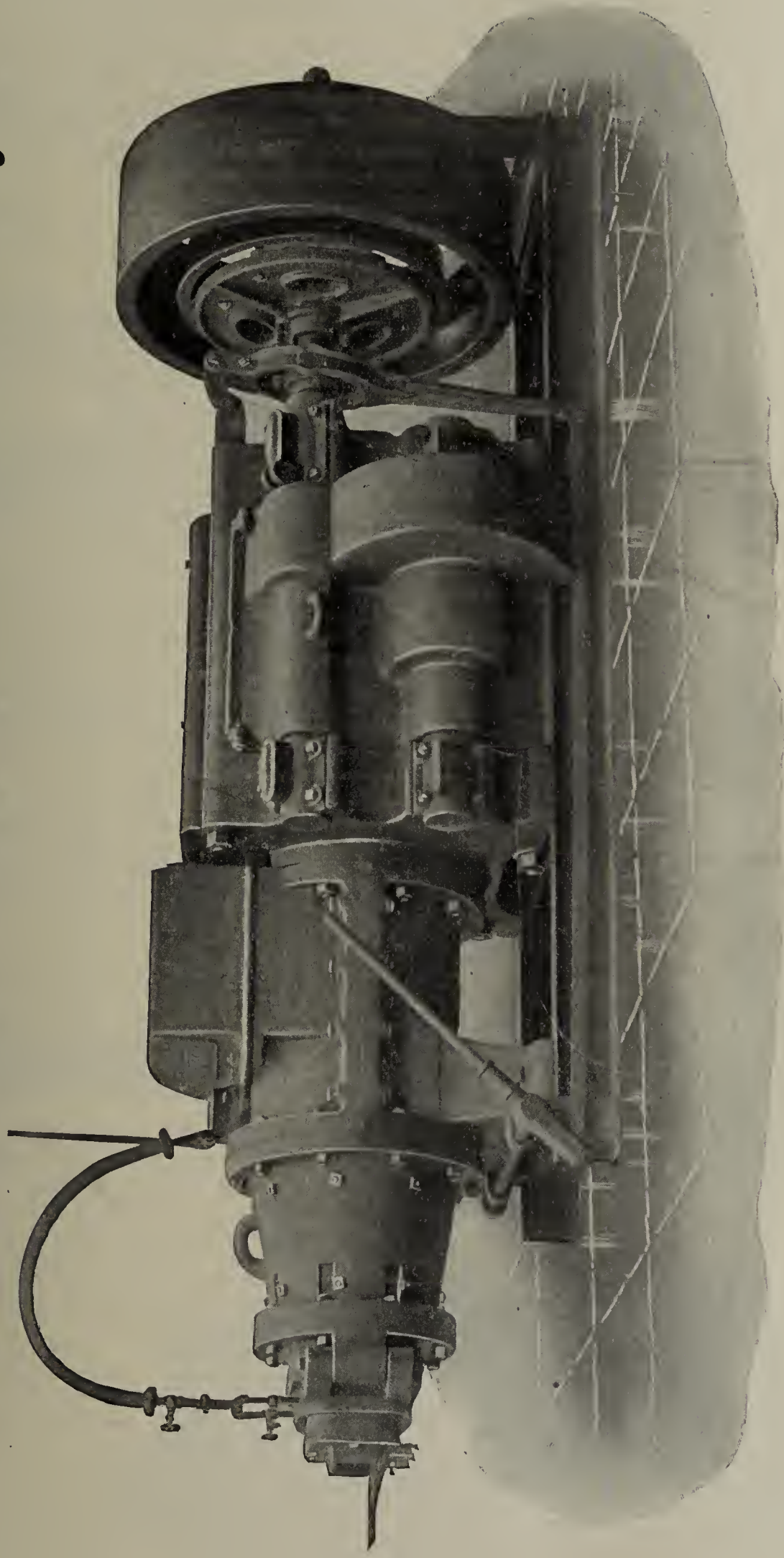
The McCamant Construction Company, of Winnemucca, Nev., will put in a brick manufacturing machine in the spring. Common brick will be the chief output, but a cement faced granite finished brick will also be manufactured.

An assessment of ten cents per share has been levied on the capital stock of the Vallejo Brick and Tile Company. This will be delinquent on February 26.

San Francisco, Cal.

SUNSET.

Modern Stiff Mud Brick Machinery.



We've been building Brick Machinery a good many years and have naturally been brought into contact with a variety of clays and conditions and have been able to produce machinery more and more nearly adapted to the requirements of our customers. Our motto in this work has been "Prove all things and hold fast to that which is good." Consequently the features in our products which have not been found good have been discarded and improvements from time to time have been substituted.

Let us get acquainted with your troubles or your wants, and if we cannot do you good we will tell you so. We build Brick Machines in many sizes and patterns.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

(See ads on pages 386 and 387.)

Written for THE CLAY-WORKER.

POTTERY NEWS.



POTTERY MANUFACTURERS who have their plants located along the Ohio river suffered another loss this month on account of a flood in the Ohio river. However, this was not as extensive as in March last year, when it took some firms a term of six months to recover. However, the loss was enough, and as soon as the waters receded a hundred or more men were immediately put to work clearing the debris from the plants. Those clay plants suffering losses were, Cartwright Bros. Pottery Company, C. C. Thompson Pottery Company, National China Company, Harker Pottery Company, Colonial Pottery Company, Globe Pottery Company, Edwin M. Knowles Potters' Supply Company, was only slightly damaged.

Business with the pottery manufacturers has shown a decided improvement during the past month. Orders are more brisk, and those plants which were idle four weeks ago are now in full operation. It is contended that "a stiff upper lip and lots of hustle" will make the spring season a good one for all the manufacturers, notwithstanding the fact the first of the year showed considerable backwardness.

News has just been received in the western pottery district of a combination of twenty-four of the largest china manufacturers of Austria which has been recently formed with a view of increasing the price of their goods and to establish two different market values—one for domestic trade and a second list for the United States, Mexico and Canada. It is related that the class of china goods exported differs considerably from that sold in this country, and that is the reason two different market prices are to be established. The fact that twenty-four china manufacturers have formed a trust will interest every pottery manufacturer in the United States. This trust formation may encourage the American manufacturers to increase their own production.

Four of the eight decorating kilns of the No. 2 plant of the Homer Laughlin China Company, have been rebuilt. These kilns were erected eight years ago, and this is the first improvement that has been made to the battery of eight. The brick were in an excellent state when taken from the kilns.

Extensive improvements are being made at the Gamble & Surles brick works. A new kiln has just been completed, and another will be built later. The entire plant has been overhauled. The company in its manufacture of the building brick has been doing an excellent business.

A sprinkler system has been installed in all departments of the Electric Porcelain Company's plant. There is not a clay plant of any note in the western pottery district but what has this system installed.

A new tile works is to be erected at New Salisbury, O., a small place on the main line of the Cleveland & Pittsburg railroad, in Columbiana county, Ohio.

Roy C. Thompson has purchased the Brian Pottery Company's plant at Trenton, N. J., at sheriff's sale, for \$25,000. This was the result of a foreclosure of a \$40,000 mortgage. The property will be placed in operation about March 1 by the new owner. The plant contains ten kilns and has been devoted to the production of sanitary ware.

The following firms were represented at a meeting held at Wheeling, W. Va., to organize the Ceramic Supply Company, which obtained a West Virginia charter several months ago, with a capital stock of \$50,000: Pope-Gosser China Company, Coshocton, Ohio; Mercer Pottery Company, Cook Pottery Company, Thomas Maddock Sons' Pottery, all of Trenton, N. J.; Knowles, Taylor & Knowles Pottery Company, and the

Potters' Co-operative Company, of East Liverpool, Ohio; Wheeling Potteries Company, Wheeling, W. Va. The company is formed to develop a large tract of American china clay in Texas, which is located thirty-five miles from a railroad. It is necessary to build this road through a dense timber tract, and this work is to be taken up at once. In making ware from this Texas clay, the manufacturers are put in a position to make an article far superior to the imported chinaware.

The following officers have been elected by the Edwin M. Knowles China Company, of Chester, W. Va., for one year: president, Edwin M. Knowles, East Liverpool, Ohio; vice president, Joshua Poole, Newell, W. Va.; secretary and general manager, Thomas B. Anderson, Chester, W. Va.; treasurer, J. W. Irwin, East Liverpool, Ohio. The past year was the most successful in the life of this concern. Charles A. Smith, of Chester, W. Va., has been added to the board of directors.

The Potteries Company of America, controlling the Homer Laughlin potteries in East Liverpool and Newell, W. Va., have elected these officers: President, Marcus Aaron, Pittsburgh, Pa.; vice president, Edwin M. Knowles, East Liverpool, Ohio; secretary-treasurer, W. E. Wells, Newell, W. Va. The board of directors is composed of these officers with Joseph G. Lee, George W. Clark, and H. N. Harker, of East Liverpool, Ohio, and Louis I. Aaron, of Pittsburg, Pa.

In the formation of the association of pottery superintendents and foremen, a proposition has been launched at East Liverpool, Ohio, which has been long needed in the pottery trade. The association has been formed for "protection and education," and it takes the form of a round-table proposition more than anything else. At the first meeting last week, "saggers" were discussed, the topic being opened by Mr. James Miles, of the Homer Laughlin China Company. Such authorities in ceramics as Joshua Poole, of the Homer Laughlin China Company, Newell, W. Va.; I. Bently Pope, of the Pope-Gosser China Company, Coshocton, Ohio; Ernest Mayer, of the Mayer Pottery Company, Beaver Falls, Pa., and, if possible, Prof. Orton, of the Ohio State University, will be asked to come here later in the season. Officers of the association are: President, John Stamm, National China Company, East Liverpool, Ohio; vice-president, Robert J. Meakin, Hall China Company, East Liverpool, Ohio; secretary, Joseph Manor, Knowles, Taylor & Knowles Pottery Company, East Liverpool, Ohio; treasurer, Silas M. Ferguson, United States Pottery Company, Wellsville, Ohio.

Active operations will commence at an early date at the East End plant of the American Sewer Pipe Company, at East Liverpool, Ohio. Much new machinery has been installed in order that the capacity of the works would be increased.

What promises to be the largest sick and dividend society in the pottery trade has just been launched at the Homer Laughlin plants at Newell, W. Va.

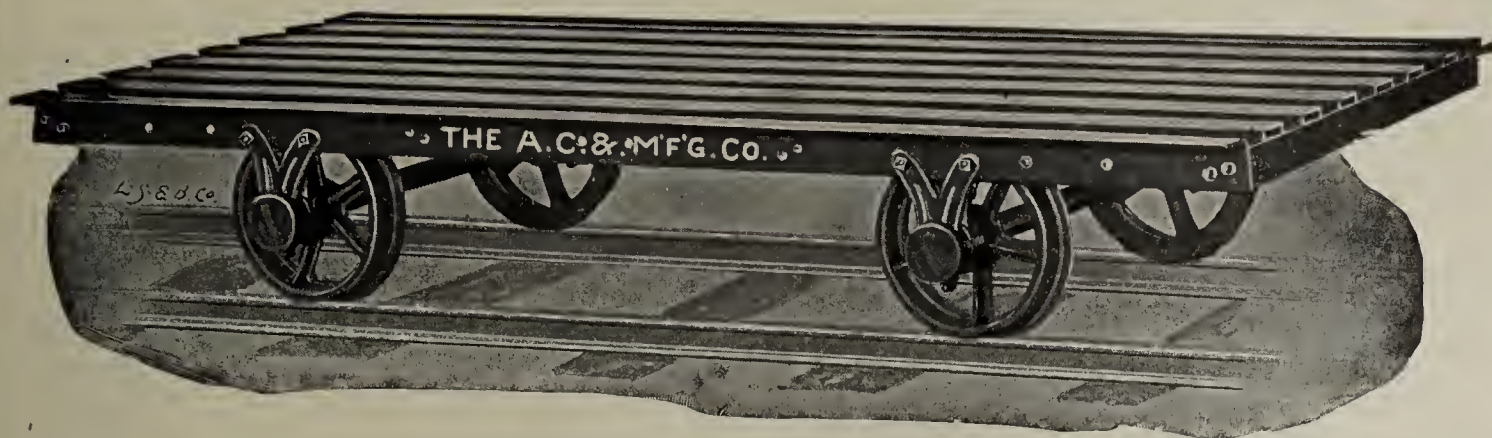
Samuel A. Weller, the well known art pottery manufacturer at Zanesville, Ohio, has been selected as a delegate to the Republican National Convention at Chicago, to represent the Fifteenth congressional Ohio district.

The Chamber of Commerce, of Trenton, N. J., has received requests from a firm of German pottery manufacturers concerning sites to locate a new plant at Trenton, giving employment to over one hundred men. It is proposed to manufacture an entirely new line of china.

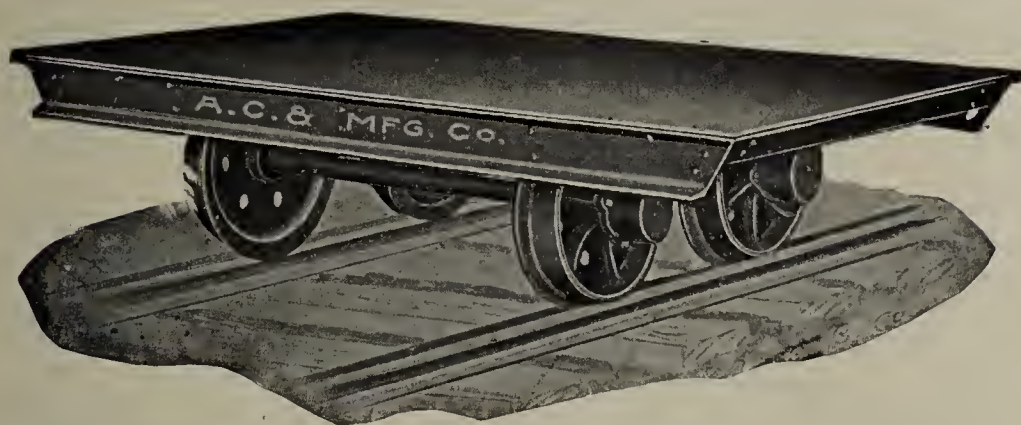
East Liverpool, Ohio.

OMEGA.

The Massachusetts Fan Company, of Watertown, Mass., which has heretofore maintained branch offices in Boston, New York, Pittsburg and Cleveland, is now extending its representation through the medium of resident engineers. Mr. Cuthbert Schaefer, with offices at the First National Bank building, Chicago, and Mr. John J. Dwyer, at the American National Bank building, St. Paul, will cover the respective territories of which these cities are the natural centers. Both men have already had extended experience in the blower business; they will constitute a material addition to the staff of the Massachusetts Fan Company.



No. 108. Stiff Mud Flat Car. Steel Deck.



No. 114. Sand Lime Brick Car. Channel Frame.



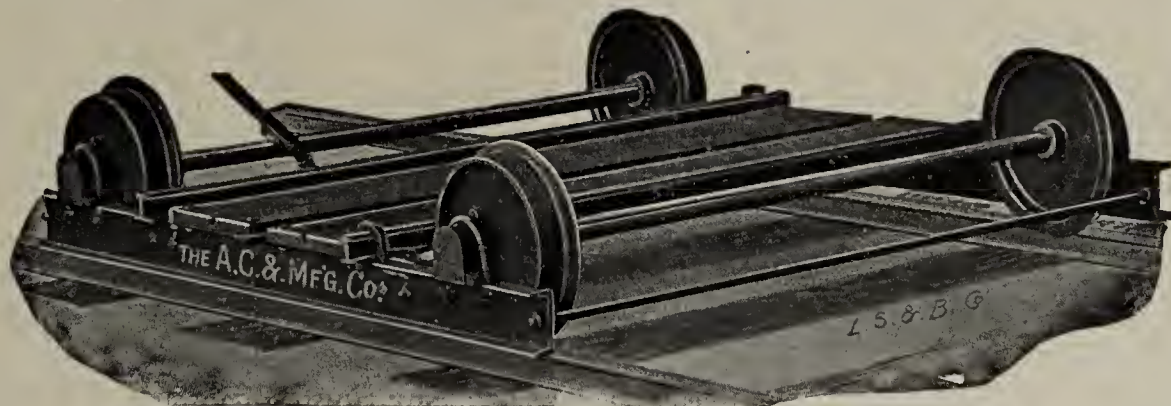
No. 1025. Steel Frog.

The Atlas Car & Mfg. Co., CLEVELAND, OHIO.

Manufacturers of Steel Dryer Cars of all Descriptions and Equipments for Hot Air Dryers, including Rail, Frogs, Switches, Steel Ties, Portable Track, Etc.
Also Transfer Cars, Turntables, Clay and Dump Cars.



No. A. Flanged Pallet.

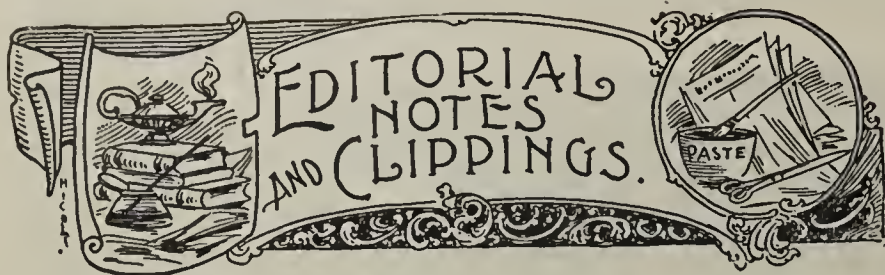


No. 142. Transfer Car.



No. 147. Checkered Steel Top Turntable.

SEE AD ON PAGE 212.



J. Welsh has purchased the plant of the Fitzgerald Brick Company, at Cossackie, N. Y.

The Gessel Brick Company, Logan, Utah, is in the market for a second-hand dry press brick outfit.

William M. Reed has sold his brick plant, at Princeton, Ind., to his father, Thomas Reed, of Petersburg.

Emerson and Albert Hanna and Charles Watson contemplate the establishment of a tile factory at Rawson, Ohio.

The brick plant of H. Billock, Jackson, Tenn., was entirely destroyed by fire recently, the origin of which is unknown.

Mexico, Mo., wants a brickmaking factory, and will subscribe a small bonus. The Mexico Men's Business Club is at the head of the movement.

S. W. Wormwood is at the head of a movement in Del Rio, Texas, to start a brick plant at that place. The plant will have a daily capacity of 25,000 brick.

The Florida Clay Company has a force of fifty men at work in its kaolin mines, at Yalaha, Fla., and the work of developing the industry will be pushed rapidly.

The plant of Curtis Jannelle, at Amesbury, Mass., was slightly damaged by fire, which resulted from an overheated kiln shed. The loss is entirely covered by insurance.

The Erlanger Brick and Tile Company has been incorporated, with \$5,000 capital stock, to manufacture brick and tile at Erlanger, Ky. The incorporators are S. W. Adams, J. W. Collins, and I. L. Adams.

A New York export agent and custom-house broker writes to the Bureau of Manufactures, at Washington, D. C., that one of his customers in Italy desires to be placed in communication with American manufacturers of machinery for making brick.

Mr. Philip J. Nash has taken charge of the sales department, in Chicago, of the Ernst Wiener Company, New York. Mr. Nash has long been in the industrial railway business, and is a technical and practical man. The offices are located at 863 Monadnock building.

At the annual meeting of the New Washington Brick Company, Alexandria, Va., the following directors were elected: T. L. Holbrook, W. F. Mattingly, Charles J. Bell, E. L. White, Nathaniel Wilson, Ward Thoron, W. A. Richards, W. T. Galliher and Park Agnew.

Joseph C. Judik, for a number of years general manager of the Carter Fire Brick Company, of Soldier, Ky., died of pneumonia, at his home in Baltimore, Md., where he had gone when he first became ill some weeks ago. Mr. Judik was only thirty-four years old, and unmarried.

The Northern Pressed Brick Company will make a number of improvements at their plant at Crookston, Minn., which they claim will make it one of the best in the northwest. The plant will have an increased capacity. The outlook for the coming season is very bright, and the company expect to have a demand for all the brick they can make.

The T. B. Townsend Brick and Contracting Company are making a number of improvements in their plant at Zanesville, Ohio. The plant has been working full time all winter, and, as soon as the improvements are completed, an additional force of men will be put to work. This company is looking forward to a still better season than they had last year.

Some time ago the Massachusetts Fan Company, Watertown, Mass., began the use of ball-bearings upon their large fans. Friction was thereby materially reduced, and the pollution of the air by the oil escaping from bearings avoided. It is now reported that this company is about ready to place upon the market a complete line of smaller steel plate fans, equipped with ball-bearings. The success of these fans will certainly mark a distinct advance in fan blower practice, for both personal attention and the continuous use of oil will

be avoided, while the power required will be materially reduced.

G. W. Conklin, formerly of Mound City, Kans., contemplates erecting a large brickmaking plant at Wichita, Kans.

The Purington Brick Company, Galesburg, Ill., during the year 1907 made a total of 85,312,000 brick, which required 15,539 cars for shipment.

R. A. Brown's Sons, Concord, N. C., contemplate making a number of improvements in their plant within a short time, so as to be ready for the spring work.

The Ladysmith Brick and Tile Company has been incorporated at Ladysmith, Wis., by Joe Stevens, John C. Harris, and J. L. Pyall. As the name indicates, the company will manufacture brick and tile.

The demand for the tile manufactured by J. C. Jones & Sons, at Statesborough, N. C., has grown to such an extent that they find it necessary to enlarge their plant. They will put in machinery for the manufacture of building brick in addition to the tile.

The main factory building of the Goodwin Brothers Pottery, at Elmwood, Conn., was entirely destroyed by fire January 27, involving a loss roughly estimated at \$20,000, on which there was very little insurance. The plant will probably be rebuilt without any delay.

The D. L. Melick Pottery Company, of Zanesville, Ohio, has incorporated, with a capital stock of \$10,000. The purpose of the corporation is to manufacture and buy and sell pottery. The following are the incorporators: David L. Melick, George W. Owens, Frank L. Carey, John W. Kropp and John J. Leroy.

Fire, which started in the boiler room of the National Drain Tile Company's plant, at Summittville, Ind., caused a \$20,000 loss before the flames could be controlled. The burned building will be rebuilt at once. This plant was formerly known as the Cowgill plant, but is now operated under the direction of the National Drain Tile Company, the head office of which is at Terre Haute, Ind.

The Zaleski Sewer Pipe Company, Zaleski, Ohio, has been incorporated, with the following officers: President, T. L. Ward, Junction City, Ohio; secretary, W. A. Hilton, Akron, Ohio; superintendent and general manager, John A. Ault, Junction City, and treasurer, J. H. Huhn, of Zaleski, Ohio. The company has leased fifty acres of clay land, on which they will at once erect a modern plant for the manufacture of sewer pipe and other clay ware.

The stockholders of the Evens & Howard Fire Brick Company held their annual meeting recently at the office of the company, 920 Market street, St. Louis, Mo., and elected the following directors and officers for the ensuing year: Directors—C. D. Gregg, Andrew Stroule, Frederick Vierling, Warren L. Clark and Isaac H. Orr. The officers chosen are: C. D. Gregg, president; Andrew Stroule, vice president; Geo. W. Jones, secretary and treasurer.

The Shackleford Brick Company, Des Moines, Iowa, is making plans for expending about \$40,000 this spring to double the capacity of their plant. Work on the improvements will be started within a few days. It is stated that the demand for brick in Des Moines last year was much greater than the local output, and that, in consequence, a large number of orders, some of them from local people, had to be turned down. Orders already contracted are said to be in excess of those placed at this season a year ago.

The Massachusetts Fan Company, Watertown, Mass., is furnishing wate heat drying apparatus for the Paterson Clay Products Company, Clearfield, Pa. This apparatus, consisting of a 140-inch, three-quarter housed steel plate fan, with water jacketed box, driven by a 9x12 direct connected horizontal engine, is to be applied to operate an eight-tunnel dryer. Each tunnel will be 100 feet long, the entire dryer having a capacity of 50,000 brick in twenty-four hours.

At a recent reorganization of the C. M. Miller Manufacturing and Mining Company, of Terra Haute, Ind., the title of the company was changed to the Wabash Brick Company. The reorganization and change of name of the company comes as the result of the sale of Mr. Miller's interest. W. H. Albrecht, Jr., has secured an interest in the company and will be one of its officers. H. M. Spang is the secretary-treasurer. The company's plant has been making about 25,

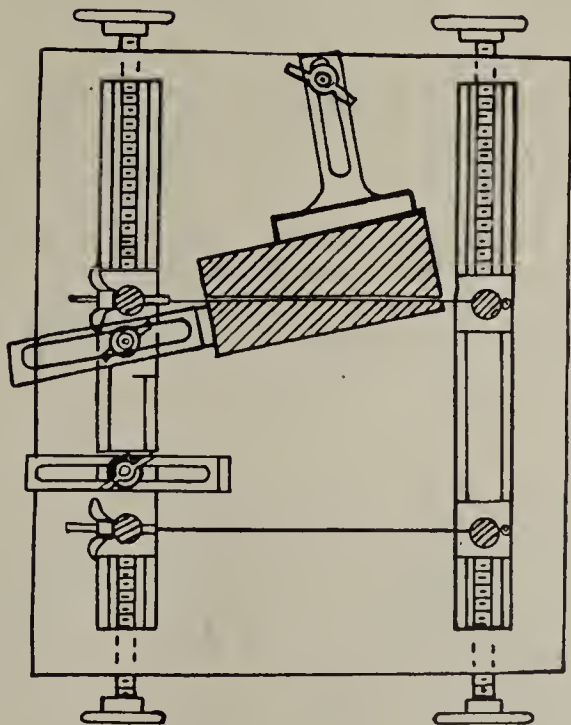
(Continued on page 336.)

WHY do by HAND What Can be Done by MACHINERY?

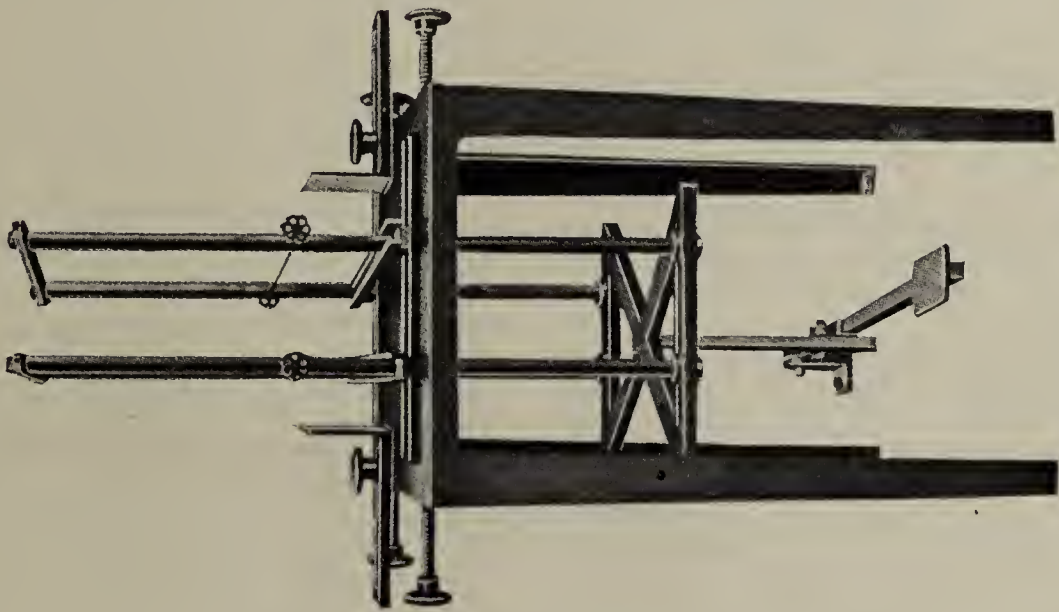
BRADFORD BRICK RECUTTER.

Do Not Lose Money
on
Special Arch Brick.

Please the Customer
and
Still Make a Profit.

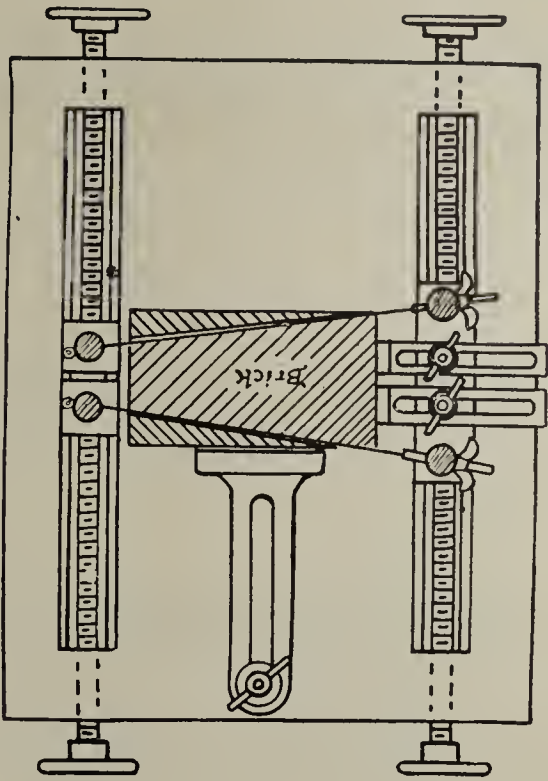


What it Does.



The Machine.

Let us Tell You What one User
Gained by Using This Machine.



What it Does.

Mention.
The Clay-Worker.

G. W. FLEMING CO., 59 Holley Ave., Bradford, Pa.

EDITORIAL NOTES AND CLIPPINGS—Continued.

000 brick daily. The capacity will be increased and the facilities of the plant increased.

G. B. Luckett has purchased the interest of Mr. James K. Everson, in the Ferguson Brick plant, at Crawfordsville, Ind.

W. M. Colby is at the head of a new company which has been organized to manufacture drain tile, hollow block and brick, at Lehigh, Iowa.

One of the kilns at the plant of C. E. Miller, at York, Pa., was badly damaged by having the top blown off during a severe wind storm recently.

John F. Lewis, an employe of the Barton Brick and Lumber Company, Jonesboro, Ark., had both legs broken by a stack of lumber falling on him while at work about the plant.

The Watkins Brick Manufacturing Company has been incorporated at Watkins, Minn., with \$10,000 capital stock. The incorporators are H. J. Watman, Henry Ehlers, and T. P. Jones.

John P. Wilcox is at the head of a company known as the Cadillac Brick Company, Cadillac, Mich., which has been organized to develop a deposit of clay recently discovered on a tract of land owned by Mr. Wilcox.

Anthony Wagner, of Dearborn, Mich., one of the pioneer brick manufacturers of Michigan, died, at his home in that city, January 22. Mr. Wagner was seventy-four years old, and had been engaged in the manufacture of brick for forty years.

Three workmen were killed and six injured by the explosion of the boilers at the brick plant of the Welch Brick Company, at Monaca, Pa. Frozen water in the pipes is supposed to have been the cause. The damage is estimated at \$7,000.

West Brothers Brick Company, Washington, D. C., contemplate the installation of an electric equipment for conveying the clay from the bank to the machine, and will be very glad to receive catalogs and literature giving information relative to such an equipment.

The plant of the West Bay City Brick Company, Bay City, Mich., which has been idle for nearly two years, has been purchased by Albert McClatchy and A. I. Jacobs. They will put same in shape for operation as soon as the season opens up. The plant will give employment to about thirty men.

John Mills, foreman at the Bennett Sewer Pipe and Tile Works, Jackson, Mich., has invented an improved drinking fountain for chickens, which he will patent. Air pressure regulates the supply of water, only as much being lowered into the trough as is taken from it. It is made of vitrified clay, which keeps the water cool.

Robert Nesch, president of the Pittsburg Vitrified Paving and Building Brick Company, Kansas City, Mo., writes that he was kept from attending the Columbus convention because of illness. He reports that they are installing new machinery and overhauling their plant at Pittsburg, Kans., and, in addition to the above, are building several new kilns. Mr. Nesch says the outlook for spring trade is very encouraging.

James L. Daugherty and R. D. Scott, principal owners of the Streator Clay Manufacturing Company's plant, at Streator, Ill., have sold their interest to James L. Green, of St. Paul, and Robert Green, of Chicago, Ill. The latter named gentlemen took possession of the plant February 1st. Mr. Robert Green is president and general manager, James L. Green is vice president, and John A. Conley, of Chicago, is secretary of the company.

The annual meeting of the Devonshire Brick and Ceramic Co. was held in the office of the company in the Columbus Savings and Trust building, Columbus, Ohio. The following board of directors was elected: F. D. Dildine and J. D. King, Canal Winchester; Geo. J. Karb, Fred. Guthery, Marion; R. C. Wilkin, L. C. Hugentugler, Warren B. Ferris, and W. A. Shoemaker. The board organized by the election of Warren B. Ferris, president; Geo. J. Karb, vice president; W. A. Shoemaker, secretary and general manager, and R. C. Wilkin, treasurer. The report for the year showed a nice surplus. No dividend was declared, but the money in the treasury will be used to build an electric light plant at Roseville, where the brick plant is located. The electrical plant will

cost about \$60,000, and will be designed to light the town. An ordinance is now pending in the city council.

J. S. Mason is at the head of a company which has been organized at Altus, Okla., to erect a modern brickmaking plant.

J. B. Fay, of Sedalia, Mo., will start a press brick plant at Brownwood, Texas, where he has purchased a splendid shale deposit.

Craiger & Adams have their new plant at Alice, Texas, now under way. They have a fine deposit of shale, and it is expected to turn out first-class brick from the very start.

The Toppenish Brick and Tile Company, of North Yakima, Wash., has been incorporated with \$10,000 by J. F. Garrett and C. H. Bullard.

The J. N. Harris Brick Company has been incorporated at Waco, Texas, by J. N. Harris, E. Rotan and J. S. Harrison, with \$10,000 capital stock.

John Tapa, an employe at the works of the Massillon (Ohio) Brick Company, was so badly crushed by the falling of a large stone in the roof of the clay mine where he was working, that he died while being taken to the hospital.

The Lilburn Brick Company is the name of a new company recently chartered to manufacture brick at Lilburn, Ga. Those interested are: W. A. Carroll, J. D. Carroll, J. H. Hubert, W. H. Massey, M. Marmon and H. B. Harmon.

As a result of a stroke of paralysis, Charles Crispin, one of the leading clay pot manufacturers of the country, died at his home in Findlay, Ohio, February 5th. Mr. Crispin was forty-five years old, and had only been ill a short time.

The Little Giant Brick Works, at Toronto, Ohio, owned by Nicholson Bros., which had been idle since early in December, resumed work the middle of January. The shutdown was the first the plant had had in eighteen years, and was due to a strike.

Henry Ames & Son have sold their brickyard at Paynesville, Minn., to Holm & Blichfeldt, of Minneapolis, Minn. The latter are experienced brick manufacturers, and will make a number of improvements in the plant before putting same in operation in the spring.

A new concern at Toledo, Ohio, is that of the Curtice Tile and Brick Company, which has been organized with \$10,000 capital stock. The company will take over the plant owned by Herman Bunte, at Curtice, and will rebuild same, making a number of extensive improvements.

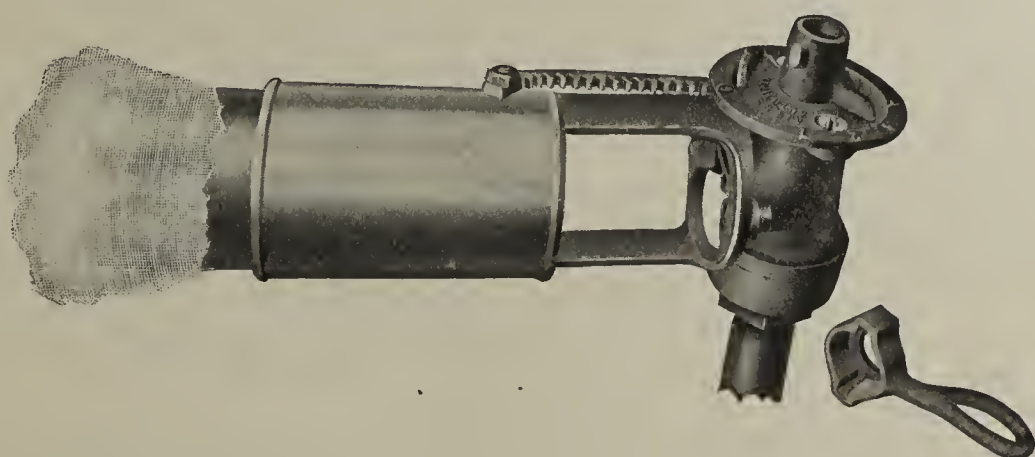
The extensive engine works of the Canadian Shipbuilding Company, at Toronto, Ont., Canada, have been purchased by A. Berg & Sons, of that city, manufacturers of dry press machinery. This will enable Messrs. Berg & Sons to manufacture their machinery themselves, instead of being dependent on contract work.

A new company has been organized at Cannelton, Ind., known as the Cannelton Sewer Pipe Company, with \$50,000 capital stock. The O'Bannon Sewer Pipe Company, of Louisville, Ky., is interested in the project. Work on the plant will be commenced at once. Sewer pipe of all sizes will be manufactured from thirty-inch down.

At the annual meeting of the stockholders of the Columbus (Ohio) Clay Products Company, held at their offices in the Columbus Savings and Trust building, the following board of directors was elected: Wm. A. Miller, Jos. N. Bradford, John W. Kaufman, A. L. Fookes, F. E. Samuel, E. S. Dean, and N. M. Grant. Immediately after the stockholders' meeting, the directors met and elected Wm. A. Miller, president; Jos. N. Bradford, vice president; John W. Kaufman, treasurer; M. N. Grant, secretary and general manager, and A. H. Grant, superintendent.

The Independent Press Brick and Tile Company, of Dallas, Texas, will erect a strictly modern plant at Carrollton, Texas, the plans having already been completed. The plant will include two dry presses, with all the necessary clay preparing machinery, and a conveying system for handling the clay to the presses. A modern continuous kiln will be included in the outfit, with a special conveyor system for handling the brick from the presses into the kiln. It is understood the plant will be a model one, and will not be surpassed in equipment or convenience by any other in the country. The company has entered into a contract with The American Clay Machinery Company, of Bucyrus, Ohio, for the entire equipment.

BURN BRICK RIGHT. USE Natural Gas and Kern Gas Valve.



Better and More Uniform Brick at Less Cost.

Can be used on any style kiln and any pressure from eight ounces up.

Installed by an expert and on trial—results or no sale.

Gives all the Heat There is in the Gas.

Gas and air are regulated so as to give perfect combustion at all times; one handle controls both air and gas. It is automatic. No guess work.

Write at once for circular—it is interesting. Remember, results or no sale.

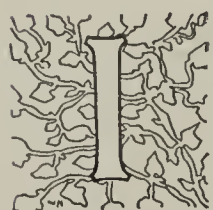
Leader Specialty Mfg. Co.,

Mention
The Clay-Worker.

5 P. O. Bldg., SMITHPORT, PA.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



IF THE BUILDING OPERATIONS for the first month of this year can be taken as any indication of what the year is to bring forth in that direction, it is evident that there will be more building done in 1908 in Kansas City than there was in 1907. Of course, January has not been a booming month in the building line, but the weather has been extremely favorable, for the season, and the building trades have been reasonably busy finishing up contracts which had been started last year. The report of the superintendent of buildings also shows that the building permits taken out during the month amounted to \$515,360, as compared with \$444,355 the same month last year, and of this amount sixteen permits were issued for brick buildings, the total value of which were placed at \$219,500. An increase was also shown in the number of buildings, and on the front feet of improvements. Of course, the amount of work finished in January was only an indication that jobs were being completed which were probably contracted for before the financial troubles, but these permits issued in January are for new work, and indicate that there is going to be little trouble about building throughout this year.

Business in the brick line is about the same as a year ago with the leading dealers so far in the year, and it is thought that the low prices on brick and lumber, and the reduced prices on other building material, will stimulate building for the balance of the year.

Another good feature of the business just at this time is the prompt delivery made by the railroads. The railroads even condescend to now come around to the brick men and ask for business. For a year or so they have not thought this worth while. Now they have plenty of empty cars, and are anxious to keep them busy.

The Kansas gas belt brickyards are rapidly getting ready to start up for the coming season, and are making every effort to cut down the cost of production, so they can make a little profit on their brick this year. They are nearly all going to save on the wages, for they are hiring men for the coming season at \$1.25 per day, where they have been able to hire for not less than \$1.50 and \$1.75 per day in the past year. This will cut some figure, and about the only other place they can cut the cost is with labor-saving machinery.

While the demand for building brick in this section of the country may be considered problematical by some, it is expected to be good by those who are really in touch with conditions, and there is no question but what the demand for paving brick is going to be much larger than it will be possible to supply if that which is projected is added to that which is already under way. This big and growing demand for paving brick has turned the attention of a number of the Kansas gas belt plants to pavers, and they are going to prepare to make a vitrified paver in the future, as well as the common brick, which has been taking their entire attention to this time.

Of course, it is not every plant in the Kansas gas belt which can turn out a paver of the highest quality, for some of them have not the quality of shale for the work, but all cities can not wait for paving for the best brick, and some of them are going to buy something which will grade a little lower and can be bought without delay, in preference to waiting for a long time and paying a higher price.

The paving demand in the West is merely started, and the movement toward increasing the output seems to be in the right direction, and it will bring relief to the common brick market at a time when it is likely to be needed worst. The fact that brick plants continue to multiply in the gas

belt, and that it is evident that the fittest will survive in the end, makes it evident to those already engaged in the business that they must find as diversified an output as possible for their product, and must turn out a product which will meet the requirements of the user, no matter what they may be. With this spirit developed by the plants already in operation, it will be hard picking for the newcomers, except in their own field.

At the present time Kansas gas-burned common brick is selling here for \$6 per thousand, f. o. b. cars. Of course, the price of brick in this market is governed entirely by supply and demand, but no reduction in this price is expected.

Flanagan Brothers and the Lyle Brick Company are both operating their yards regularly, and expect to continue making brick throughout the winter, as their demand is holding up steadily. Other plants are shut down.

Wm. Henry Davis, who has been with the Hydraulic Pressed Brick Company for fourteen years, has resigned his position of foreman of the yards, and will engage in business for himself. Mr. Davis has made many friends in Kansas City, among the contractors, and no doubt will be successful in his purpose of handling building material at this point.

The Eadie Building Supply Company reports business about equal to a year ago, and they are booking orders for future delivery. Mr. Eadie states that he considers prospects very favorable, and he anticipates fully as much business as last year.

The Altoona Brick Company, of Altoona, Kans., after having its shale tested for paving purposes, is beginning to make pavers, and in the future about half their output will be pavers. Up to this time, they have made nothing but face and common brick.

The Liberal Brick and Tile Company, of Liberal, Mo., has interested new capital in its plant, and the capacity will be increased, new kilns added, and the output of vitrified paving and face brick increased. The Eadie Building Supply Company are their agents in Kansas City and vicinity, and report that the face brick is a of a very popular color and excellent quality.

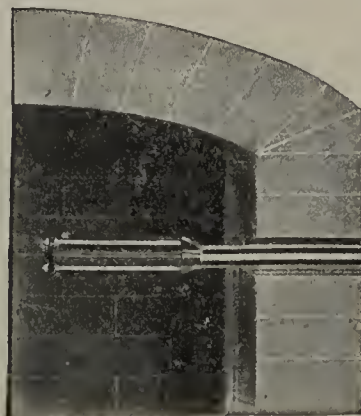
K. A. W.

CLEARFIELD BRICK MANUFACTURING CO., CLEARFIELD, PA.

Works at Krebs, Clearfield Co., Pa.

FIRE CLAY PAVING BRICK.

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

EDWARD
BROWN
& SON,
311
Walnut St.,
Philadelphia,
Pa.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO

Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET
KIT and THE CLAY-WORKER
for One Year to any address in
the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

Name

Postoffice

Street and Number

County State

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE—Valuable patent kiln and waste heat system. Owner has no time to handle same. Address W. N. W., 1 2 cm Care Clay-Worker.

FOR SALE—25,000 feet of inch pipe. 4,000 feet of steel rail and 3 trucks, turntables and pump. Used two months. JAMESVILLE RED BRICK CO., 2 1 e Janesville, Wis.

WANTED—Position as superintendent or manager, fire or building brick, tile and pipe plant. Thoroughly experienced. Would like interest. Best references. Address 2 1 c P. O. Box 1584, St. Louis, Mo.

WANTED—Experienced man who can take small money interest and manage dry press brick plant. A good opportunity for the right man. Address, "WASHBURN," 1 2 d Care Clay-Worker.

WANTED, TO LEASE—By a competent man, a building or fire brick plant which can be operated satisfactorily. Preferably fire brick. I invite correspondence on any basis. Address "GIBSON," 2 1 cm Care Clay-Worker.

WANTED—Position as superintendent or manager of paving brick plant by a thoroughly practical man who understands the business in every detail. A No. 1 reference. Address "E. W. B." 2 1 c Care Clay-Worker.

WANTED. A position as superintendent by a responsible man, who is thoroughly familiar with all the details of a brick plant, and capable of handling all kinds of help. Can give the best of references as to ability, etc. Address "N. H." 2 tf d Care Clay-Worker.

WANTED—By a German brickmaker with 12 years experience and the best of references, a position as assistant superintendent. Am strictly sober and not afraid of work. Can speak some English.

OTTO POMMER, 4054 A Kennerly Ave., 2 1 c St. Louis, Mo.

FOR SALE. One hundred and seventeen acres, 20 miles from St. Louis. River and rail transportation. Contains first-class shale, fire clay and a 26-inch vein of coal. All can be dug with steam shovel, no mining necessary. For particulars and analysis of clay and shale, address T. P. PLUMRIDGE, 1 2 dm 211 N. 7th st., St. Louis, Mo.

FOR SALE. Brick and tile plant, located on the line of new railroad, 80 rods from new depot. Three acres of best clay. Down-draft kilns and sheds. New horse power machinery, dies, trucks, wheelbarrows, and a very good demand for product. Satisfactory reasons for selling. Address GENOA BRICK AND TILE CO., 1 3 cm Genoa, N. Y.

FOR SALE—Eight thousand dollars buys an up-to-date brick and tile plant, twelve acres of land, brick dwelling, in the best section in eastern Iowa. Address 1 2 cm G. K., Care Clay-Worker.

WANTED POSITION—Manufacturers of front, stiff or dry press brick requiring the services of competent man, as superintendent or manager, to communicate with "PYROMETER," 1 1 cm Care Clay-Worker.

FOR SALE—A splendid opportunity to purchase at a bargain an interest in or the entire business of a brick plant and lumber yard. Address ROBERT E. WOODS, Postmaster, 1 3 cm Louisville, Ky.

FOR SALE. One Potts Mold Sander, in good working order, also dry racks (Mock System) for 70,000 brick. The above can be had very cheap. A. FRIES & SONS, 2 3 d Connersville, Ind.

WANTED—Position as superintendent or foreman of a stiff mud brick or tile plant, by an experienced man. Have had 25 years experience. Can give good references. Address "INDIANA," 2 1 c Care Clay-Worker.

FOR SALE—One 2-mold Simpson dry press. One eight-foot iron frame dry pan. One six Brewer brick and tile machine, with all necessary dies and cutters. One tile elevator, one clay elevator, one clay disintegrator. O. W. DUNLAP, 2 3 L Bloomington, Ill.

FOR SALE—Pottery, with one ten foot kiln, buildings, 30 by 60, with small stock of red ware. Established trade. Site alone worth double amount asked. \$5,000 takes it. SIMON B. SMITH, 302 Merchants' Trust Bldg., 2 1 cm Los Angeles, Cal.

A BUSINESS CHANCE. We offer for sale a well equipped brick plant, producing hard cream colored brick. Large territory tributary with established low freight rates. 140 acres land. Good reasons for selling. Address 2 1 dm Look Box 52, Shakopee, Minn.

FOR SALE—Brick and tile plant at Carthage, Ill. Hercules soft mud machine. 5B Madden & Co. machine, for making drain tile and stiff mud brick machinery. Sheds and kilns in good repair; 35 h. p. engine and 50 h. p. boiler. Address W. E. LYON & CO., 1 3 cm Carthage, Ill.

BRICK PLANT WANTED AT JACKSONVILLE, ILL.

One of the best places in the whole country to establish a small up-to-date, modern brick plant. Local consumption 3,000,000 annually. Abundance of good clay; no competition. Will give detailed information upon application to the JACKSONVILLE BUSINESS MEN'S ASSOCIATION, 12 3 cm Jacksonville, Ill.

DRY PRESSES FOR SALE. One 2-mold U. S. brick press. One 2-mold Boyd brick press. One 4-mold brick press of standard make. One 3-mold Andrus brick press. Dry pan, pulverizer, screen and transmission. One set of plates for 7-foot wet pan. 250 horse power Corliss engine and boilers. B-K BRICK CO., 9-tf d Denver, Colo.

FOR SALE OR RENT.

A well-equipped soft mud brick plant, 25,000 capacity, at Princeton, Ind. A bargain on account of owner's health. Address CHAS. READ, 1 1 d Oakland City, Ind.

FOR SALE. Brick machine, 15,000 per day capacity. 4,000 pallets and one hand repress. 25 brick molds. Will sell separate. Reason for selling, wish to retire. 2 3 cm WM. MAERZ, Fulton, Mo.

WANTED—14,000 second hand wooden pallets, 32 inches by 10 inches; one piece tops, not less than 5-8 thick, two cleats. Must be in first class condition. Quote price based on New York delivery.

HOMESTEAD BRICK YARDS, 2 1 cm Homestead, N. J.

WANTED. One wet pan man, \$2.75 per day; 1 face brick setter, \$3.00 per day; 2 shaders, \$2.75 per day; 3 graders, \$2.25 per day. Extra good wet pan man, setters, and shaders will get 50 cents per day more than the above. Extra good graders will get 25 cents per day more than the above. Want 25 other first class face brick factory men. All men must be married, sober, and less than 45 years of age. Address PACIFIC FACE BRICK CO., 2 1 d Portland, Ore.

FOR SALE—The undersigned are dismantling and closing out the machinery of the best equipped industrial plant in Northern Illinois, and will dispose of the following at about one-half the price of new: One Chambers "B" brick machine; one Chambers "C" machine; two Chambers pug mills; one brick repress; one 200 h. p. Atlas Automatic engine; one 80 h. p. Atlas automatic engine; one 12 h. p. simple engine; three large boilers; one 15 h. p. Electric locomotive; one seven foot exhaust fan; one ton ref. Wolf ice machine. Pumps shafting, etc. for complete plant. ANTHONY & BUCHANAN, 2 3 cm Kewanee, Ill.

FOR SALE OR LEASE—Entire, or interest in a most valuable brick yard on James River, Va. Two plants, soft and stiff mud Combined capacity, 60,000. Installed last season with Henry Martin Co., steam rack pipe dryer. Unlimited supply of surface clay, 10 to 25 foot thick, excellent for brick and drain tile. Market consists of eight cities within easy reach by water and immense truck fields adjoining for tile. Brick net \$7.00 at kiln. Am not a brickmaker. Bought to protect myself, and will sell at a great bargain, and on very easy payments. W. L. JONES, 2 1 cm Box 5, Williamsburg, Va.

FOR SALE—ENGINES AND BOILERS.

—Engines—Corliss and Automatic—20x42 Allis, 18x42 Hamilton, 18x36 Wright, 16x32 Buckeye, 14x24 Atlas; also 12x30, 10x30, 13x16, 13½x15, 12x18, 12x14, 12½x12, 10x10, etc., etc. Throttling—18x26 H. S. & G., 18x24 Erie City, 16x20 Chandler & Taylor, 14x24 Atlas, 14x14 Vertical, 12x18, 11x16, 10x16, 10x12, 10x10 Vertical, 9x12, 8x16, 8x12, etc., etc.

—Boilers—Horizontal Tubular—84x18, 78x16, 72x18, 72x16, 60x16, 60x14, 54x16, 54x15, 48x14, etc., etc. Fire Box—60, 50, 40, 35, 30, 25, 20, 16, 14, 12, and 10 horse power, etc., etc. Vertical—55, 35, 30, 20, and 15 horse power, etc., etc. Pumps, heaters, tanks, saw mill and general machinery. THE RANDLE MACHINERY CO., 1735 Powers st., 1-tf-d Cincinnati, Ohio.

FOR SALE—Brick plant making dry press and soft mud brick. Good clay for both. On C., H. & D. R. R., near Cincinnati. Will sell very cheap. Address
E. B. R.,
Clay-Worker.
2 1 cm

FOR SALE—Remodeled dry presses of different sizes and makes. Nothing reserved. First come, first served. Address, FERNHOLTZ BRICK MACHINERY CO., Boyle ave. and Old Manchester road, 12 3 L St. Louis, Mo.

FOR SALE—One J. D. Fate tile machine, with dies 3 to 12 inches; two cut-off tables; one 25 h. p. engine; 35 h. p. boiler; 50 feet 14-inch, 6-ply belt, all in good condition. Price very low. Address
O. J. MONTGOMERY,
Bluffton, Ind.
1 2 cm

FOR SALE—One 14 horse power traction engine. One all iron Quaker brick machine, steam power. Three trucks, 21 panel bottom cherry molds. All in No. 1 good condition and good for several million brick. Cheap for cash.
GEO. H. JENKINS, Monona, Ia.
2 2 d

FOR SALE—KILN BANDS.
Two, one-half inch by six inch for 26 foot kiln. Three, one-quarter inch by six inch, for 26 foot kiln. Price f. o. b. cars Bucyrus, Ohio, fifty dollars.
L. P. BATTEFELD,
Bucyrus, O.
2 1 dm

FOR SALE—Well equipped brick and tile plant. Four 24 foot down draft kilns under roof. Dry sheds for 30,000 brick, new mill and automatic tables. Ten acres ground, large barn, inside city limits. Demand exceeds capacity. Plant practically new.
OAKES BROS.,
Iowa City, Iowa.
2 3 dm

WANTED—To purchase for cash.
2 second hand, four-mold Andrus presses.
2 nine-foot Frost dry pans.
1 seventy-five horsepower engine.
Boiler or boilers, 120 horsepower.
Address, giving full particulars, etc., Central Shale Brick Company, Benoist Bldg., St. Louis, Mo.

FOR SALE—Complete Modern Brick and Tile plant, 30,000 daily capacity. Make vitrified brick from shale beds owned. No others in hundreds of miles. Ship to thirty towns: three clamp kilns, capacity 750,000; one down-draft kiln, Stewart patent; steam dry kiln, fifty steel cars, complete, equipments in running order. Address
W. H. CAPPS,
Villisca, Iowa.
2 1 cm

FOR SALE.
One steam power and one h. p. soft clay machines.
One feed water boiler heater.
A number of dryer cars.
Two second-hand dump carts, practically as good as new.
All of the above in first-class condition. Address,
THE HORTON MANUFACTURING CO.,
6 tf L Painesville, Ohio.

FOR SALE OR LEASE—An up-to-date, well-equipped dry press brick plant near Charleston, W. Va., now idle, owing to the death of the proprietor. Well situated, good market, and excellent clay from which can be made buff, iron spot, gray, red and flash brick. Natural gas for fuel. A rare opportunity for an experienced man to establish himself in the press brick business with small capital. For full particulars, Address
MRS. W. A. BRADFORD,
1 3 dm Charleston, W. Va.

WANTED.
Parties who are not getting satisfactory hard burns can make arrangements with one who will guarantee to get results or no pay. One who is fully competent to take full charge of modern plant in all departments. Up or down-draft kilns. Fine face, hollow, common brick, stiff or soft mud, or drain tile. Can build and handle kilns, keep all machinery in perfect working order. Strictly sober; good handler of men. Been in the business over 20 years. Will take either full charge or take the kiln department. Address
"L."
1 1-c Care Clay-Worker.

WANTED—Position as foreman on a first-class paving or front brick yard. Expert burner in all clay products. Twenty-five years' experience, strictly temperate and best references. Address "MODEL,"
2 1 c Care Clay-Worker.

FOR SALE—One friction clay hoister; two dump cars; twenty-one and one-half feet of heavy shafting; heavy pulleys; heavy four-foot grate bars.
F. G. LOTTERER,
Ft. Scott, Kans.
2 1 d

FOR SALE.
One 9-foot dry pan, iron frame.
One revolving screen.
THE T. B. TOWNSEND BRICK & CONTRACTING CO.,
5 tf d Zanesville, Ohio.

FOR SALE—Two large iron Potts soft mud brick machines; two Potts brick mold sanders; 26,000 pallets for rack cars, size 10x34 inches. All in good condition. For prices, etc. Address
SHERIDAN BRICK WORKS,
2 tf d Indianapolis, Ind.

FOR SALE—A complete soft mud brick outfit. One Potts all iron machine, mold sander, disintegrator, trucks, shafting, pulleys, belting, 20,000 pallets, racks and other articles. Machinery good as new. Address
J. H. MCGREGOR BRICK CO.,
1 3 c Bloomington, Ill.

WANTED—Position with a building brick plant. Am thoroughly experienced in the work from burning to management. Have also had experience in installing brick machinery, and building to plans and specifications. Can burn with wood, coal or gas. Address
PITTS,
1 3 dm Care Clay-Worker.

FOR SALE.
To increase our capacity with a larger machine, we offer at a bargain, a No. 7 special plunger Penfield brick machine complete, with clutch pulley and cutting table. Capacity 1800 per hour. Good condition. Used about 30 days, will make brick or tile. Address
FINDLAY BRICK CO.,
2 1 cm Box 186, Macon, Ga.

WANTED—Position as manager or superintendent by a practical, experienced, up-to-date man. Fire, building, paving, common and other brick, tile and pipe. Stiff, soft and dry press process. Clay or shale. Familiar with all details of manufacture and business necessary for successful operation of plant. Address
"HAROLD."
2 1 cm Care Clay-Worker.

FOR SALE.
Two single transfer cars, almost new. Racks, trucks and turntables for 75,000 brick, Mock system. One Nolan & Madden endless carrier cutting table. Cuts from 6 to 10 inch tile. One Adrian cutter, cuts from 3 to 8 inch tile; one Adrian hand brick cutter; two pulleys, 12-inch face, 62-inch diameter, 2 15-16 bore; one pulley, 10-inch face, 62-inch diameter, 2 15-16 bore; one pulley, 12-inch face, sixty-two-inch diameter, iron hub and spokes, with iron rim. Address,
A. FRIES & SONS,
1 3 cm Connorsville, Ind.

FOR SALE AT A GREAT BARGAIN.
Clay property consisting of 12 acres of clay adapted to the manufacture of brick, roofing tile, hollow tile, terra cotta, and kindred articles. Clay of the finest quality, having received the Gold Medal at the St. Louis Exposition, also Bronze Medal on roofing tile made from same.
The plant consists of two kilns, two Raymond brick presses and clay shingle dies; one Freese brick and tile mill, Bensing automatic cutter, Potts disintegrator, boiler and engine, and a lot of tools and implements. It is located at Searcy Station, Ky., and directly on the L. & A. R. R., making shipping facilities ideal. Great demand for the output, and the right party could make a fortune. Best reason for selling. Will go at a sacrifice. Address
C. L. S.,
1 3 cm Care Clay-Worker.

WANTED.

Experienced man who understands the manufacture of face brick and street pavers to take some stock and take charge of plant. Will give the right man a first class opportunity. Address
BERT,
12 3 c Care Clay-Worker.

FOR SALE—One Hercules brick machine, Horton make, capacity, 40,000 per day. Also mold sander for same and 50 good molds. Machine has only made two million brick. Brick sheds, racks, and pallets to hold 105,000 brick; five good brick trucks. Good reason for selling. Address 10 L,
1 3 cm Care Clay-Worker.

WANTED—Position as superintendent or foreman of either dry press or stiff mud brick plant. Am thoroughly conversant with brick machinery and am also a machinist. Can burn with wood, coal or oil. Strictly temperate and can give the best of references. Address
"EASTERN."
2 1 d Care Clay-Worker.

FOR SALE CHEAP.

1 Chambers "CD" Machine Complete.
This machine is doing good service but increased demand makes it necessary for us to put in a Chambers' largest size, which is now being installed.
THE SUMMERVILLE BRICK CO.,
2 tf d Summerville, S. C.

FOR SALE.

Little Giant Traction Shovel with long dipper handle and special dipper for trench digging.
Send for latest circulars.
THE MALES CO.,
26 Cortland Street, New York, N. Y.,
1508 First Nat'l Bank Bldg., Cincinnati, O.

WANTED.

Clayworkers who are having trouble of any sort in the operating features of their plant, whether in the making, drying or burning, to know that my experience of twenty-five years enables me to give valuable practical advice that will prevent further loss and trouble, if skill and knowledge as a practical worker and chemist can accomplish that purpose. Terms reasonable and contracts made contingent upon success. Address
J. J. KOCH,
5 tf L 3325 Caroline St., St. Louis, Mo.

FOR SALE

AT A DECIDED BARGAIN,

The best brick plant located in the northwest. It is fitted up with modern machinery, including Penfield Brick Machine, Potts disintegrator, Benson side cutter, Bechtel system of trucking, good kilns and drier sheds, machine shop, barns, boarding house for employees. Good reason for selling.
A. L. MARTIN,
613 Hennepin Ave.,
1 tf d Minneapolis, Minn.

FOR SALE.

One 30 h. p. boiler and 25 h. p. engine; makers, Geffel Water Wheel Co.; one extra heavy Quaker brick machine, belts, shaftings and conveyors for same; one Quaker sander; one Quaker or Wellington 5 leaf dump table; three Wellington mule trucks, used 5 days; three Raymond single deck, ten pallet trucks, nine brick trucks; 20,000 five-eighths, three board top and three cleat white pine pallets; 15,000 33 1-2 in. by 10 in., 5,000 32 1-2 inch by 10 inch pallets, made by Merston, Schuette, Parker & Co., Saginaw, Mich., and racks for same, consisting of white pine posts and cleats. These racks are double posts. Grooves and dashes for same and enough grate bars and kiln doors for 36 arches. The plant has been used five years and is in A No. 1 condition. Any person buying this plant living within a radius of 200 miles will be paid his fare both ways.
A. GRUBE & SON,
2 1 dm Springfield, Ohio.

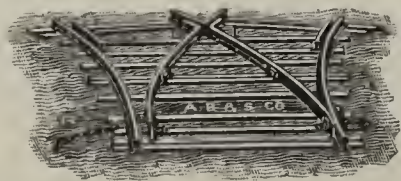
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CASH FOR YOUR BUSINESS, BRICK
PLANT OR REAL ESTATE.

No matter where located, if you want to
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FRANK P. CLEVELAND,
965 Adams Express Bldg.,
Chicago, Ill.

1 tf d



SWITCHES FOR SALE.

Right and left hand one, two and three
way switches of various gauges, radius
and weight rail, at special prices.

THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

FOR SALE.

- 1 45-ton, Standard Gauge, Little
Giant Vulcan Steam Shovel.
- 4 9 x 14, 36-in. Gauge, Vulcan
Dinkeys.
- 2 10 x 16, 36-in. Gauge, Vulcan
Dinkeys.
- 30 4 yd. 36-in. Gauge, 2 way, K. &
J. Dump Cars.
- 18 3 yd. 36-in. Gauge, 2 way, K. &
J. Dump Cars.

JONES BROS.,

503-4 Harrison Bldg.,

1 2 dm

Columbus, Ohio.

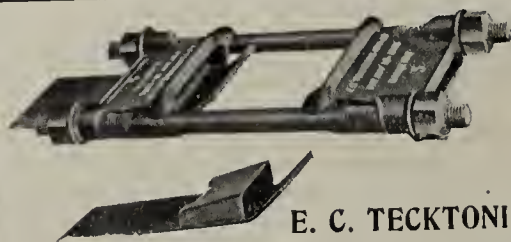
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MANGANESE
FOR ALL USES.
LUMP, GRAIN AND GROUND
60-70% 70-80% 80-90% OXIDE.
CLAY WORKERS GOODS A SPECIALTY.
SAMPLES AND PRICES ON INQUIRY.
METALLIC ALLOYS CO.
99 JOHN ST NEW YORK, N.Y.
SUCCESSORS TO KENDALL & FLICK.

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Sewer Pipe and Clay-
Working Machinery.

ESTABLISHED 1862.

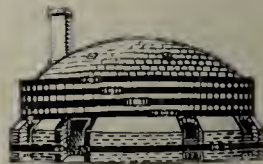


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on the market.

Write us for price.



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CANADIAN TRADE. Wooden Brick Pallets.

WRITE US

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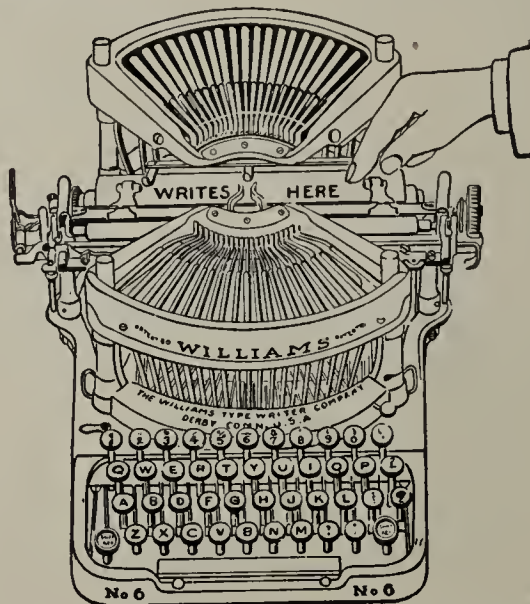
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Saves the beginner time when learning.

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New Number Six Visible Writer



Saves time, energy,
worry and money.

Gives speed, simplic-
ity and beautiful work.
Single shift. Strictly
visible writing.

Old machines of any
make taken in trade.

The Williams is sold
under a positive guar-
antee and on easy
terms.

If you want the best
value in a typewriter
ever offered, write us.

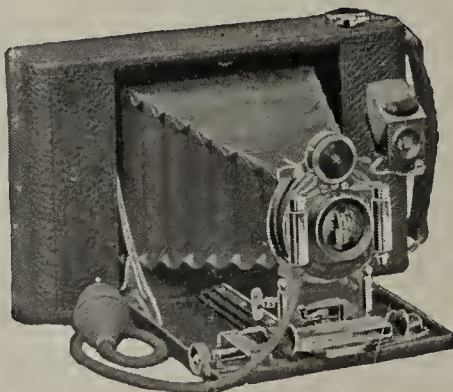
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Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.

"OPENS THE CORRECT WAY."



For Pictures 4 x 5.

No. 4 Folding Hawk-Eye.

No. 4 Folding Hawk-Eye for pictures 4 x 5, represents the highest attain-
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MANUFACTURERS OF
MUSIC WIRE NEEDLE WIRE
NEW BRUNSWICK, N. J.

We manufacture BRICK AND TILE CUTTING WIRE, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.

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N. R. WITHERS, Sec. and Treas.

H. L. JACOBS, Gen. Mgr.

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MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Marion Machine, Foundry & Supply Co., Marion, Indiana:

Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

Very truly yours,

SUFFOLK CLAY CO.,

For further information address

H. L. Jacobs, Gen. Mgr.

MARION MACHINE, FOUNDRY AND SUPPLY CO., MARION, IND.



The Department of Clayworking and Ceramics

Established by the Legislature in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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Offers through its College of Engineering, full courses of instruction in Civil, Mechanical, Electrical and Mining Engineering, and in Architecture, Ceramics, Chemistry, Industrial Arts and Manual Training.

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Tuition is free. Laboratory fees are nominal. Faculty of over one hundred instructors. Equipment very extensive.

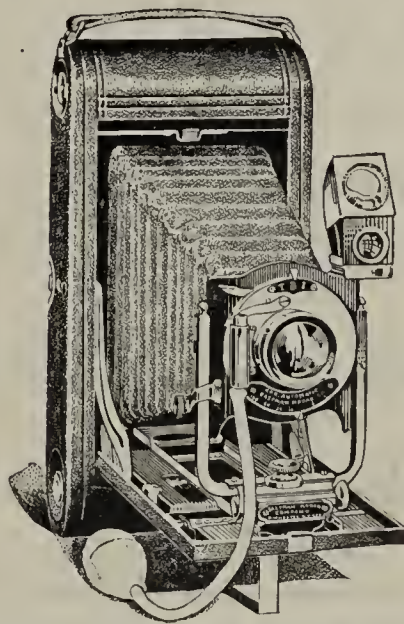
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Department of Ceramics.

DR. W. O. THOMSON, President.

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Any one can take good pictures by the

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Its daylight all the way.

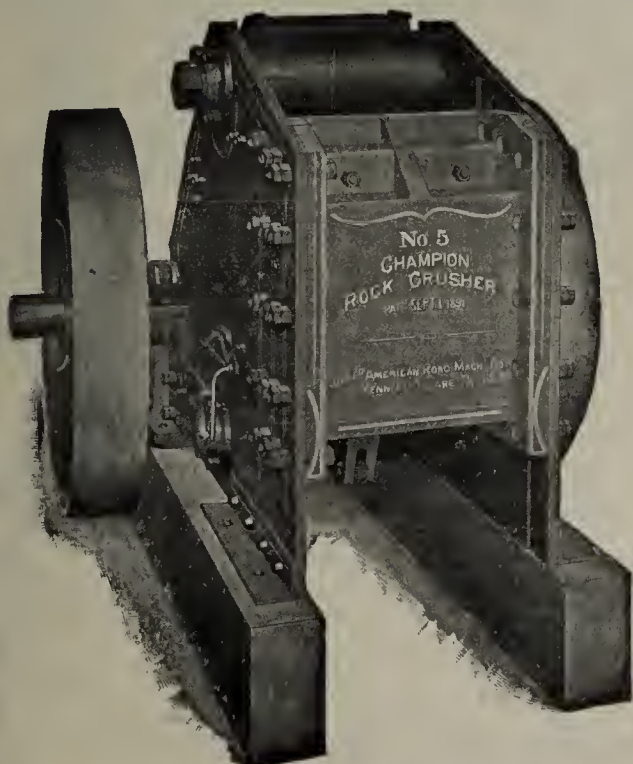
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EASTMAN KODAK COMPANY,
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Catalogue Free by Mail.

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Mention The Clay-Worker.



NO. 5, 11x26 CHAMPION CRUSHER.

It Looks Good
on paper.

It Looks Better

crushing shale, fire clay,
rock and other hard material.

THE CHAMPION CRUSHER

is expensive, *to do without*, because it saves you money.

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AMERICAN
ROAD MACHINE CO.

KENNETT SQUARE, PA.

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Largest Manufacturers in
United States of

Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
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Chattanooga Paint Co., Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick- makers' Use.

Eclipse
Mortar Colors,

Red, Brown, Buff, Black.

COLORING

All Mineralogists Know
Clinton Hematite Red
is the highest grade
Oxide of Iron.

Be sure you get the genuine, with the "Little
Yellow Side Label" on each package.

MADE ONLY BY
Clinton Metallic Paint Co.,
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P. O. Box 1712.

205 Pearl Street.

NEW YORK.

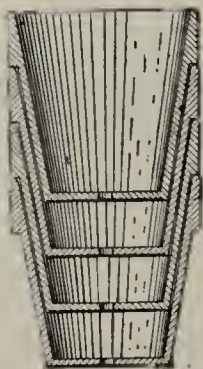
Sole Importers in the United States of the



The only preventative for scum and discoloration on Facing Brick and Terra Cotta, neutralizing the Sulphate of Lime in the Clay and Water.

Circulars and Particulars on Application.

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Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

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Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.



Double Up and Down Draft Kiln.

1st. They can be built as cheaply and are more durable than old style up draft Dutch kilns.

2nd. I can change your old style up draft kilns into my type down draft.

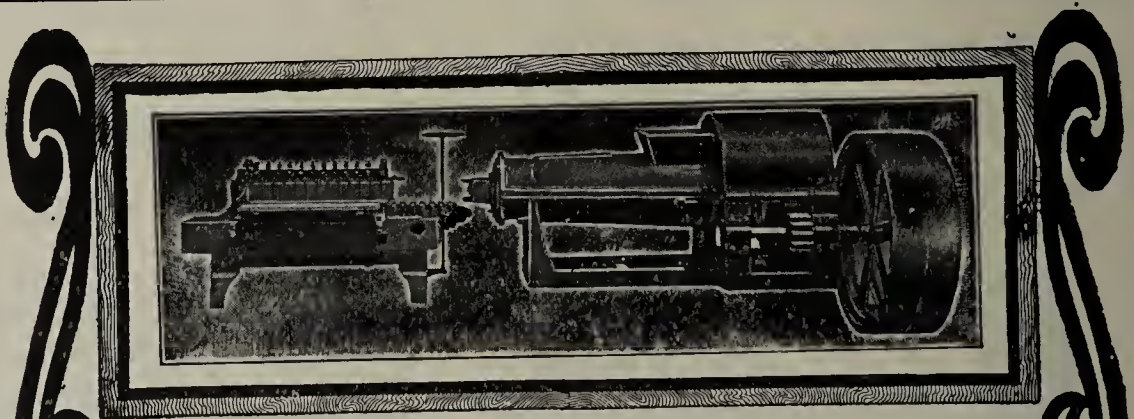
3rd. My type kiln needs no roof, consequently saves lumber, reduces fire risk, saves labor of removing and replacing kiln roof each burn.

4th. Less skill required in burning; draft under perfect control; easier to direct heat to any desired point; practically burns all hard brick.

In conclusion, you cannot afford to ignore these statements, as their truth is easily verified through investigation, these kilns being no experiment, but being in use by many intelligent, practical and successful brickmakers, whose names I shall be pleased to furnish you, whose plants are easy of access and whose statements cannot be biased by personal interest.

Wood burning kilns changed to coal burning. Brick plants installed and put in operation. Write for booklet. Correspondence solicited.

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has been the synonym of excellence in the Brick and Clay-working industry for the past thirty years.

It has had few rivals and no superiors. Improved from year to year to gain increased

Strength, Simplicity, Durability, Efficiency and Quality of finished product, until it has reached the highest state of the Mechanical Arts in Brickmaking.

Our new handbook will give you the detailed information desired.

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ADRIAN, MICH.

COX'S Special Drawn Coil Wire is
Unsurpassed for Strength and Durability.
Brick and Tile Cutting Wires For End-Cut, Side-Cut
and Automatic Tables.
GEO. S. COX, East Liverpool, Ohio. Satisfaction guaranteed.
Send for samples and prices.



Machine-Molded Gears

One to 6-inch pitch and larger. Our machine-molded gears last longer than others, give higher efficiency under actual scientific tests, and in many cases cost no more than inferior gears. Catalogue 27 for all gear users.

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CHICAGO

NEW YORK CITY
95 Liberty Street

White Pine Pallets

For Brick, Roofing Tile,
And Sewer Pipe Boards.

The Best Are the Cheapest.

Send Specifications and Get Prices.

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TRIPLE PRESSURE BRICK PRESS

The strongest and most efficient Brick Machine made, and the only Press that gives three distinct pressures to the brick.

We build and equip complete
SAND-LIME BRICK PLANTS,
SHALE AND CLAY BRICK PLANTS.

Ross-Keller Triple Pressure Brick Machine Co.,
Offices Fullerton Building, St. Louis, Mo.

\$2.00 THE CLAY-WORKER **\$2.00**
ONE YEAR (IN ADVANCE)

The Anton Vogt Down Draft Kiln

and the
QUESTION OF THE HOUR.

Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,

Ada, Okla., U. S. A.

ATTENTION.

Do you want to buy a

Good Clay

Disintegrator

or Pulverizer?

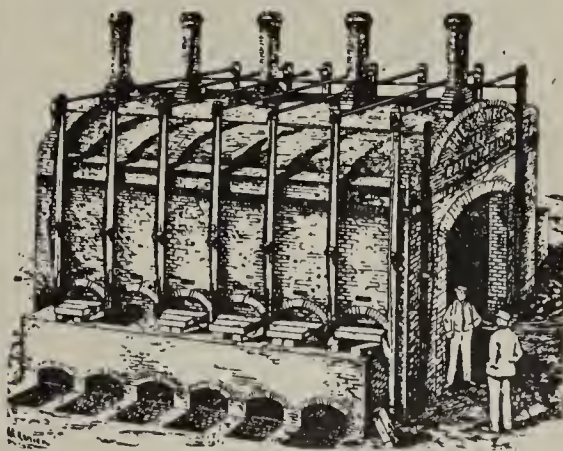
Do you want to buy a

Good Clay Screen?

If So

Correspond with

Stedman's Foundry & Mach. Works
Aurora, Ind.



For Economy of Fuel and Percentage of Hard Burned Brick, This kiln will give satisfaction. Constructed to burn without smoke and give an even distribution of heat, producing uniform burns. Hot air dryer. Continuous and muffle kiln.

ALFRED YATES,

SHAWMUT, PA.

Or Eastern Terra Cotta, Brick and Tile Co.,
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IF YOU ARE HAVING TROUBLE

With your machine, or your drying or kiln burning, send for an expert who will soon put you right and teach your employes how to do it. Will go East as far as Montana and South as far as Mexico. Address the Brick Machine and Kiln Burning Expert,

J. H. FINNIE,
P. O. Box 611, Portland, Ore.

Terms
reasonable.

First-class
references.

If you have trouble with Clay, Machinery or Kilns, then consult

THE BRICKMAKERS' ADVISOR,

Julius J. Koch,

(25 years practical experience)

3325 Caroline Street, St. Louis, Mo.

Special attention paid to dry clay press processes and down-draft kilns.

Contracts made contingent upon success.



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Send model, drawing, rough sketch or photograph of your invention and I will examine the records FREE of charge and advise you whether you can obtain a patent.

All patents taken out by me are advertised FREE in the leading mechanical, electrical and scientific magazines in the country.

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LACLEDE=CHRISTY FIRE BRICK

"CHRISTY" PLANT
formerly
Christy Fire Clay Co.

Are the Best for

"LACLEDE" PLANT
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Laclede Fire Brick Mfg. Co.

BUILDING KILNS.

Laclede=Christy Clay Products Co., St. Louis, Mo.

CHICAGO RETORT AND FIRE BRICK CO.

**Fire Brick for
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Factories:

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Sewer and Culvert Pipe. Locomotive Tile.
Furnace and Boiler Tile. Fire Brick and Cupola Blocks.
Flue Lining and Chimney Pipe.
Sanitary Earthenware. All kinds of Fire Clay Products.

"Mitchell St. Louis No. 1"

Brand of

FIRE BRICK

Awarded Gold Medal at St. Louis for
Kiln Construction.

— Made by —

MITCHELL CLAY MFG. CO.,

5627 Manchester Avenue.

ST. LOUIS, MO.

\$2.00

THE CLAY-WORKER.
ONE YEAR, (IN ADVANCE)

\$2.00

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

If you intend to build or rebuild your brick plant acquaint yourself with the

Chmelewski Patent Kiln

That's just the thing you need to get prosperous.
For descriptive booklet write to

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Sole Agent in the U. S. A. and Canada.

24 Cottage Ave., Fitchburg, Mass.

The Improved Flue System.

The most profitable kiln on the market
for burning any clay product.

Absolute Draft Control. Economy of Fuel and Time.
All Hard Brick.

Kiln and Yard Rights, with Plans, Specifications, etc., sold at very reasonable rates. Booklet, estimates and full information cheerfully furnished.

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New Cumberland, W. Va.

PHILLIPS & McLAREN CO.

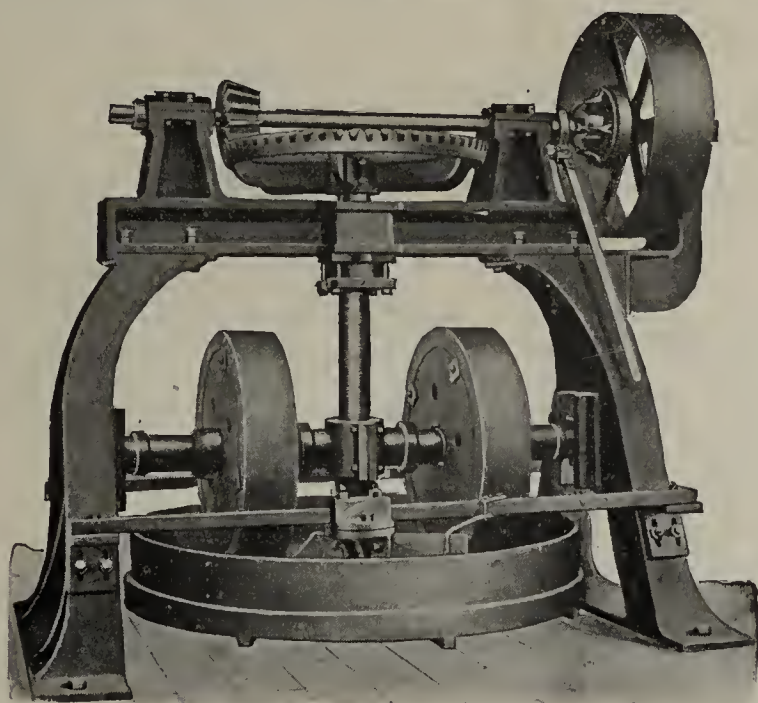
PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.

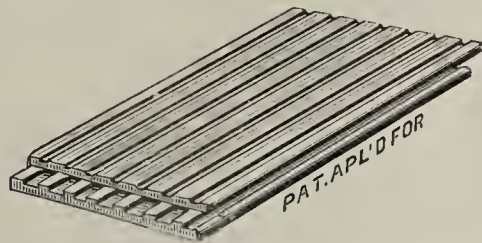
Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



Roofing Tile Machinery.

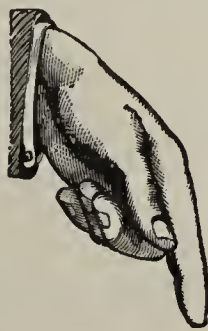


Patent Revolving and Hand Presses for
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Special Roller and Auger Presses for
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Stiff Mud Machinery for smaller capa-
city and horse power, stiff mud brick
and hollow block dies, dry press liners.

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or anything pertaining
thereto.

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for any position or a posi-
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Trades use the

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Consulting Engineers and Factory Architects.
Manufacturers of Controlling Apparatus.

Geological Examination of Properties.
Chemical Analyses.
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Investigation of Manufacturing Propositions.
Plants Designed and Construction Superintended.
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Kilns of Every Type.
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MENTION THE CLAY-WORKER,

WHEN WRITING TO ADVERTISERS,

MENTION THE CLAY-WORKER.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

The
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
100 William Street,
NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.
Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese
and all Chemicals used by the Clay Trades.

An Emergency Accident Cabinet

Free On

90 Days Trial

FOUR OF OUR CABINETS for FACTORY, SHOP, HOME, and TRAVELER

FACTORY SIZE contains 150 yards of bandages of various widths and 34 other articles liable to be needed in case of accident.

Price, \$9.50. Sent on approval.

HOUSEHOLD SIZE contains 18 articles for First Aid. No home can afford to be without one. **Price, \$2.00.**

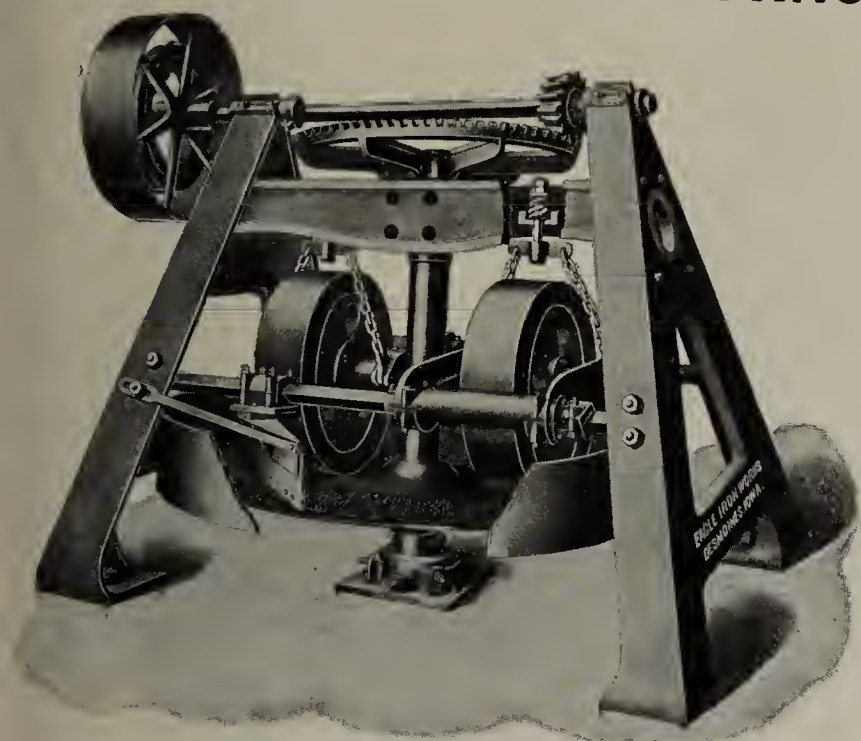
Ready Reference Chart sent with all cabinets shows at glance how to treat all cases until doctor arrives.

Agents wanted to handle these fast selling necessities.

The Accident Cabinet Co., Kalamazoo, Mich.

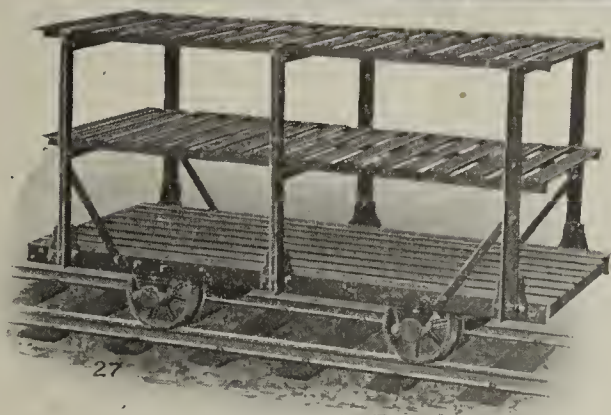
Independent and Suspended Mullers

the distinguishing feature of our **DRY PANS.**



Other valuable features which our catalogue fully describes.

EAGLE IRON WORKS,
Des Moines, Iowa.



DRYER CARS

Our Cars are the product of a factory that is thoroughly equipped with special machinery for car construction, and they embody all the good features that our 20 years' experience has taught us to be the best.

LARGE STOCK

of Cars, all styler, Rails, Portable Track, Frogs, Switches, Turntables, etc., at our works, Youngstown, Ohio, and Brooklyn, N. Y., ready for shipment. Write for Catalog 2B.

RAILROAD SPECIALISTS FOR ALL INDUSTRIES.
ERNST WIENER
COMPANY.

162 Morris Bldg., New York, N. Y.
Chicago, Boston, Bisbee, Ariz., Denver, Colo.



B. E. BECHTEL.

We Are PRACTICAL BRICKMAKERS.

We install Dryers that **DRY BRICKS** either open air or artificial.

We manufacture Disintegrators and Automatic Brick, Tile and Hollow Block Cutting Tables. Absolutely no stop for broken wires. Write for our catalogue.

BECHTEL'S,
Waterloo, Ont., Can.

Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

AMERICAN BRICK COMPANY.

Morenci, Mich., February 21, 1906

Pittsburg Kiln Construction Co.,
Mr. Thomas Hampton, Patentee,
West Elizabeth, Pa.

Dear Sir—We are using three kilns on the yard now, two of them with your patent bottom. The two parent kilns are doing good work; just finished firing one tonight. We are getting good burns; all tile hard clear to the floor.

The following is a list of the amount of tile of different sizes that we get in the 30 ft. kiln, as we are in the habit of setting them:

On floor 3 tier	3 in. tile of 5,000 each,	15,000
2 " 4 "	" 3,000 "	6,000
1 " 5 "	" 2,040 "	2,040
2 " 10 "	" 550 "	1,100
2 " 12 "	" 415 "	830

Set in kiln ten tiers high.

The 5 ins. are stuffed with 3 ins.	
The 10 " " 6 ins. and 4 ins.	
The 12 " " 8 ins. 5 ins. and 3 ins.	

Thus making a total in kiln as follows:

17,870 3-in.	7,100 4 in.	2,810 5 in.	1,100 6-in.
830 8-in.	1,100 10-in.	830 12-in.	

Coal consumed, 16 tons. Time required, 94 to 96 hours from time fires are first lighted until burn is completed. All the tile are hard from top to bottom; no soft ones to set back in next kiln.

I have tried to make the above as clear as possible; should you at any time wish any more information that I can give, write me and I will be glad to assist you in any way possible. Thanking you for your communication and kind regards, I am Yours truly, H. A. YARGER
Manager.

Don't you want some? Plans furnished cheap.

Pittsburgh Kiln Construction Co.,
West Elizabeth, Pa.

THE BOSS SYSTEM OF BURNING BRICK.

WATER SMOKE WITH ALL SLACK
BURN WITH ALL SLACK
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME
LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS COMMON BUILDING BRICK
BURNS PAVING BRICK
BURNS DRY PRESSED BRICK
BURNS HIGH CLASS FRONT BRICK
BURNS TERRA COTTA

Thirty years' experience; will guarantee to burn any kind of clay, including the most refractory fire clay for 40% less fuel cost than by the old method. Can be applied to kilns already built without any alterations. Write for Catalogue.

JOHN C. BOSS,
Office, 404-405 Monger Bldg., ELKHART, IND.

STEAM SHOVELS FOR BRICK YARDS.



We have a large number of Shovels in brickyard service in all parts of the country, and can furnish machines of any dipper capacity desired from $\frac{3}{4}$ to 5 cubic yards. If interested write for catalog.

The Marion Steam Shovel Co.,

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.

Marion, Ohio.

F. H. HOPKINS & CO., Agents
Montreal, P. Q.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.

These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Sqaure Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.



**THIS
BOOK
IS
YOURS**

It has proved to others and should to you that Leviathan Belting delivers full power at least cost and with least care—under constant or intermittent strains and subject to the hard conditions of brickmaking.

A Customer says: "One of the Leviathans has now been in use nearly two years, on the most exposed and trying place we have, and it looks good for two years more, at least. An expensive rubber belt did not last three months in same place."

MAIN BELTING COMPANY,

1224 Carpenter Street, Philadelphia.
59 Market Street, Chicago.



**Handle Your Clay
With One Man and**

The Thew Steam Shovel.



Type No. 0—Ohio Brick Company, Toledo, Ohio.

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

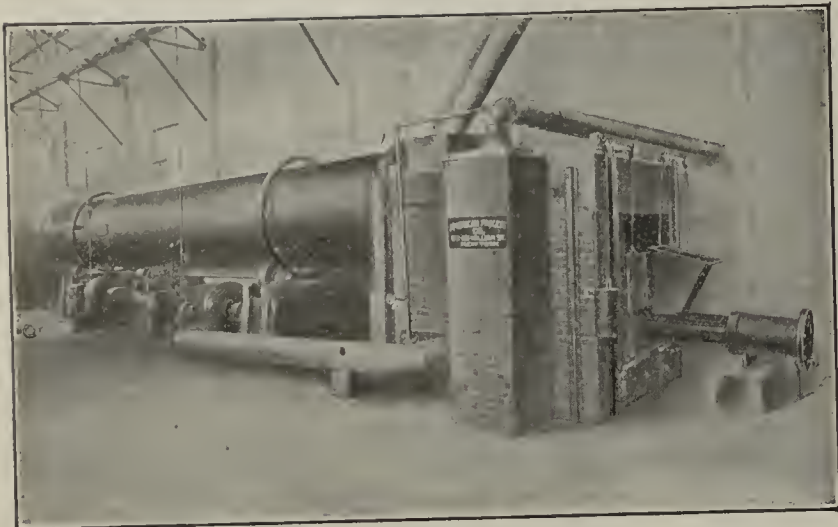
Made in four sizes.

Mounted on Car Wheels
or Traction Wheels.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

WRITE US FOR CATALOGUES OR INFORMATION.

**THE THEW AUTOMATIC SHOVEL CO., LORAIN,
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Automatic Improved DRYERS

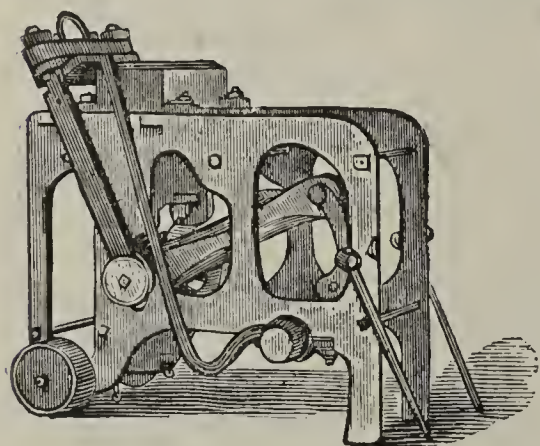
ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

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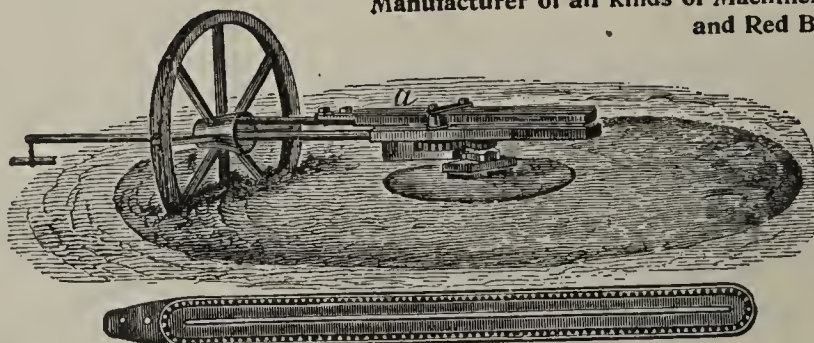


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Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

GEORGE CARNELL. 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

Barron Dryer Company,

ESTABLISHED 1879.

Manufacturers, Patentees and Builders of the

CHICAGO IRON CLAD DRYERS,
BARRON'S TENDER CLAY DRYERS,

Cars, Wheels, Axles, Decks, Turntables,
Castings, Forgings, Pipe, Valves, Fittings,
Rails, Splices, Spike, Structural Material.

Office-Shops- 18 Sloan St. C. & N. W. Ry. Chicago.

KILNS

FOR BURNING CLAY PRODUCTS OF ALL KINDS.

Up-Draft and Down-Draft Periodical Kilns, Muffle Kilns, Semi-Continuous Kilns, Continuous Kilns of the Best Types for Wood Firing, Coal Firing, Oil Firing, Natural Gas and **Producer Gas Firing.**

Furnaces for every condition and all fuels, **Forced Draft Furnaces for Slack Coal, Gas Producers for Continuous Kilns.**

Our kilns are correct in principle, scientifically calculated and based upon the best American and European practice.

Our technical education and our long experience as practical clayworkers and engineers are at your service for moderate fees. We can save you money and worry.

Our catalogs "Brick Kilns" and "Apparatus for Controlling the Burning of Clay Products" can be had for the asking.

The Richardson-Lovejoy Engineering Co.,
Columbus, Ohio.

Dryer Cars of Quality.

The Manufacturers' Name Guarantees That Qualification.

The Best is The Cheapest.

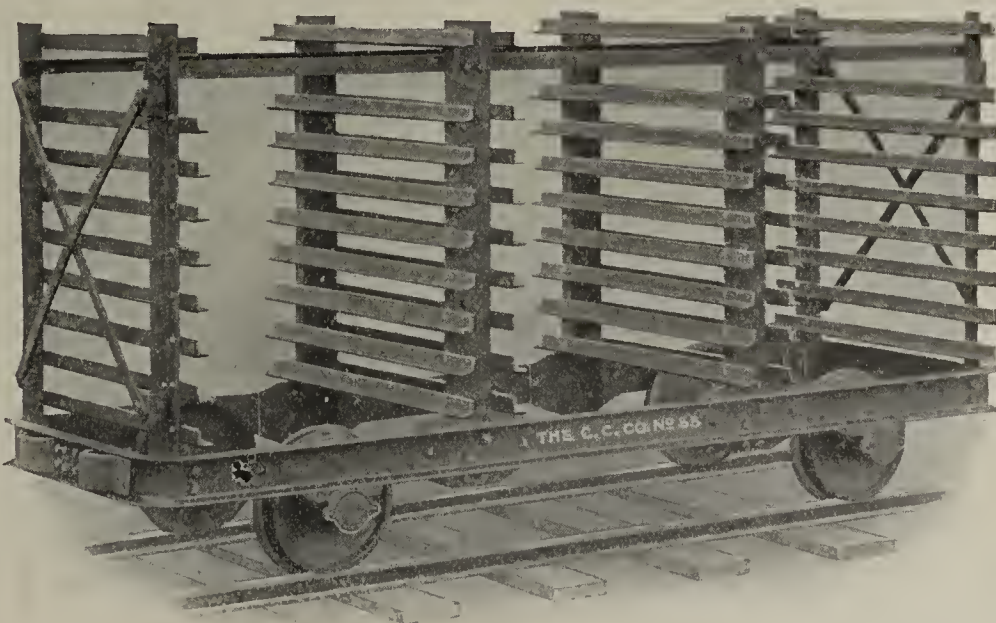
We can satisfy you on that point—To sacrifice quality is no economy—Therefore let us talk to you on the subject. We have something to say. Write us now.

Don't put off that car matter.
Send for catalogue.

The Cleveland Car Co.

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THREE SECTION RACK CAR.

Designers and Builders of Industrial Railways Complete.

CARS FOR ALL PURPOSES, SWITCHES, PORTABLE TRACK, TURNABLES, TRANSFERS, PALLETS, KILN BANDS, TUNNEL DOORS, ETC.

A Tile and Brick Plant without chimney, constructed by

JACOB BUHRER

which produces yearly, in two Kilns and two Dryers, 20 to 23 million pieces of all kinds of goods, also glazed tiles. Two ventilators furnish the draught for the Kilns and Dryer.



Jacob Buhrer's Technical Bureau, CONSTANCE, GERMANY.

Buhrer commenced to work in his father's brickyard in April 1838, when he was 10 years old, and established in 1860 his Technical Bureau.

Buhrer undertakes the construction of Kilns, and of kilns with dryers, in which brick and tiles are dried with the waste heat of the kilns. The kilns, which are provided with heat collectors, utilize the waste heat to the utmost extent.

In Buhrer's Shortened Kiln (miscalled the Zig-Zag Kiln) there can be burned very fine tiles, glazed and unglazed.

Buhrer's Kilns and Dryers are also very suitable for burning ordinary bricks and face bricks. Bricks and tiles, made by the plastic process, of clays of normal qualities, may be dried in $1\frac{1}{2}$ to 4 days, and can be drawn from the kiln, well burned, in 4 days more.

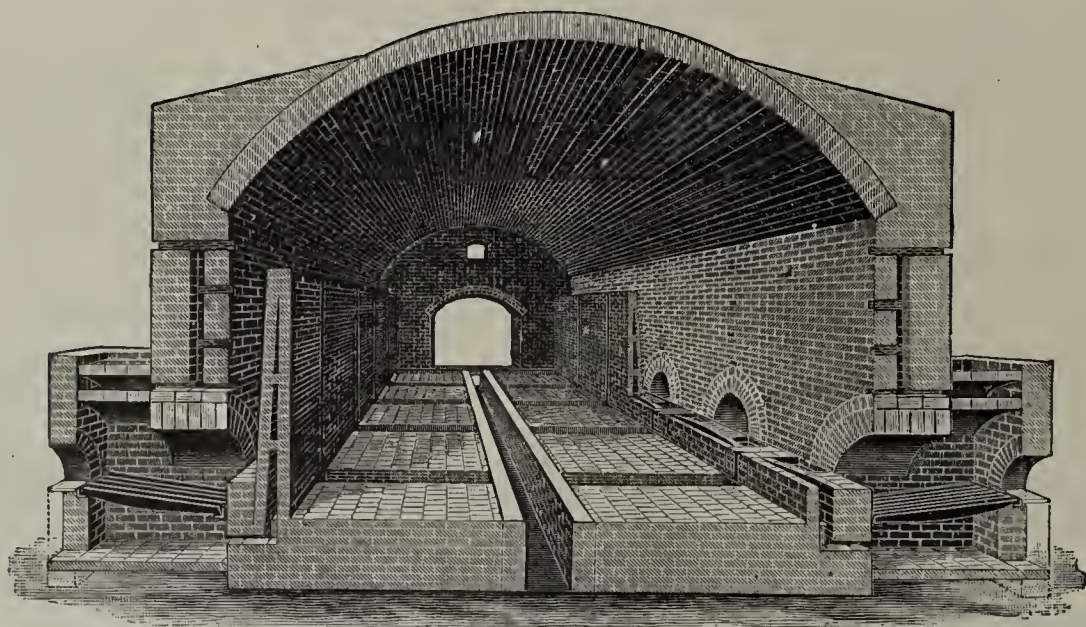
Buhrer shows by his new burning process how the production of kilns of other systems may be increased from 50 to 100% by means of his ventilator, the output being of first-class quality, with a small consumption of fuel. With the waste heat thus produced in the kiln, up to 50% and more of the required goods may be dried in Buhrer's dryer.

Buhrer also puts up lime kilns. Fat lime, containing 98 to 99% pure lime, is burned with 14% coal. These kilns can also be used for burning Portland cement.

Buhrer's methods of construction have a bearing upon all the work done in the yard, and the works, mostly large, he has built, are working with great economy.

Buhrer's largest works, without chimney, are used by the most successful men in the ceramic industry.

The EUDALY DOWN DRAFT KILNS STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

HAIGH'S NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning

**ROOFING TILE, DRY PRESSED, FACING, PAVING
AND COMMON BUILDING BRICK.**

A CURE FOR THE SMOKE NUISANCE. Among other advantages, the Haigh Continuous Kiln offers relief to many brickmakers whose plants have nearby neighbors who object to the smoke from ordinary kilns. An instance is that of William Conway, President of the National Brick Manufacturers' Association of Philadelphia, whose plant is now surrounded by flats and residences. He built a Haigh Continuous Kiln early the past season and has had no complaints of the smoke nuisance since. In regard to the kiln, he says: "The product is all that could be desired, our brick being of good color and well burned." An illustrated leaflet showing views of President Conway's plant and his new Haigh kiln mailed free on application.

POINTS OF SUPERIORITY. Cheapness in Construction. Easy to Understand and Operate. Perfectly free from any Nuisance. Will save more than one-half of the fuel used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

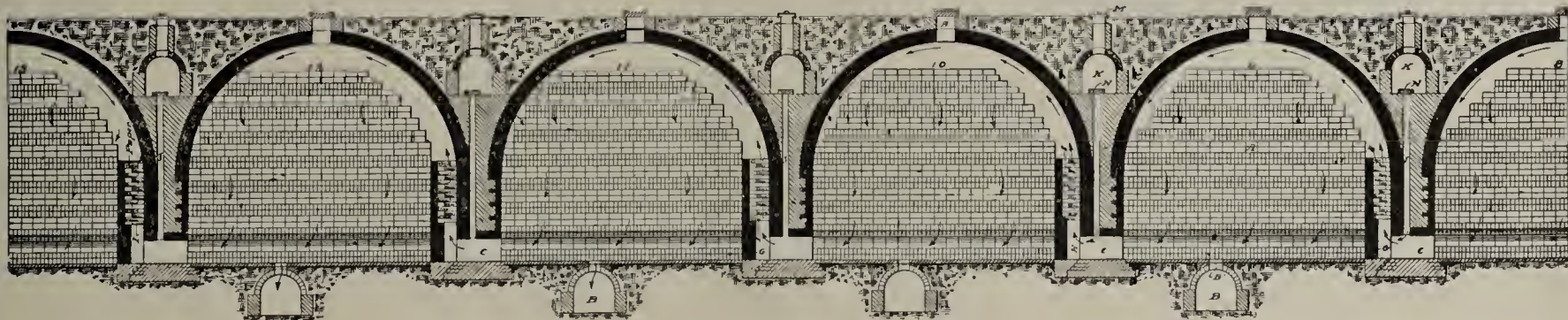
HAIGH'S KILN ARCH RAISER.

Every Brickmaker Who Has Kilns With an Arch on Should Have One.

For Further Particulars Address

**H. HAIGH, Brick Works Engineer,
CATSKILL, N. Y.**

THE YOUNGREN CONTINUOUS KILN PRODUCER GAS FIRED.



This kiln has now been developed to a state of perfection that places it far in advance of any other system of kilns for burning any and all kinds of clay product.

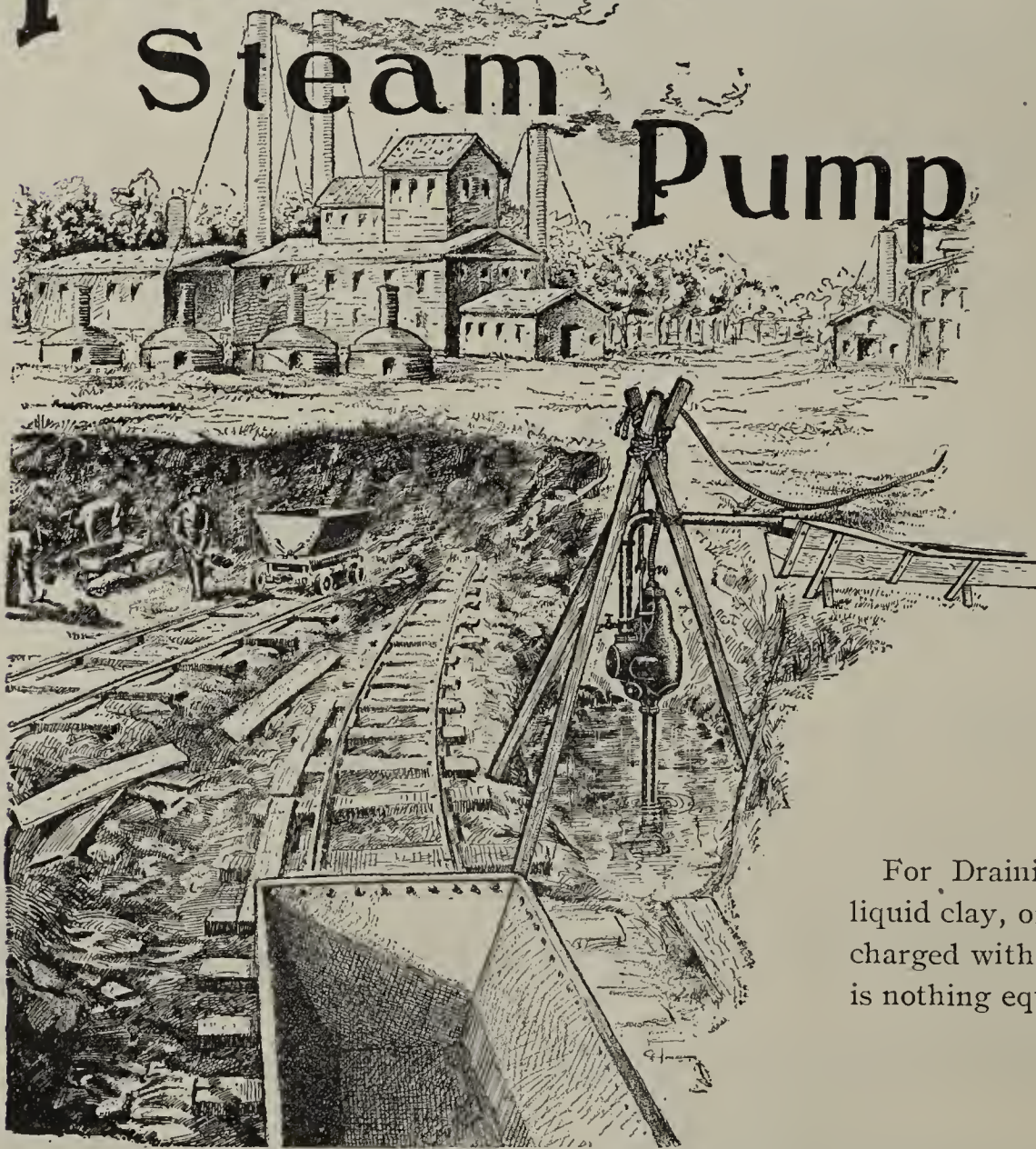
The kiln is fired with producer gas which is generated from ordinary bituminous coal in a gas producer attached to the kiln. This renders the operation easy and places the regulation of the temperature under most accurate control.

For particulars address

P. L. YOUNGREN,

299 Twenty-Fifth Street, MILWAUKEE, WIS.

Pulsometer Steam Pump



DOES NOT

require engine, belt, oil, packing or special foundation—merely a steam pipe from boiler, that's all.

Operates as well suspended as stationary, and may be raised or lowered as occasion demands, without interrupting its work.

No easily deranged inside or outside mechanism liable to become choked or clogged.

For Draining Clay Pits, pumping liquid clay, or handling water heavily charged with mud, sand or grit, there is nothing equal to **THE PULSOMETER**.

IN OUR OPINION

every brickmaker, clayworker and pottery plant that requires a rough-service pump should take advantage of our proposition.

We will send to responsible owners, who will state under what conditions they desire to pump their liquid

A PULSOMETER STEAM PUMP

On 30 Days' Trial

the final acceptance of the pump to be conditional upon its satisfactorily performing the work described.

We do not believe there is any other form of pumping apparatus so well adapted to the rough service needs of the Clayworker as the PULSOMETER.

Write for illustrated, descriptive catalogue telling all about them.

PULSOMETER STEAM PUMP CO., 14 Battery Place,
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HENION & HUBBELL, Chicago.

Mention The Clay-Worker.

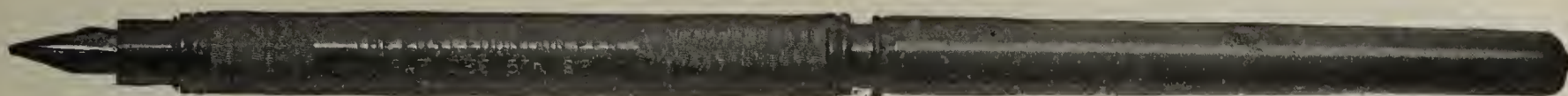
REMARKABLE OFFER.

We will send this famous Gold Pointed pen, post paid, and The CLAY-WORKER for one year, to any address in the United States and Canada for **\$3.00**



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"POST" SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen. Guaranteed by Makers.
NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



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Gen. Lew. Wallace: The author of "Ben Hur" writes, "I have tried every kind in the market and unhesitatingly give the preference to the "Post."
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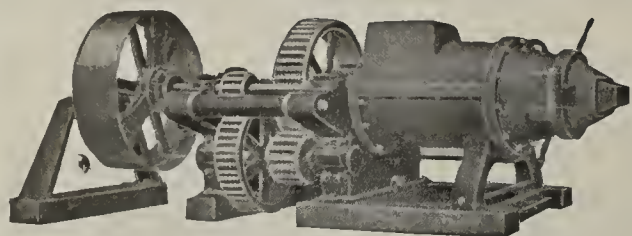
the.....Enclosed find \$.....

Name.....

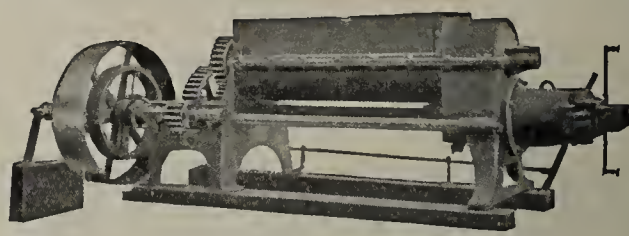
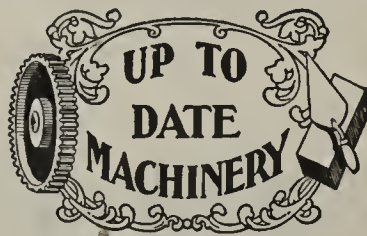
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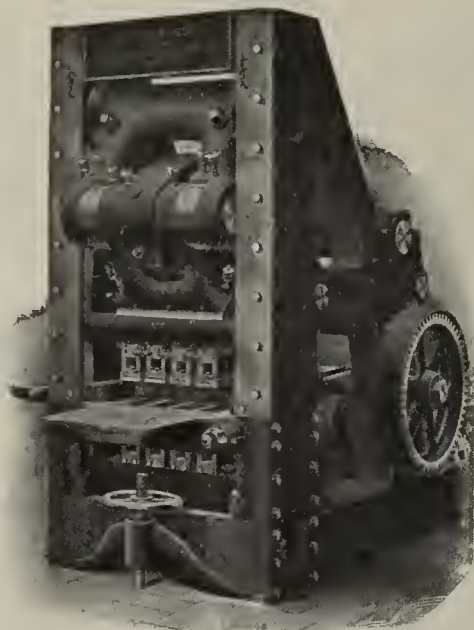


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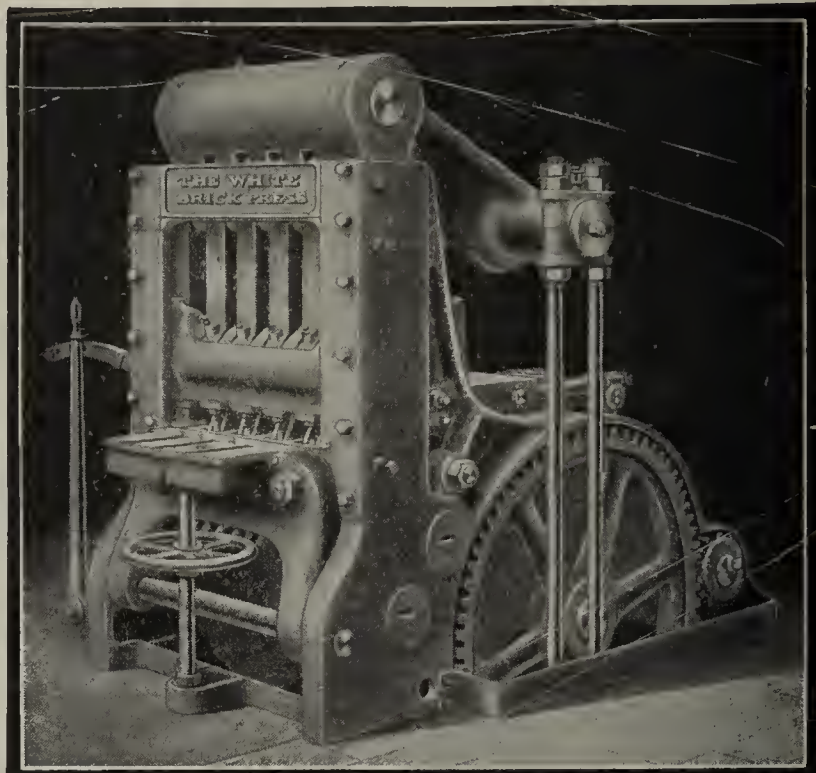


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For Making
**ALL KINDS OF
BRICK.**

Specialty for 1907
**Rocking Grates
for Kilns.**

**CHICAGO
BRICK MACHINERY
COMPANY,**
77 JACKSON BLVD.,
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White Press.

Portable Excavating, Screening and Loading Machines For Sand and Gravel of Jeffrey Construction.



Elevating-Conveying Catalog No. 80 Mailed Free With Others on
Drilling, Screening, Mining, Crushing, etc.

THE JEFFREY MFG. COMPANY, Columbus, Ohio, U.S.A.

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EXHAUST STEAM

And a **NATIONAL DRYER** will enable you to make brick Every Day in the year. So that your customers can **DEPEND** upon you for brick. You could make a surplus in the winter and be ready for the early spring trade.

The **NATIONAL** is the best.

Our large catalogue gives details and contains information that will be of value to you.

Send for it today.



Steel Roller Bearing cars of all kinds. Transfers, Turntables, "T" Rail, etc.

C. H. BEALE, Manager Southern States, Montgomery, Ala.
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SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. * Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for; write us.

Success Brick Machinery Company,

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BOOKS FOR CLAYWORKERS.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryer, kilns, etc.

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With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors now in use, and also instructions for their preparation and application.

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A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

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These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

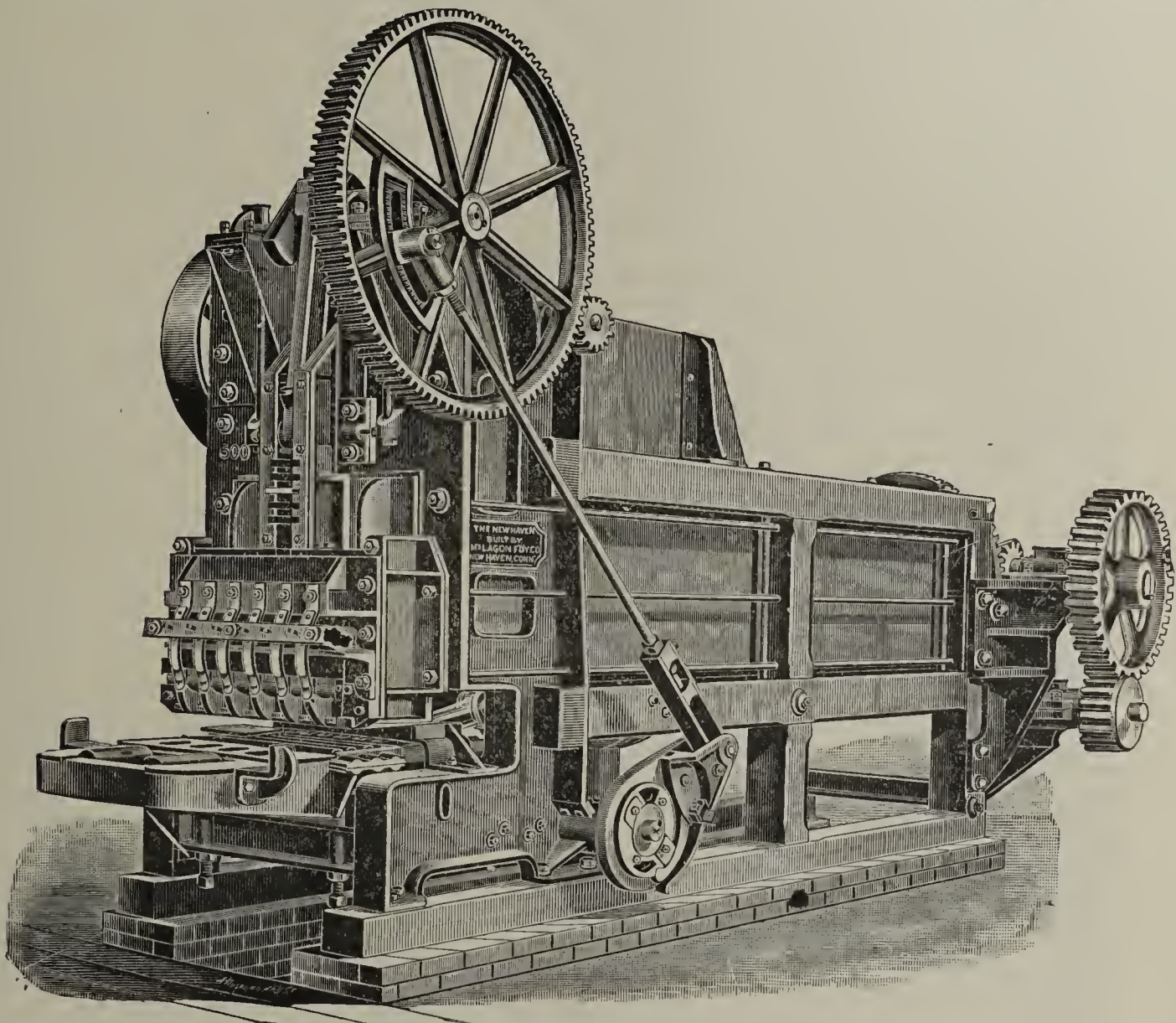
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Soft Clay Brick Machines

Are the only kind we build and its our aim to build them well. They are the reliable kind with great strength placed just where it is most required.

Stout shafts, long bearings, large oil holes, strong gears, steel liners and other details in proportion. They are the kind

♦ ♦ **THAT DON'T BREAK DOWN EVERY DAY.** ♦ ♦



THE "NEW HAVEN" BRICK MACHINE.

"New Haven" Brick Machines

Came into existence some nineteen years ago, and they came to stay. They have staid so well and are so well liked at home that three-fourths of all the brick made in New England are the product of "**New Haven**" Machines. They excel everything and

===== **For Hard Service Are Sure to Satisfy** =====

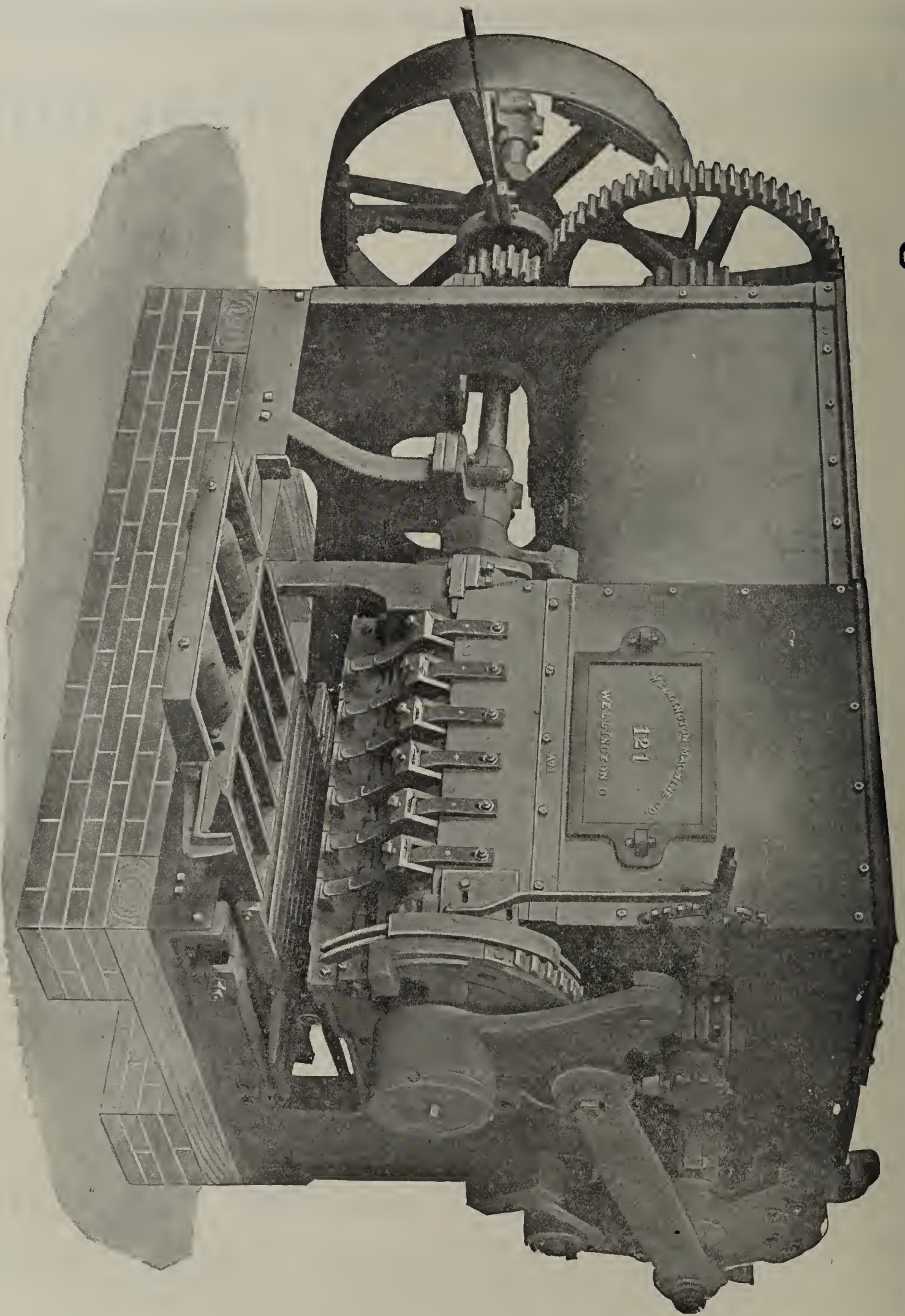
Where others fail. That is the reason all our machines are standing advertisements and why all our patrons recommend them. Such machines are worth investigating.

The EASTERN MACHINERY CO.,
NEW HAVEN, CONN.

OVER
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"Monarch"
Brick
Machines
in use

OVER
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WRITE
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Pug Mills,
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kinds of
Kiln
Castings.



The "Big No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our
ROLLER-BEARING
BARROWS.

The Wellington Machine Co.,

WELLINGTON,

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Send for Catalogue.

We manufacture a complete line of BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BEARERS.

The best built, Price \$6.50 each.

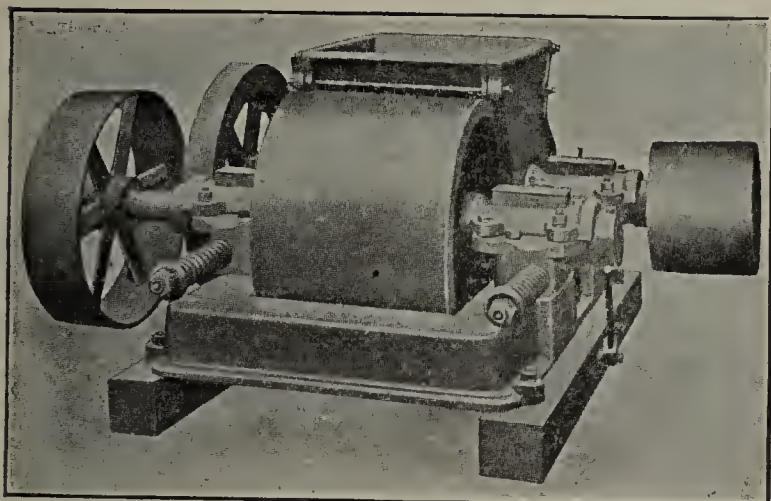
Stock size wheel, 20 inches diameter.
(If wanted 18 inches.)

There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.



Our Heavy Clay Disintegrator.

Note the springs and what is said about them below.



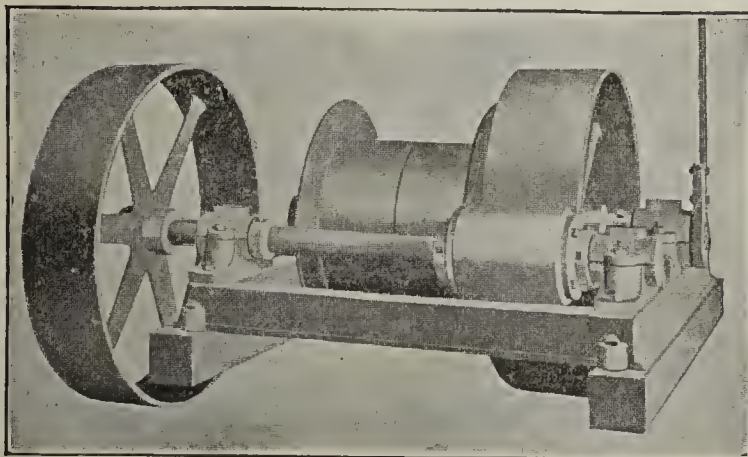
This particular disintegrator we believe to be much the best one that is built, as we intend it for large capacity, and to stand up to severe work for years. Both rolls are chilled. The journals are 10 inches in length. The small roll has a heavy balance wheel. Note its massive construction. There is a weighted scraper so hung that it automatically cleans the large roll.

RELIEF SPRINGS: After considerable experimenting we have learned just how to put relief springs on the large roll, and do it successfully. Occasionally a bolt or something else gets into a disintegrator that cannot be crushed, and it always means a smash-up. We have experimented long before adopting these, but can now guarantee them a success.

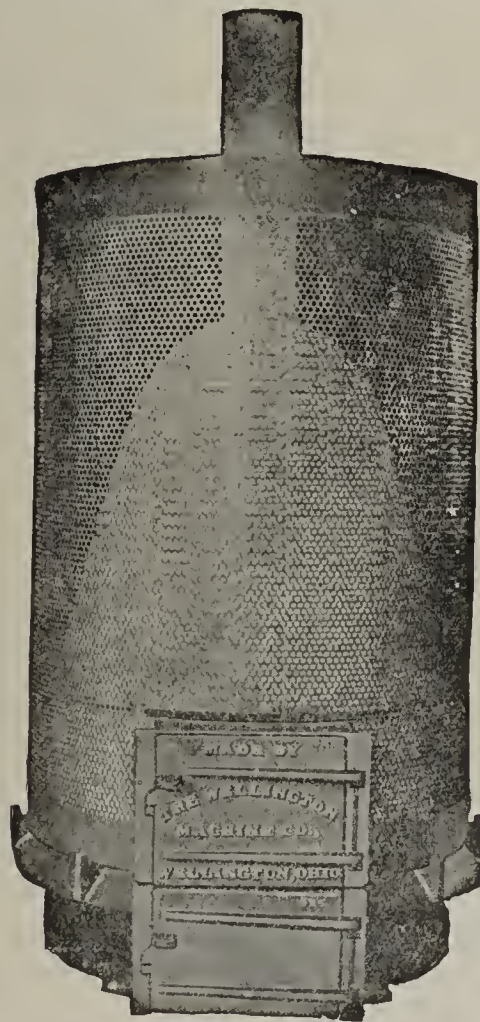
CAPACITY, 25,000 to 50,000 per day according to speed at which it is run. Pulleys fast roll 14 dia. x 10-in. speed, 700 to 800. Slow roll, 24 dia. x 6-in.; speed, 50 to 75.

1908 CATALOGUE MAILED FREE
ON APPLICATION.

Winding Drum.



Our Direct Driven Self-Contained Winding Drum is a Labor-Saver.



Sand Dryer.

Weight, 1,100 lbs. Every brick works needs one. Diameter over all, 3 ft. 1 in. Height, 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

JAMES W. HENSLEY,

Successor to S. K. Fletcher.

Indianapolis, Ind.

WHY WORRY ALONG WITH ANTIQUATED EQUIPMENT?



Hanover Brick Company, Whippany, N. J.

The Scott Kiln Drying System strikes directly at the root of the extravagant labor-cost in the brickyard, and as an investment, is the most attractive proposition before the brick-maker today.

You can actually save at least 50% of labor expense about your yard by substituting the Scott Kiln Drying System for the old dryer method.

Is it not worth while to investigate a system that will actually put hundreds of dollars in your pocket every year?

If it develops that the Scott Kiln-Drying System is not adapted to your yard, we are in a position to furnish you the very best in the line of Waste Heat or Steam Brick Dryer equipment. Our experience of over a score of years is at your disposal to assist in selecting the apparatus and method of installation.

Ask for Catalogue No. 213-C.

American Blower Company,

(Licensees Alex. A. Scott Patents)

Detroit, Mich.

141 Broadway,
New York.

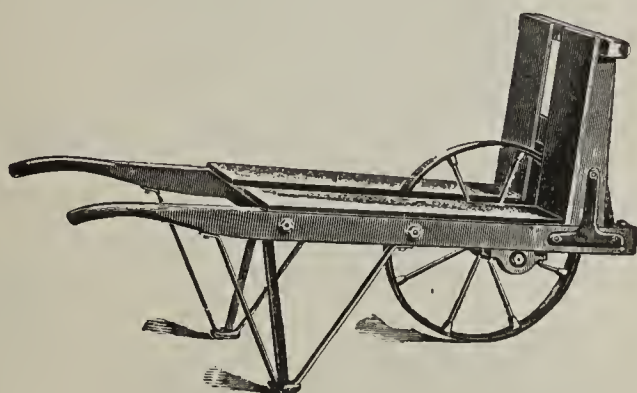
1019 Empire Bldg.
Atlanta.

1550 Marquette Bldg.
Chicago.

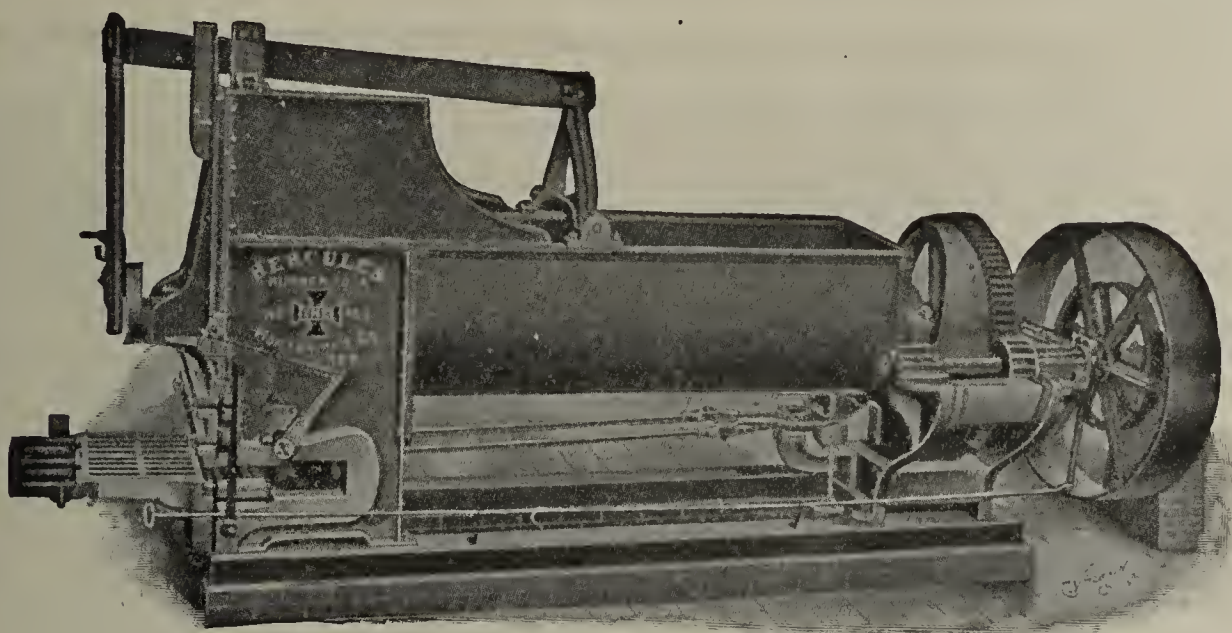
Get Busy Mr. Brickmaker.

Have you thought about the improvements that you are going to make on your brickyard for the season of 1908? Winter is here and the season will open up before you really know it. You will then want your repairs on hand and new machinery and supplies with which to commence work. It would be expensive to wait until Spring before you placed your order. Get your orders in at once and be ready to start to make brick early.

Possibly you are going to start a new yard, and in that case, it is more than important to be ready to do business. We have had a great many years of experience



Ideal Brick Barrows.



Hercules Brick Machine.

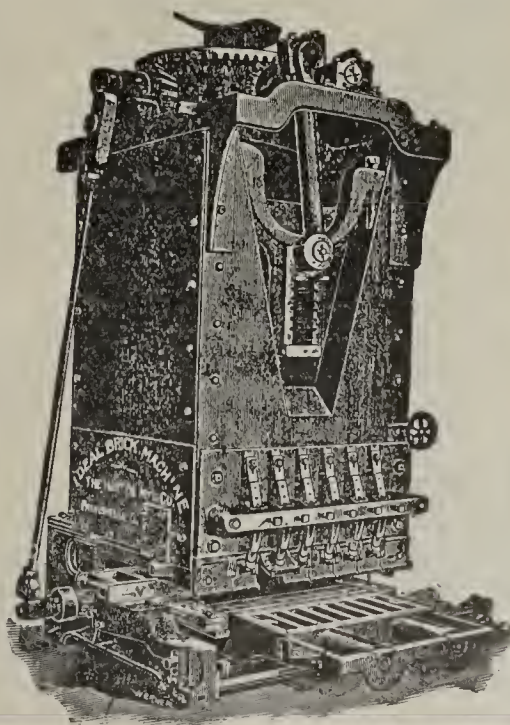
with all classes of brickmakers, and a letter from you giving us an idea of what you want, will have immediate attention. We can equip your plant with the most modern and up-to-date Brick Machinery now made, and can give you nine different styles of Brick Machines from which to choose, both Horizontal and Upright, Steam or Horse Power.

Every machine of our construction goes out under a strict guaranty. We have hundreds of machines in successful operation all over the country. With a plant equipped and modernized with our machinery, you will be in position to make good, square, marketable brick which will command the highest price, and which are not excelled by any. We make a complete line of Brickyard Supplies and want your patronage.

The management of this Company has been changed, and it may be that during some time in the past you have had cause for complaint. However, if we have made mistakes in the past, we are but human, and, as "Teddy" says, **"the man who does not make mistakes, does not do anything,"** but we have increased our capacity and are improving all the time, and can assure you of first-class material and workmanship.

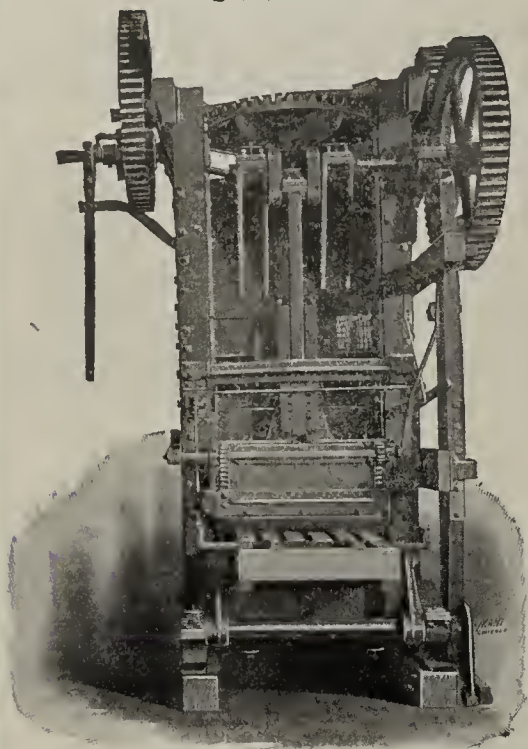
Give us an idea of your wants. Our prices are right, and the quality we guarantee.

THE HORTON MFG. CO., Painesville, Ohio.



Ideal Horsepower Machine.

—STYLE "A"—



STEAM POWER BRICK MACHINE

This View Shows the Handling of the Raw Materials to the "MARTIN" Patent Crusher—also to the Brick Machinery.

The "MARTIN" Company Have the Most Complete Line of Yard Supplies, Brick Moulds, Barrows, Trucks, Elevators, Cars, Coveyors, Dry or Wet Pans

THE "MARTIN"

UP-TO-DATE
Clay Working Machinery
IS BUILT FOR
WORK AND WEAR

WE ARE BUILDERS OF
BRICK PLANTS FOR THE
MANUFACTURE
OF HIGH GRADE BUILDING BRICK

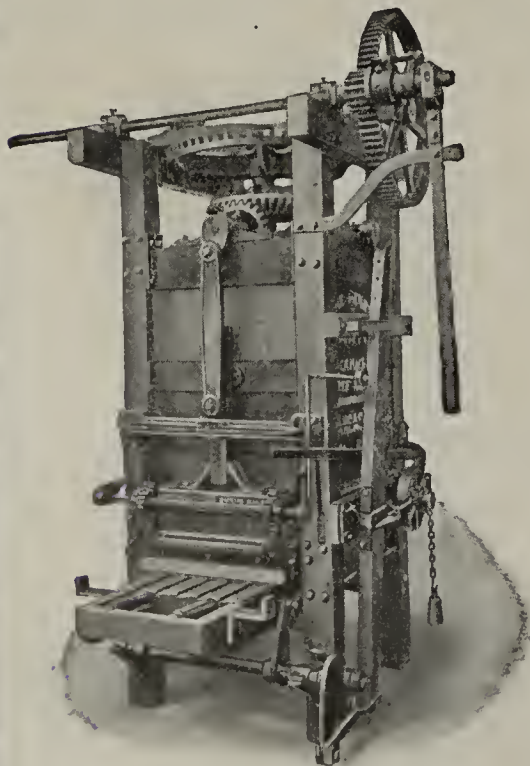
MARTIN
SAND DRYER

—THAT'S US—

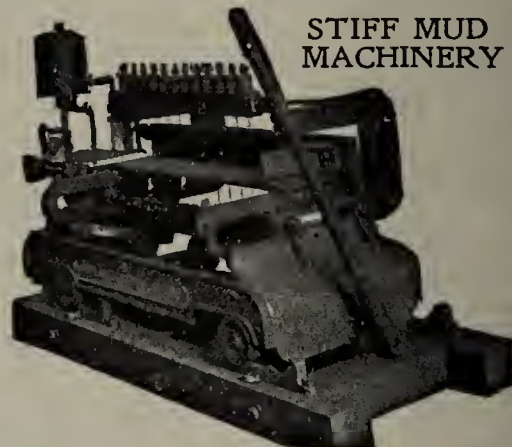
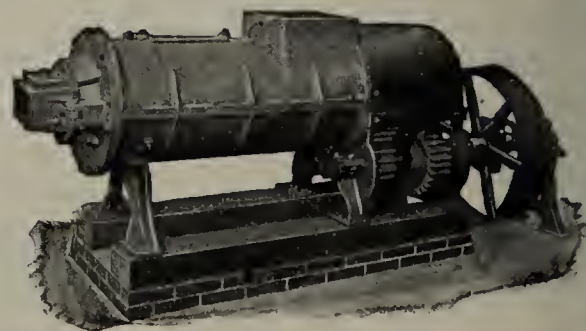
"WE FURNISH EVERYTHING
THE BRICK MAKER NEEDS"

Let Us Talk it Over?
We Are in a Position to
Handle Your Order Most
Satisfactory and Guar-
antee Good Results.

DROP US A LINE
THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.



STYLE "B" BRICK MACHINE

STIFF MUD
MACHINERY



ANIMAL POWER
BRICK MACHINERY

THE "MARTIN"

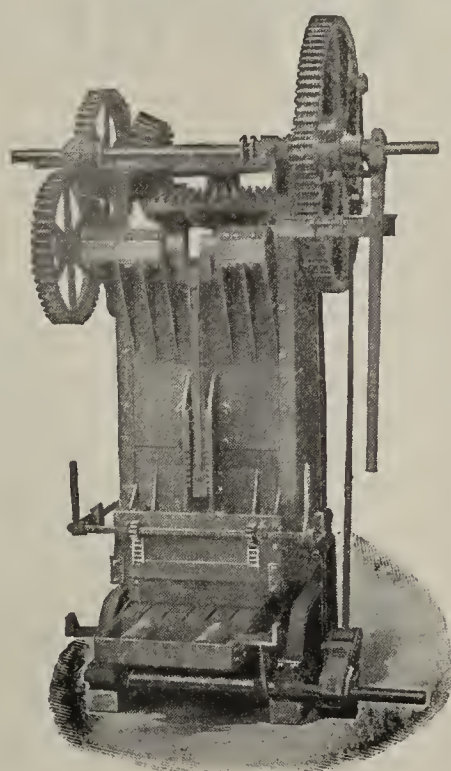
BRICK DRYERS
ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

FULLY COVERED BY PATENTS

PATENTED Feb. 22, 1898 = 599509
Oct. 10, 1905 = 95520
Nov. 14, 1905 = 804489

UNITED STATES & CANADA

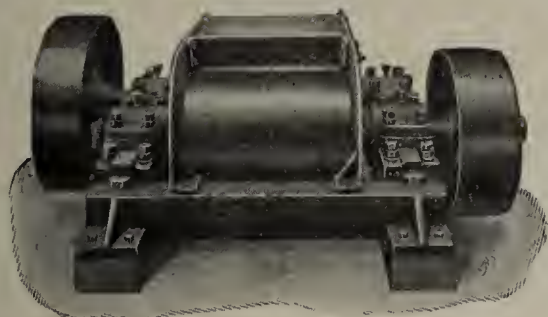
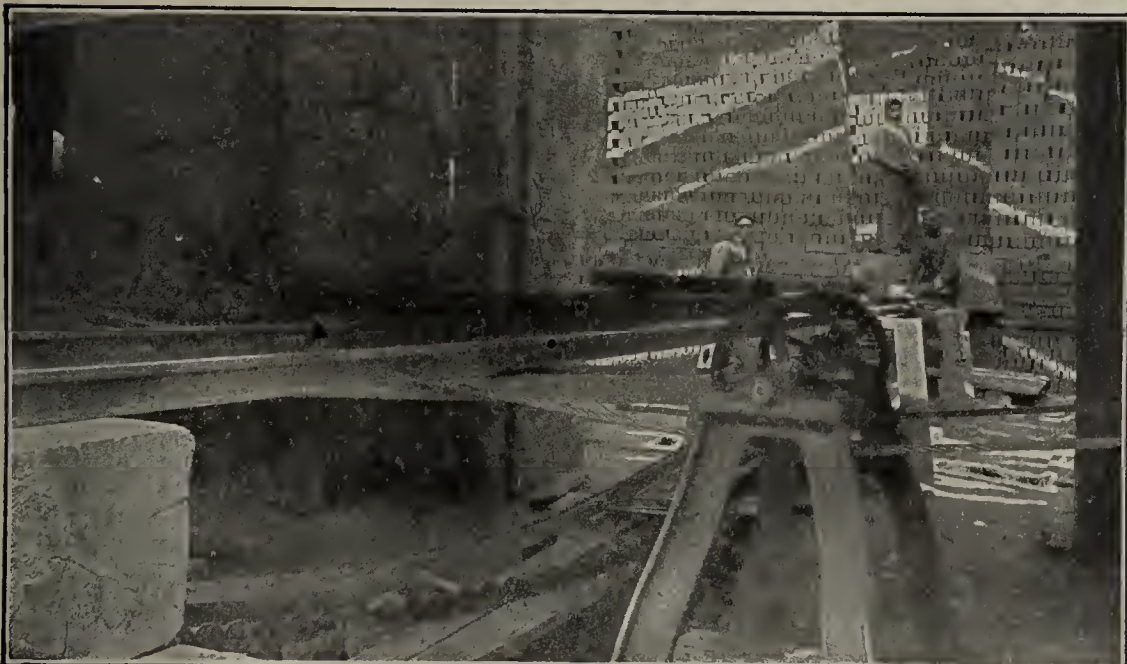
—STYLE "P"—



STEAM POWER BRICK MACHINE

— This View Shows the
Dried Brick Coming From
A "Martin Patent System"
Steam Brick Dryer to
the Kilns—Labor Saving

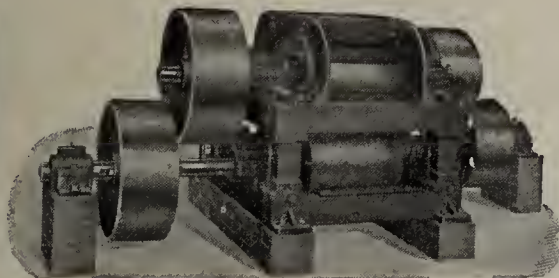
The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem—Quick to Install and
Low in Price—Investigate



TWO-ROLL DISINTEGRATOR

—PATENTED—

FOUR-ROLL DISINTEGRATOR



THE "MARTIN" COMPANY
AT LANCASTER, PA.

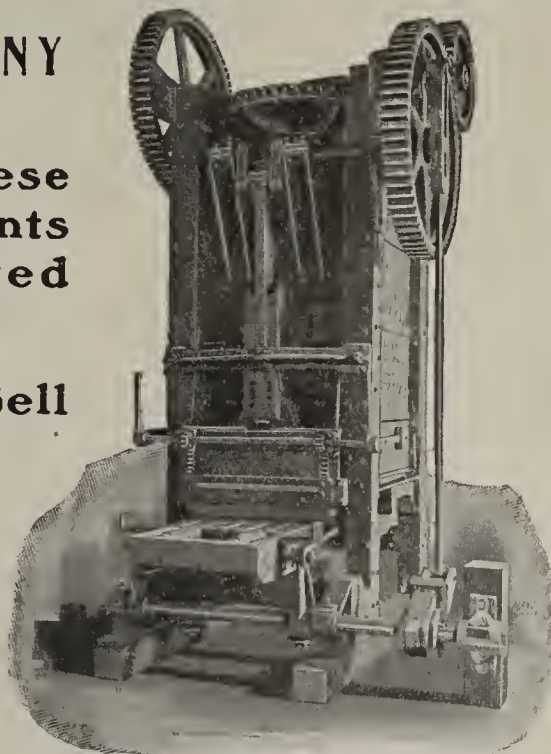
Own and Control These
Important Dryer Patents
and Have Authorized

— NO ONE —

To Manufacture or Sell
This Type of Brick
Dryer

ALL CONTRACTS MADE BY

THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

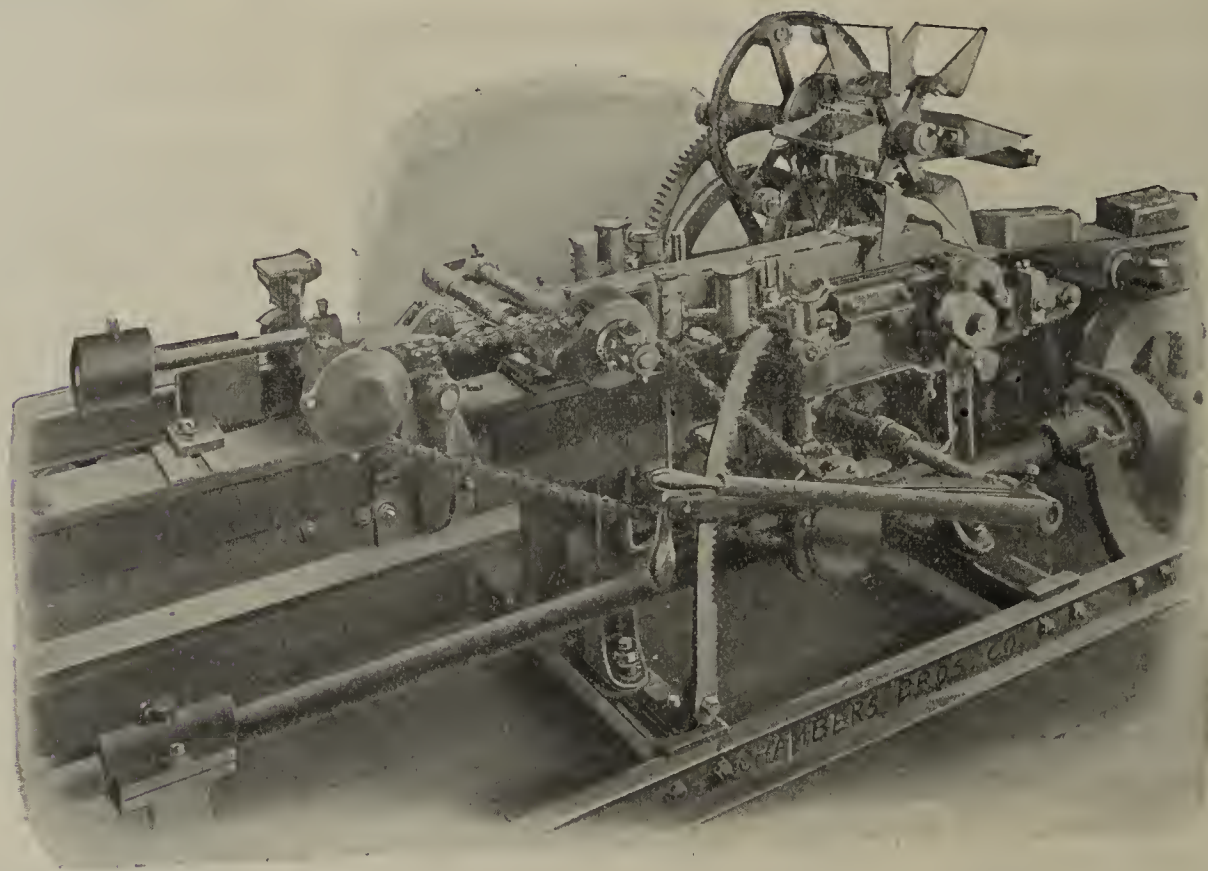


STYLE "A" BRICK MACHINE

PAVING BRICK MACHINERY.



Round Corner Pavers Without Repressing.



The Round Corner Cutter Greatly Improved.

Ribbed brick with grooves for cement produced by the new Automatic Indenting Cutter.

CHAMBERS BROTHERS COMPANY

Fifty-Second and Media Streets, Philadelphia, Pa., U. S. A.

59 West Jackson Boulevard, Chicago.

SEE AD ON PAGE 211.

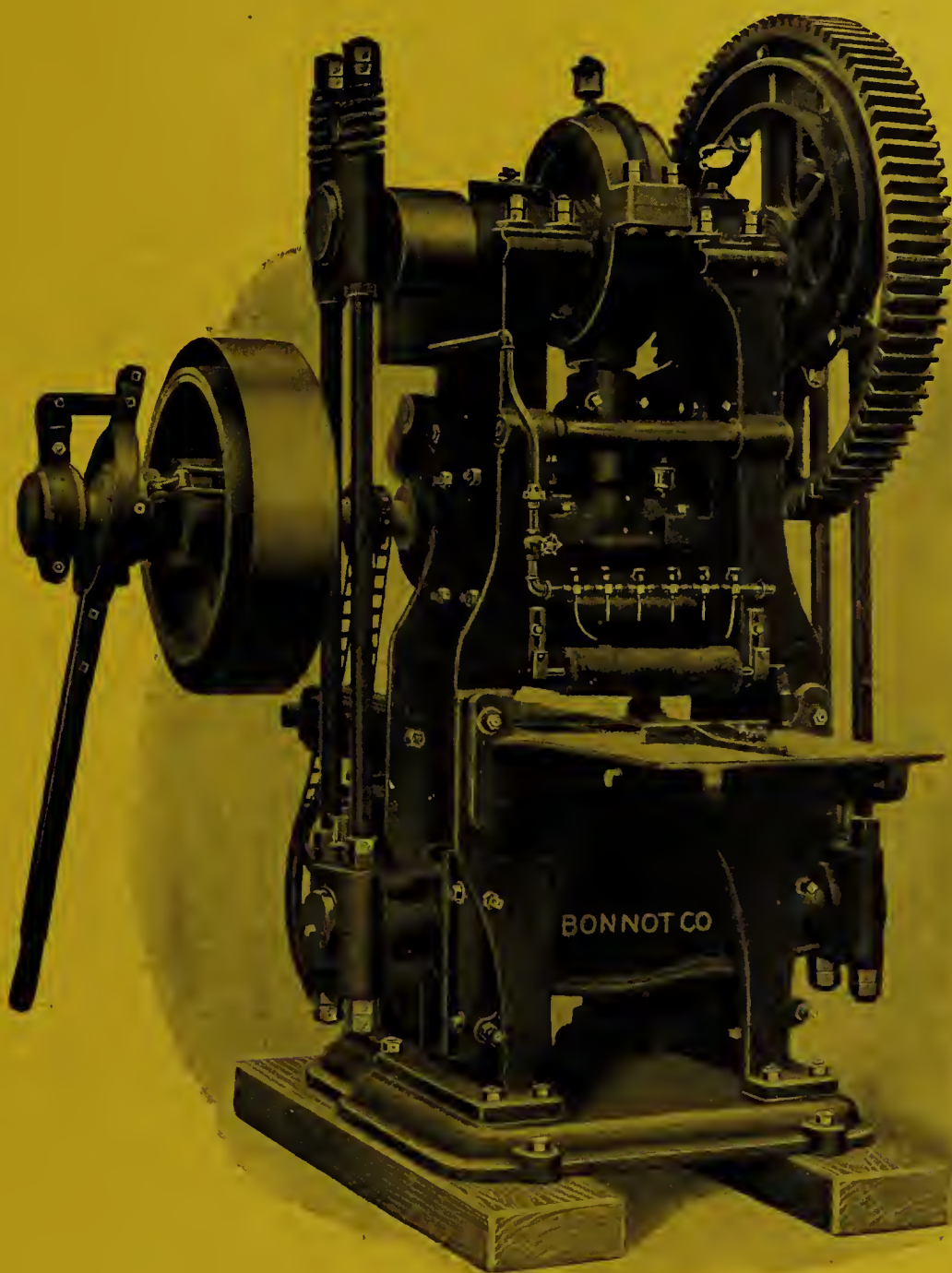
THE LEADER

SIMPLE, DURABLE, EFFICIENT.

All
Wearing
Parts
Adjustable
and
Above Die.

No Toggles.

Heavy
Pressure,
Convenient
Adjustment
For Changing
Thickness
of Brick.



Large
Shafts
and
Bearings.

Eccentric
and
Crank
Motions
Operate
Plungers
in Mold Box

Quiet
Operation
Free
From
Shock.

THE CANTON REPRESS.

Capacity 25,000 Brick per Day.

Watch for the New
CANTON ROTARY AUTOMATIC CUTTER.

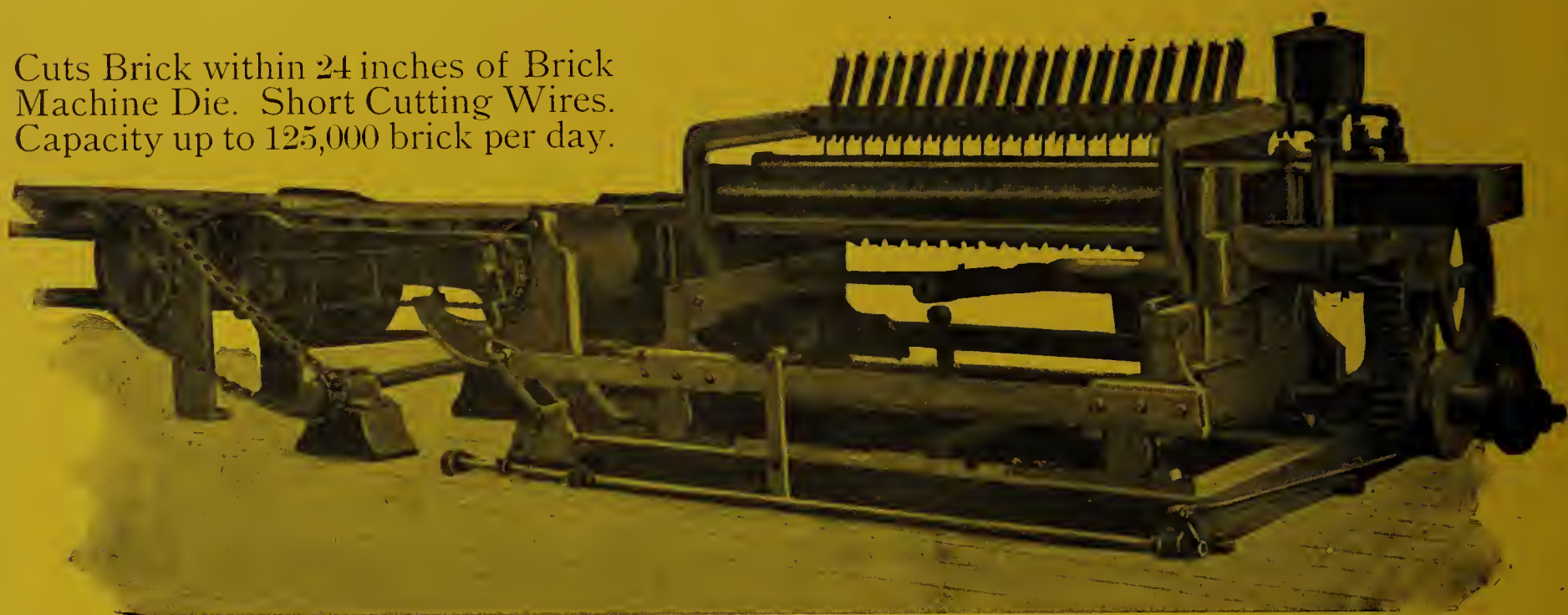
Memorandum Book for the Asking.

THE BONNOT COMPANY, Canton, Ohio.

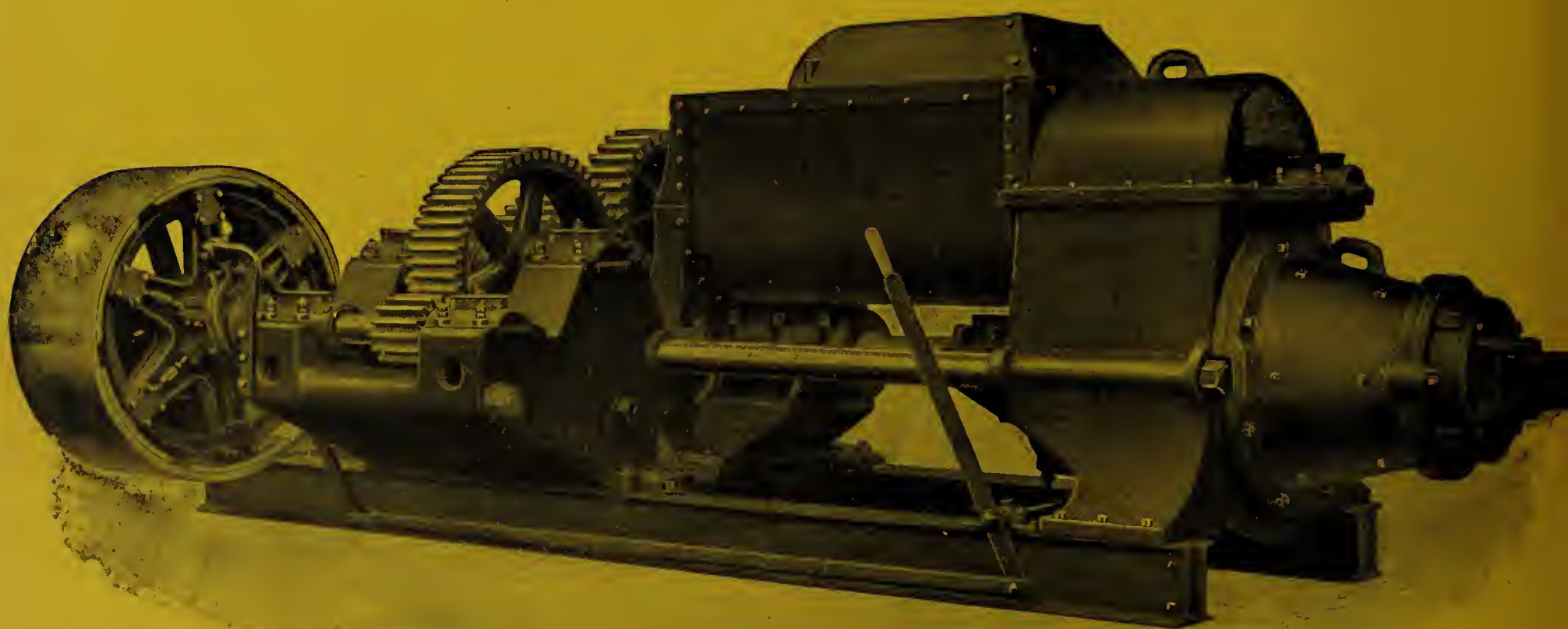
Modern Clayworking Machinery.

Complete Stiff Mud Equipment.

Cuts Brick within 24 inches of Brick Machine Die. Short Cutting Wires. Capacity up to 125,000 brick per day.



AUTOMATIC CUTTER.



"Canton Special" Brick Machine.

Thrust Bearing Rebabbitted Without Dismantling Machine.

Cut Steel Gears.

Heavy Shafting.

Self Contained.

Accessible.

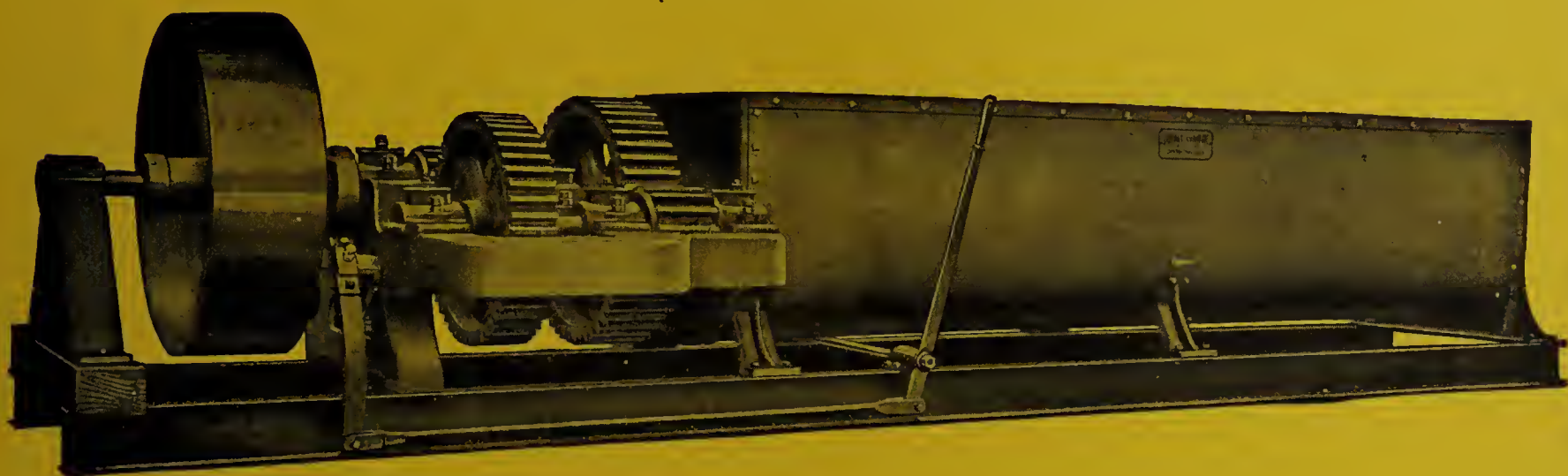
Capacity, 150,000 brick per day.

Our Piano Wire Screens are doing excellent work.

THE BONNOT COMPANY, Canton, Ohio.

BUILT FOR HEAVY DUTY.

Write for Circular Number Fourteen.



"C" Double Geared Pug Mill.

Heavy Gears and Shafting. Self Contained. Built any length, from 8 to 16 feet.
Interlocking Hubs.



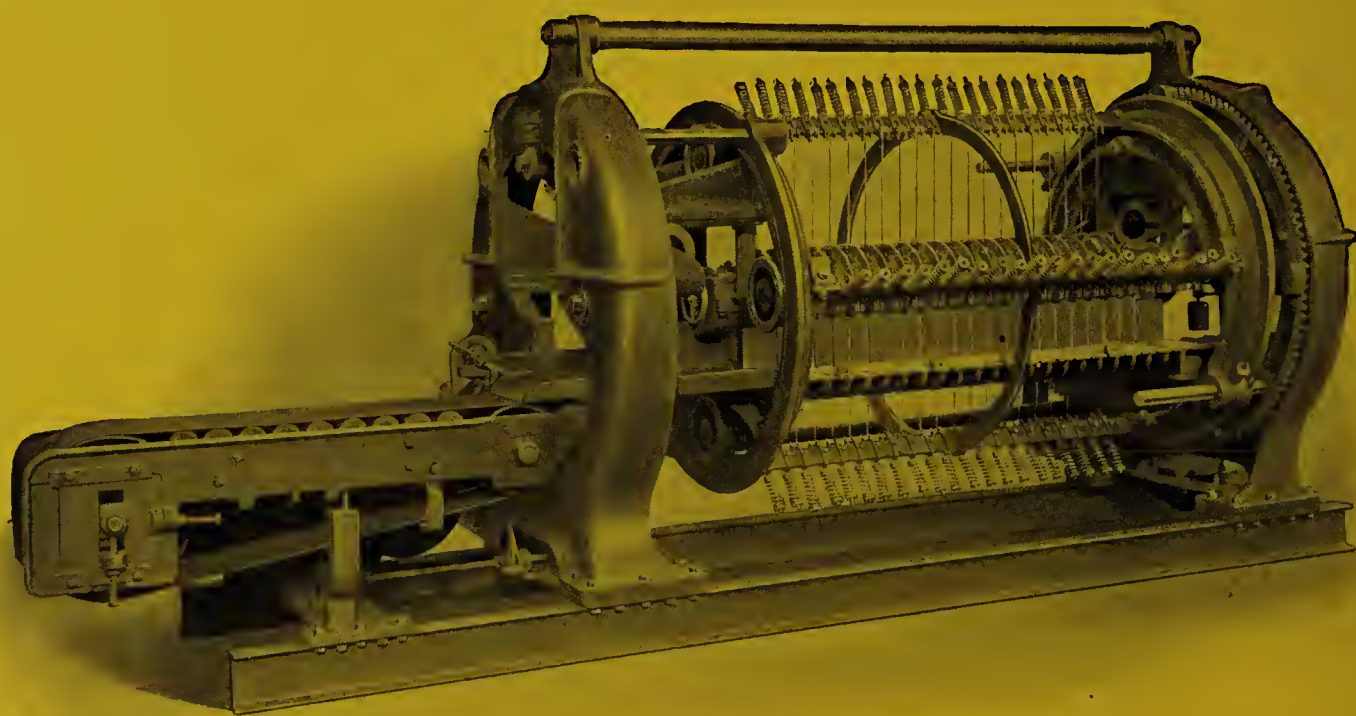
No. 10 Auger Brick Machine.

Capacity 50,000 to 70,000 brick per day.
Self Contained. Steel Gears. Substantial.

THE BONNOT COMPANY, Canton, Ohio.

DOES THIS INTEREST YOU?

A Rotary Automatic Cutter That Cuts
Brick Within 30 Inches of the
Die of Brick Machine.



ROTARY AUTOMATIC CUTTING TABLE.

End Frames are Stationary. Cutting Frame is Suspended.
No Tracks or Parts Below the Cutting Frame to Become
Filled With Dirt.

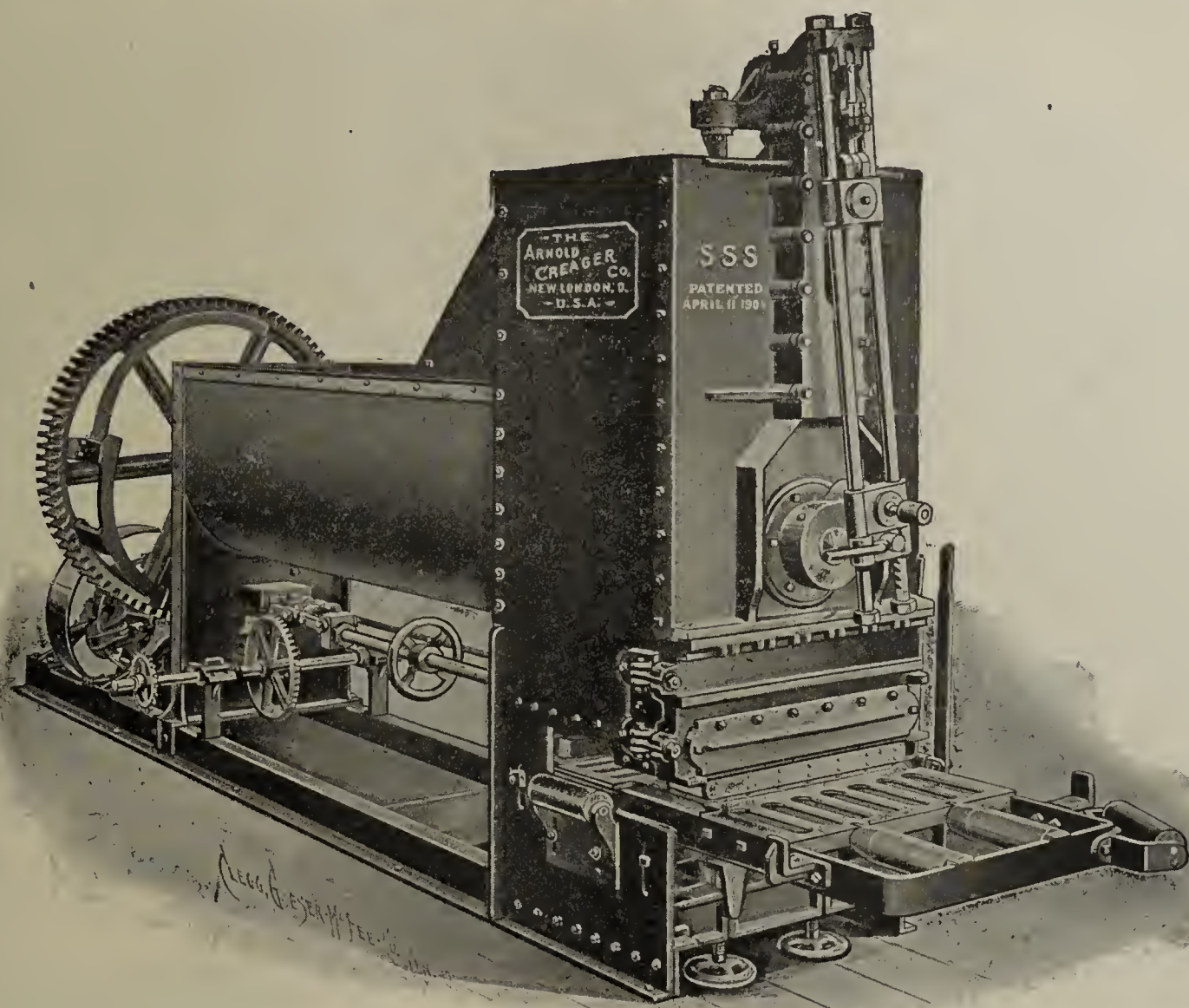
POSITIVELY THE BEST ROTARY CUTTER.

Circular No. 14 Describes It.

Capacity up to 100,000 Brick per Day.

THE BONNOT COMPANY,
CANTON, OHIO.

HONESTY IS THE BEST POLICY.



S-S-S.

Every Brickmaker should insure himself against loss through poor machinery by taking out a policy NOW with the Arnold-Creager Company, and adopting one of their S-S-S all-iron-and-steel Brick machines. A perfect combination of Simplicity and Strength. Few parts, and all Automatic. Inside Press, exerting tremendous pressure, easily regulated. Twelve feet of tempering capacity, and can easily run 16 moulds per minute. Solid construction enables the working of very stiff clay, making the ideal brick. Front of Press fitted with stone doors when desired. A strictly first-class machine at a small price.

For complete catalog giving details of this, and other high grade machinery and the "1907—Grand-Automatic" address

The Arnold-Creager Company, Inc.,

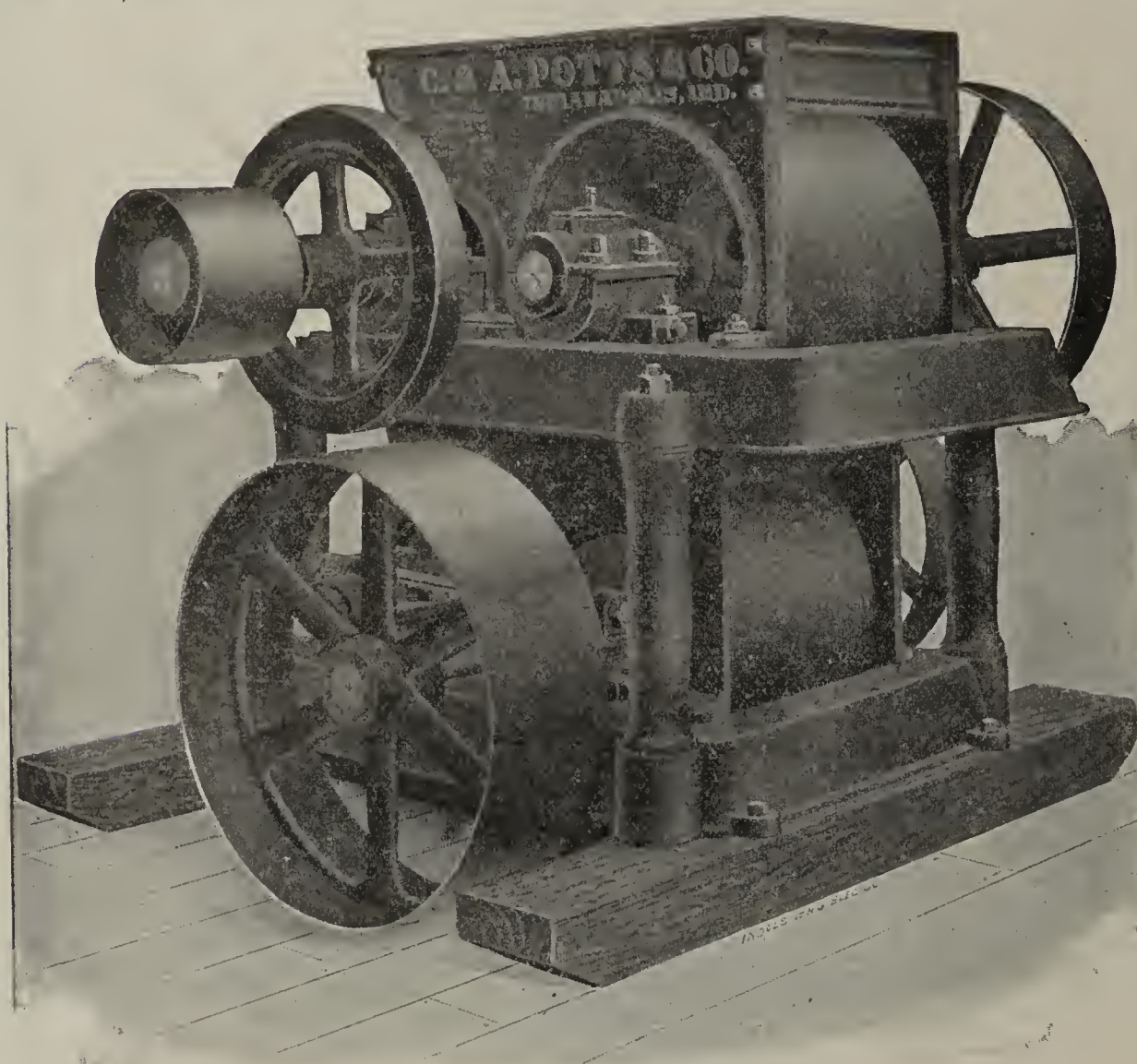
NEW LONDON, OHIO.

CINCINNATI, OHIO.

CABLE "AUTOMATIC".

Mention The Clay-Worker.

DISINTEGRATORS AND COMPOUND DISINTEGRATORS AND CRUSHERS



COMPOUND DISINTEGRATOR AND ROLL CRUSHER.

Made in Six Sizes.
Capacity,
25M to 100M Brick.
Rolls Thoroughly Chilled,
Large Steel Shafts Running
in Ring-Oiling Bearings.



POTTS DISINTEGRATOR, STYLE "P."

NO BRICK OR TILEMAKER CAN BE SUCCESSFUL WITHOUT
THIS MACHINE; IT IS A MONEY-MAKER.

C. & A. Potts & Co., Indianapolis, Ind.

as manufactured by

C. & A. Potts & Co.,

Have a National Reputa-
tion as being

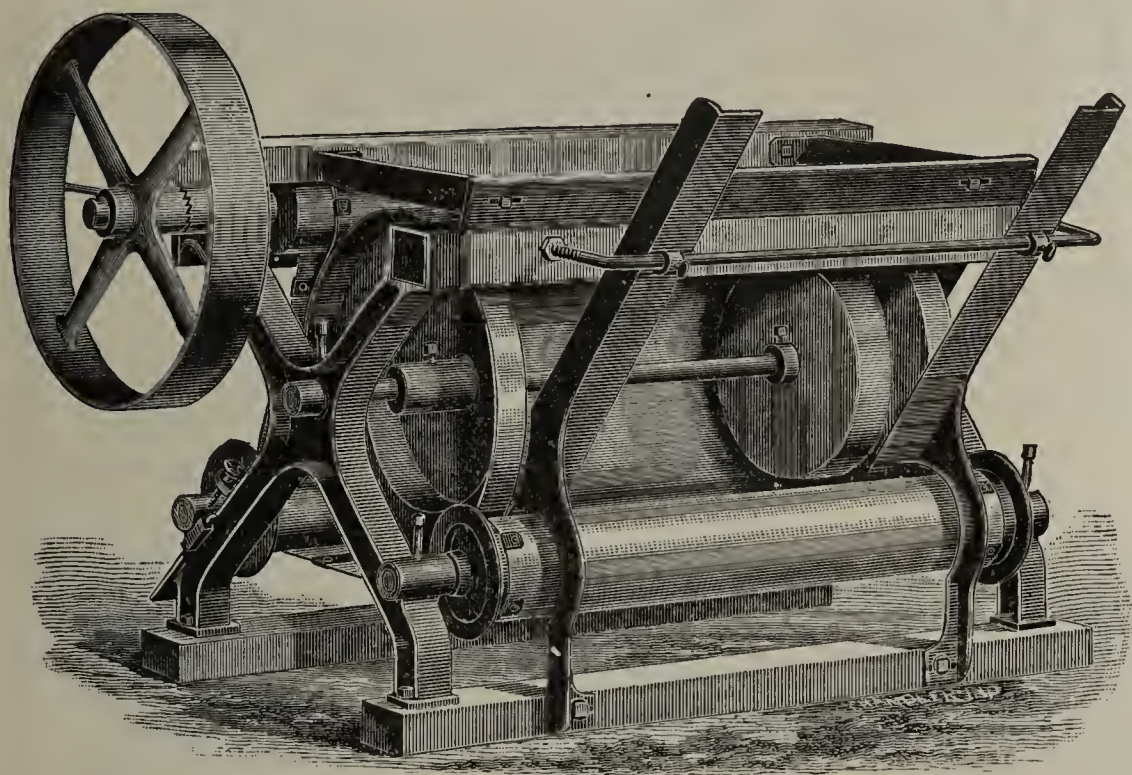
Standard Machines of
this Class.

You take no chance in
purchasing a

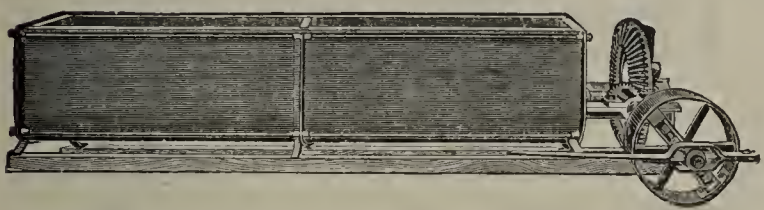
Potts Disintegrator.

Grinds the clay, leaving
it in a loose, open con-
dition; will not choke or
clog from hard, dry or
wet, sticky clays. Grinds
the small stones so fine
they will not show in or
damage the work; sepa-
rates the large stone.

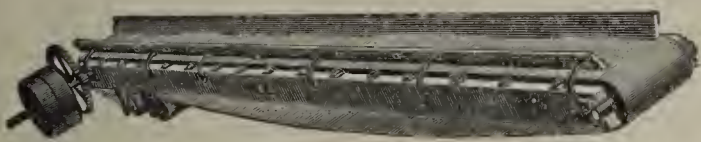
POTTS MOLD SANDER.



Simple in construction; sands the molds perfectly; does not waste or spill the sand.
A winner and a money-maker.



PUG MILLS. GRANULATORS ANY SIZE OR CAPACITY, SINGLE OR DOUBLE GEARED.

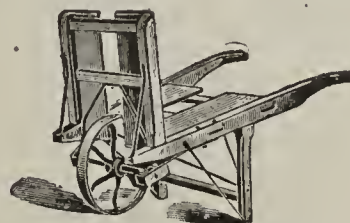


ELEVATORS ANY LENGTH.

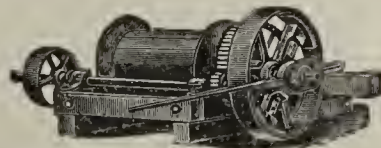
Brickyard
supplies or
machinery
manufactured
by us
can be
depended
upon as being
well made
of best
material.



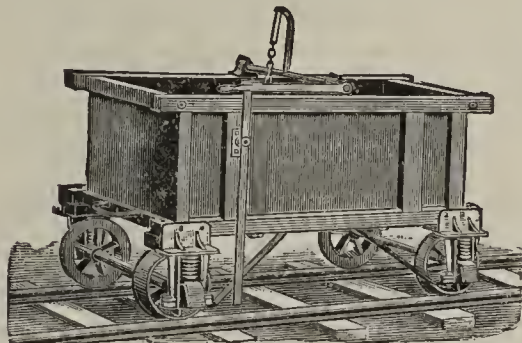
TRUCKS. SEVERAL STYLES,



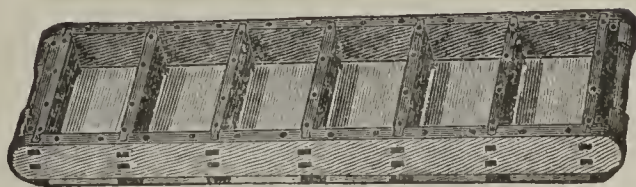
BARROWS. SEVERAL STYLES



WINDING DRUM, 2 STYLES;
EITHER SPUR OR BEVEL GEAR.



CLAY CARS. WELL BUILT, SIDE OR
BOTTOM DUMP.



BRICK MOLDS, ALL CHERRY, STEEL BOUND,
MACHINE OR HAND.

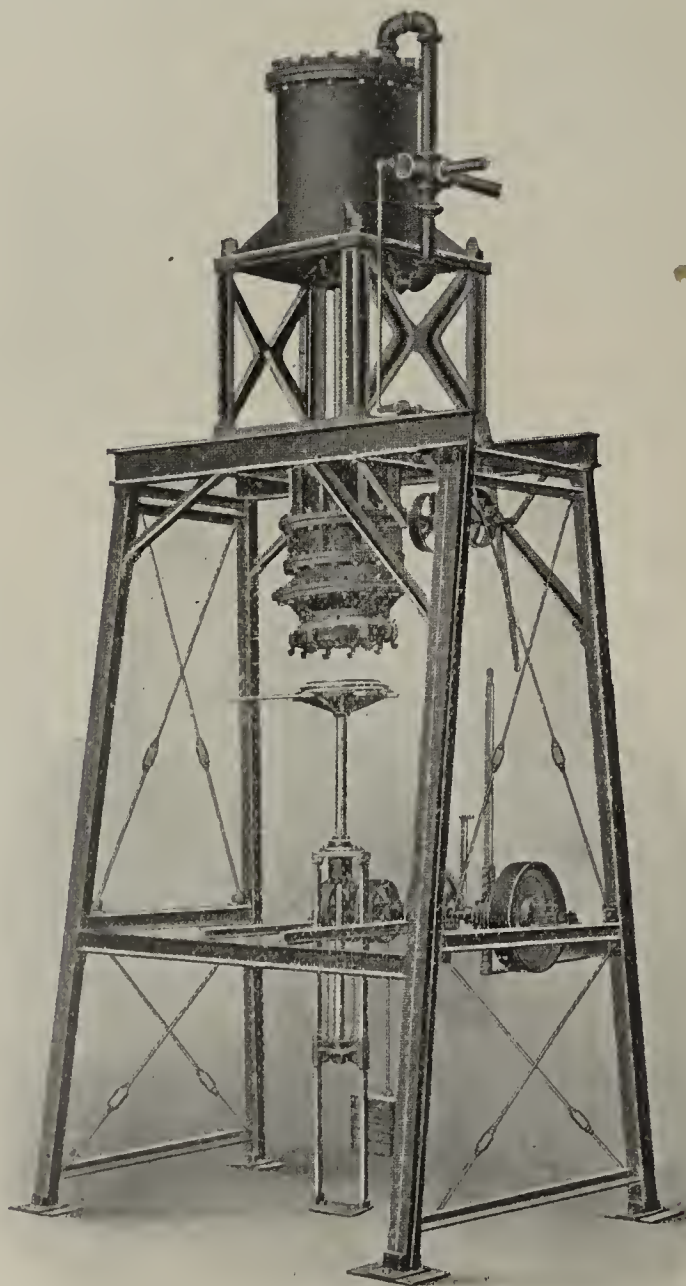
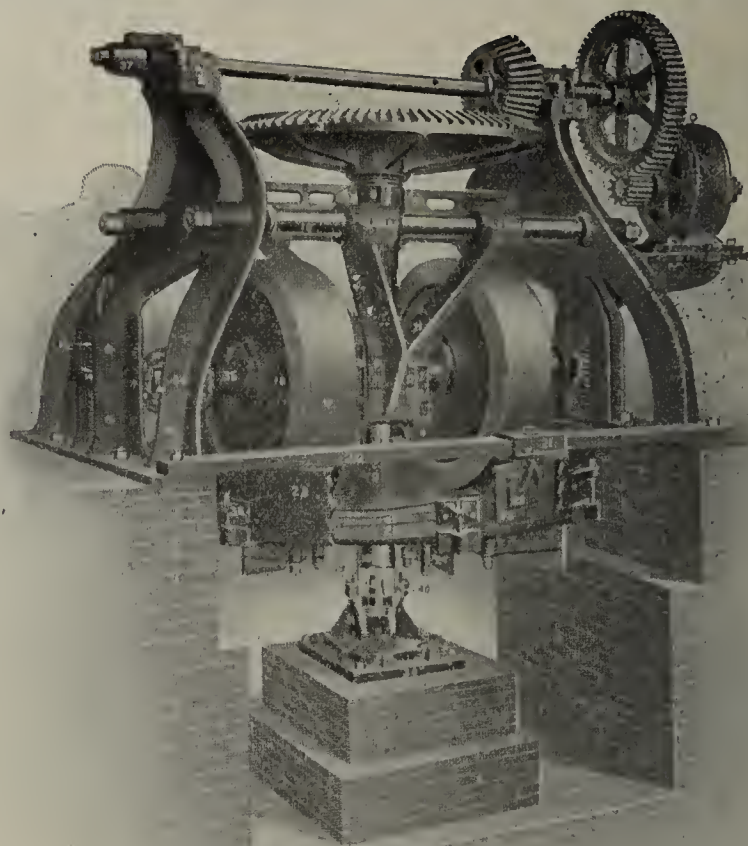
We are prepared and equipped to erect Brickyards complete, including
Power, Machinery, and the best Brick Drying System,
taking the clay from the bank to the kiln.

C. & A. Potts & Co., Indianapolis, Ind.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

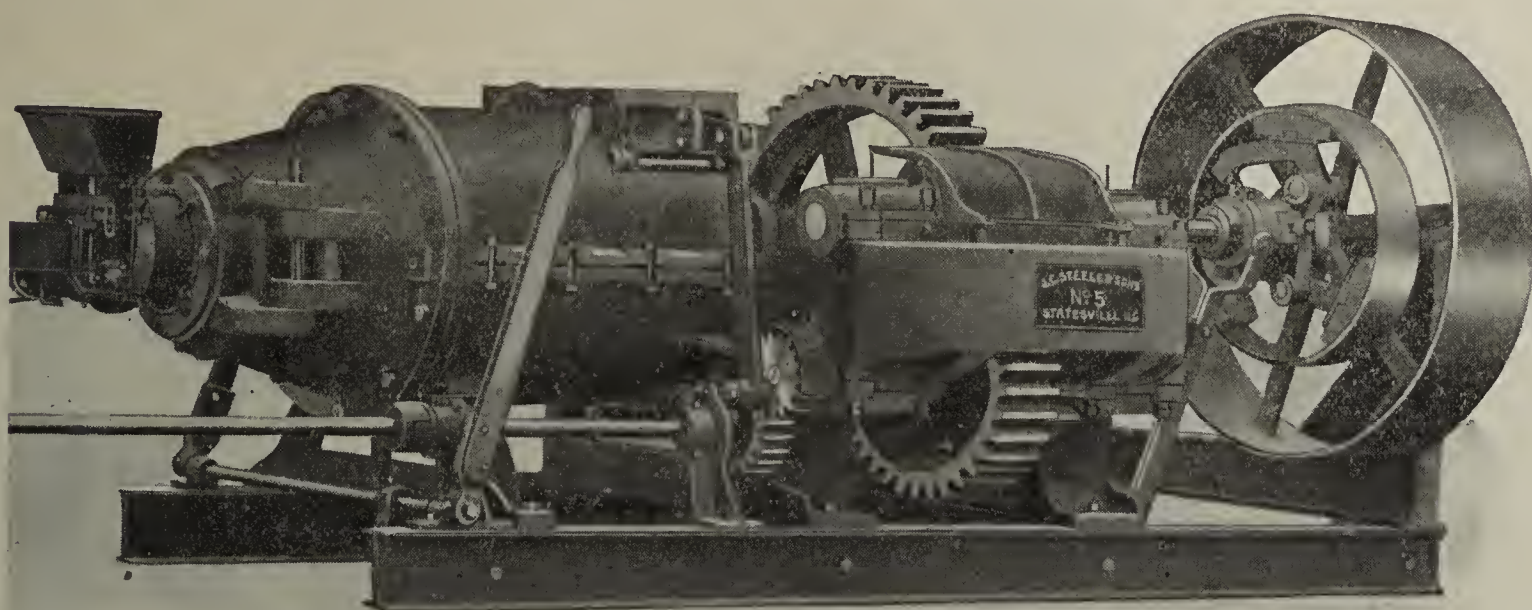
Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

The Steele 1908 Model Brick Machine And Automatic Cutter.

Sixteen Years' Experience in Building Brick Machinery to Work
the Wide Variety of Southern Clays Enables Us to Point
With Pride to Our No. 5, Refined in Every Detail.



The Steele 1908 Model Brick Machine.

Winston-Salem, N. C., Nov. 30th, 1907.

Messrs. J. C. Steele & Sons,
Statesville, N. C.:

Dear Sirs—I have been using J. C. Steele & Sons' brick machinery for 5 years—first put in a No. 3 side cut; two years ago put in a No. 4 side cut, and this year a No. 4 end cut, and all are doing good work. I am glad to recommend these machines, as I find them first-class in every respect.

Yours truly,
R. W. HEDGEcock.

We build a complete line of clayworking machinery.
Write for further information.

J. C. STEELE & SONS,

Mention
The Clay-Worker.

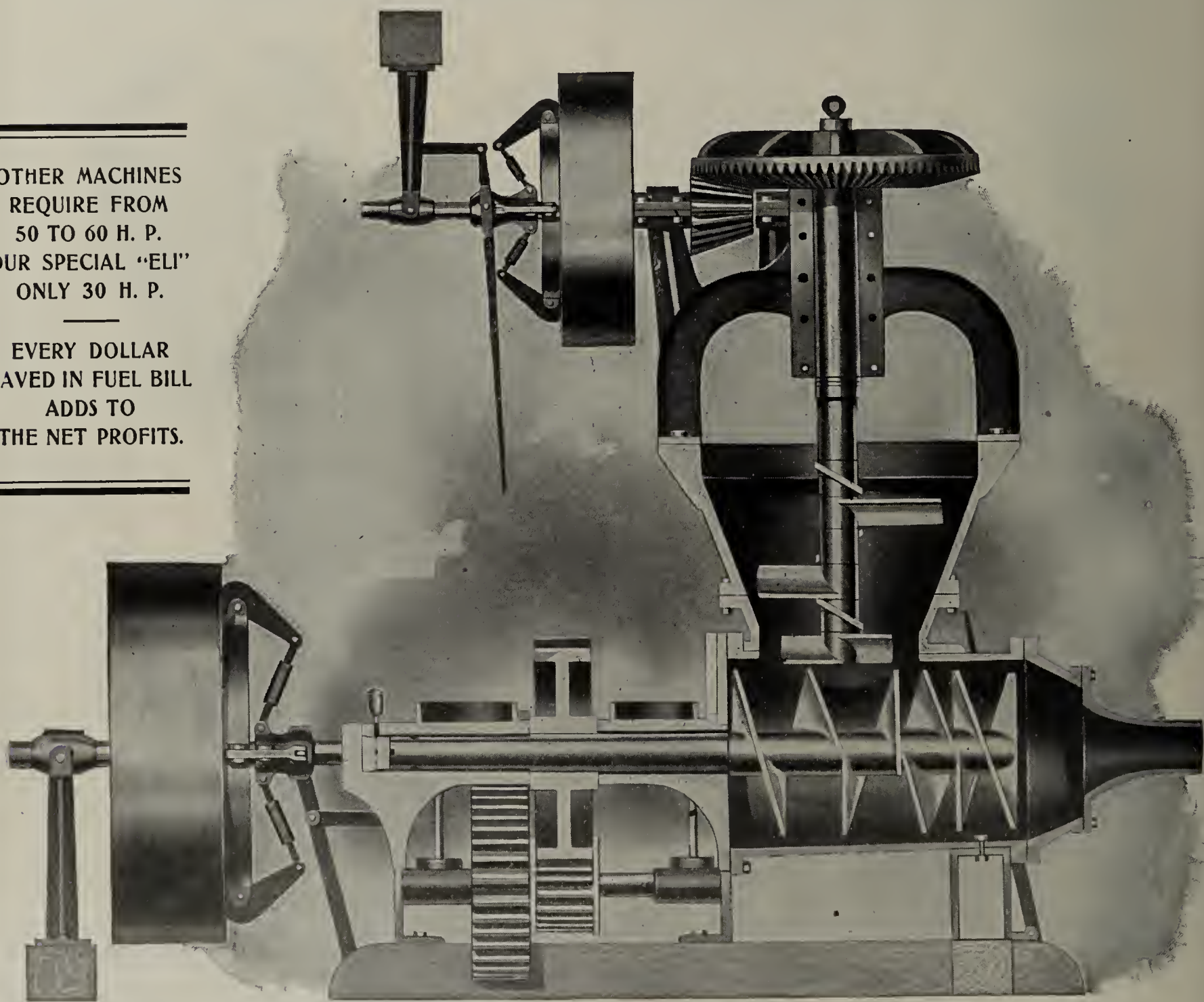
Statesville, N. C.

When You Buy Buy the Best!
 No More
Economical Machine Made Than the "ELI."
 We Will Save You Money.

You Get Same Results With Our Machines With Half the Power Required by Other Machines,

OTHER MACHINES
 REQUIRE FROM
 50 TO 60 H. P.
 OUR SPECIAL "ELI"
 ONLY 30 H. P.

EVERY DOLLAR
 SAVED IN FUEL BILL
 ADDS TO
 THE NET PROFITS.



OUR SPECIAL "ELI" BRICK MACHINE.

ARE YOU IN THE MARKET FOR BRICK AND TILE MACHINERY?

We have a full line of "Eli" Brick, Tile, Hollow Brick and Block Machines, ranging in capacity from 20,000 to 100,000 brick per day.

Write for our catalog and full particulars.

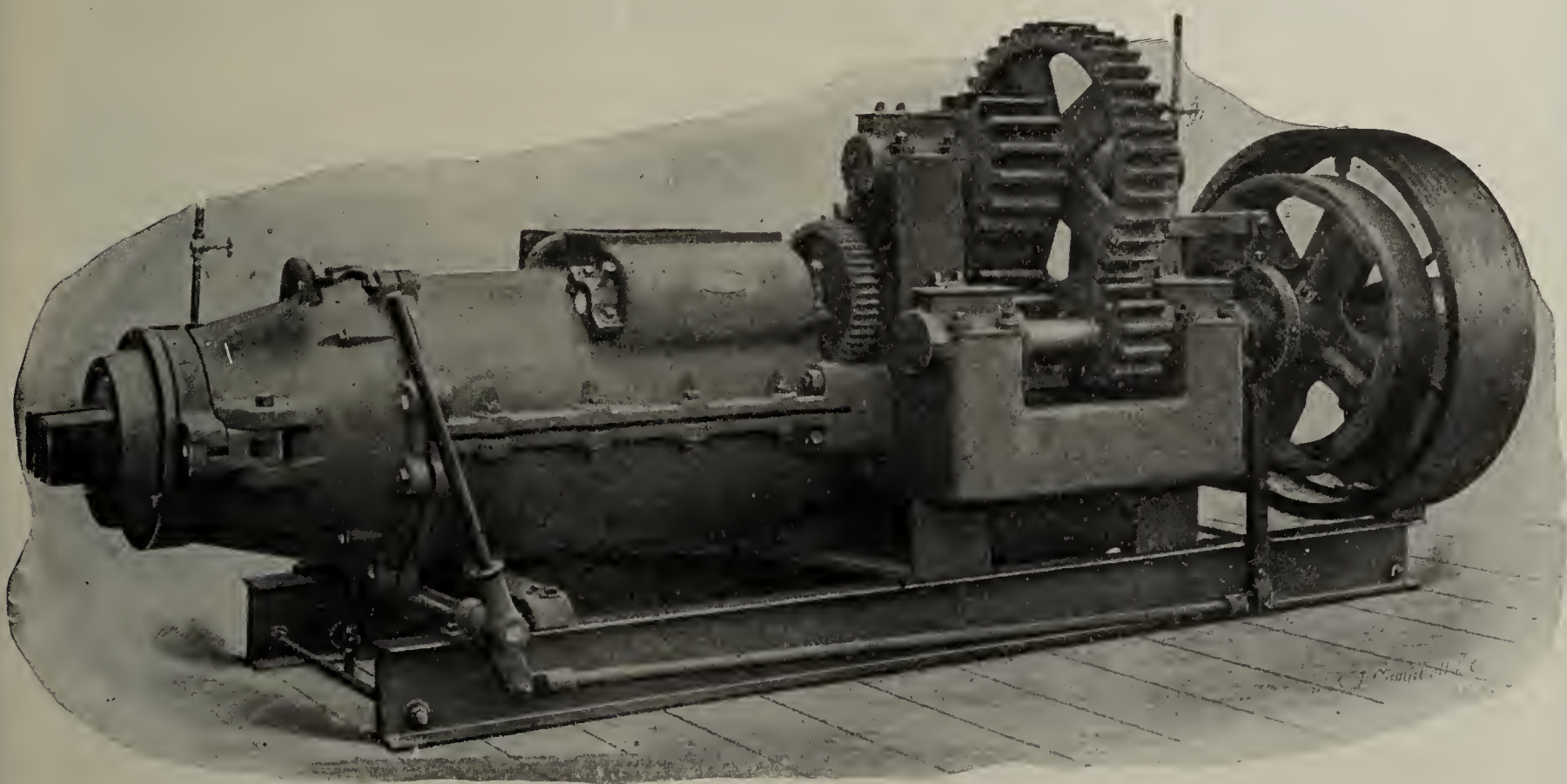
Michigan Brick and Tile Machine Company,

[ESTABLISHED 1856]

Morenci, Mich., U. S. A.

BRICK MACHINES.

There are many good reasons why Brewer machines are superior. Our catalog, which illustrates and describes their design and construction, will make it plain. The catalog costs you nothing.



THE BREWER NO. 25

is a machine of 5,000 per hour capacity. It weighs 13,500 pounds. The gear frame is cast in one piece. The journals are self-oiling. The knives are forged from hard high-carbon steel, each one independently adjustable for pitch. The expressing screw and casing are of white iron. The back-thrust bearing is self-oiling, self-aligning and adjustable so that wear upon the expressing screw may be taken up. It is mounted upon steel I beams and is self contained. There is no such thing as a better machine.

The No. 24, capacity 3,500 per hour and the No. 23, capacity 2,000 per hour are built the same way.

If Marked



It's Good.

H. BREWER & CO.,

Tecumseh, Michigan.

If Marked



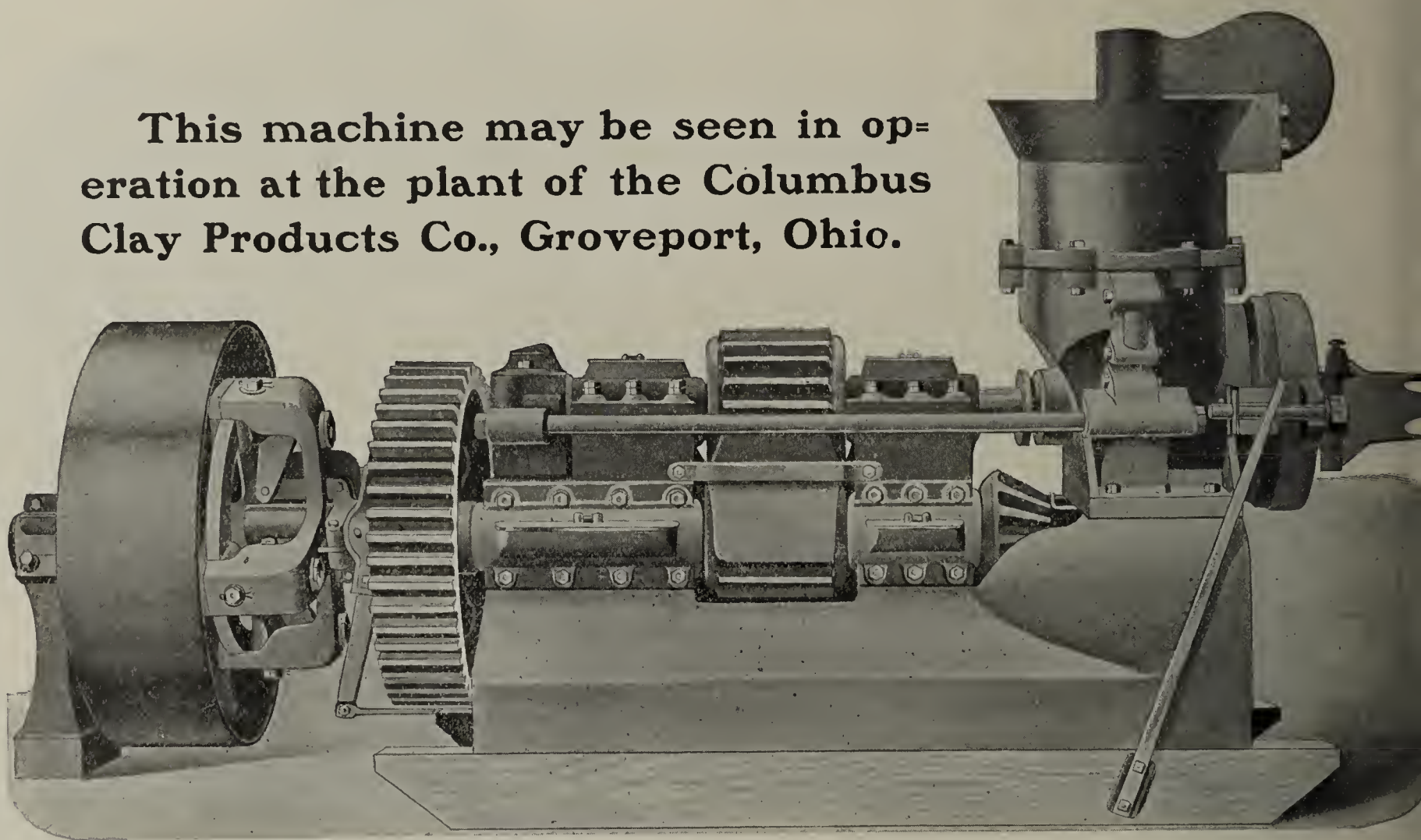
It's Good.



THE BIG WONDER.

The Brick and Tile Machine That
Does Not Laminate the Ware.

This machine may be seen in operation at the plant of the Columbus Clay Products Co., Groveport, Ohio.



No. 4 Wonder Brick and Tile Machine.

A Large Capacity Machine With an Unequaled
Record for Durability.

THE WALLACE
FRANKFORT,

Mention The Clay-Worker.

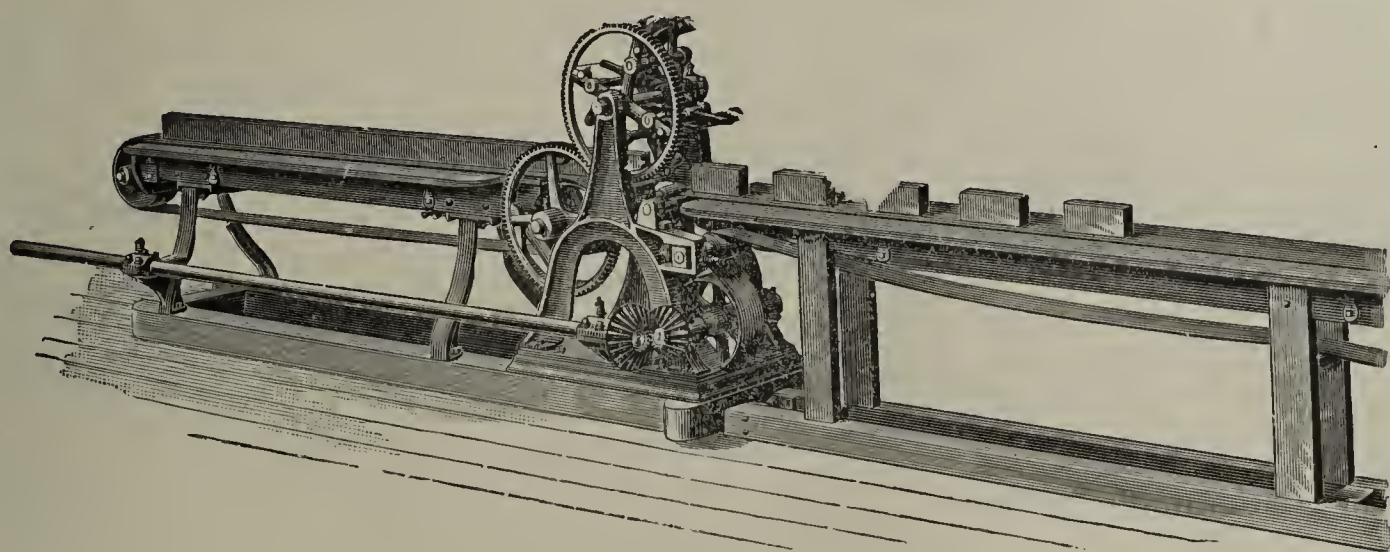




THE PROOF OF THE PUDDING:

Brick, Tile and Hollow Block made on Wonder Machines afford ocular demonstration of the full truth of our claim.

Write for list of plants in your section where Wonder Machines may be seen in operation.



Rotating Automatic End-Cut Brick Cutter.

THIS IS THE TABLE OF CAPACITY—
Runs as regular as a clock. We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans and Disintegrators, Pug Mills and Granulators, Corrugated and smooth Roll Crushers.

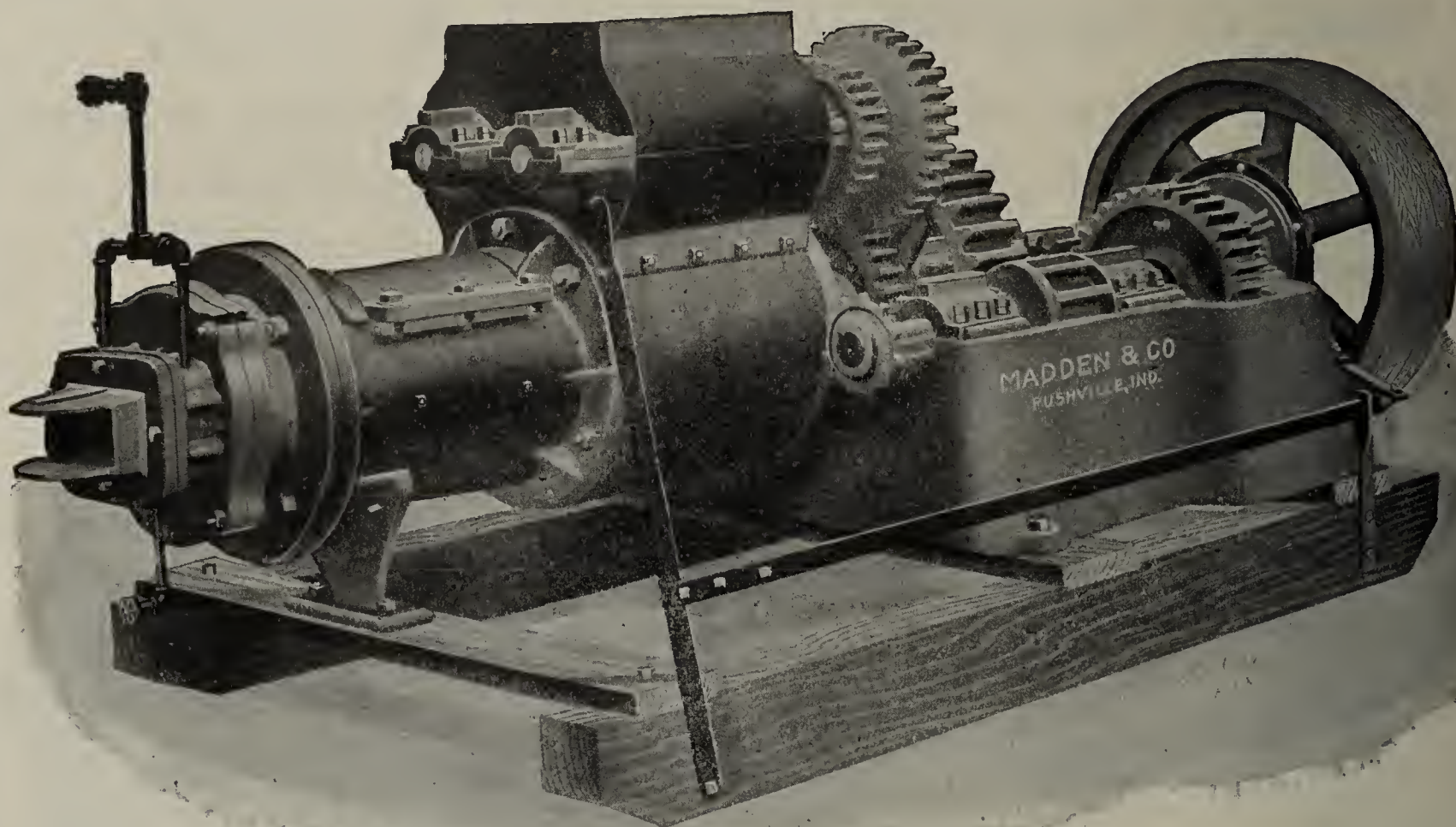
Write for Catalog and prices.

MFG. COMPANY,
INDIANA, U. S. A.



NEW MODEL HOOSIER BRICK, TILE

**A Line of Extra Heavy Stiff Clay Machinery of Great Strength,
Capacity and Durability for Making Brick,
Tile and Fire Proofing.**



No. 6 D Hoosier Brick Machine.

This is a New Heavy Duty Machine designed to meet the demands for a machine constructed on somewhat the same lines as our well-known C Machine, but larger, heavier and stronger, and with greater capacity; gearing is all extra heavy, broad faced, steel-cut when desired; shafts are heavy and strong and amply able to withstand the severe strain; bearings are unusually large and long; rear bearing of auger shaft is of the submerged type, provided with adjustable anti-friction thrust discs; machine is furnished with our friction clutch pulley, 40-inch diameter, 12-inch face.

Recent Purchasers of These Machines

Mason City Brick & Tile Co., Mason City, Iowa; North Iowa Brick & Tile Co. (2), Mason City, Iowa; National Drain Tile Co. (2), Streator, Ill.

If you want a machine of capacity and with the question of breakage practically eliminated, write to

Mention
The Clayworker.

MADDEN & CO.,

AND HOLLOW BLOCK MACHINERY.



Extra Heavy Hoosier Clay Granulator.

Our Heavy Duty Granulators, heavy gears, spur or bevel, and shafting, self-contained bearings, large and long, free from contact with the clay, main shaft, set "off center" which prevents rocks or foreign substances becoming wedged between drum and end of knives, thereby avoiding the greatest cause for broken and bent knives. Drum of heavy boiler firmly bolted to frame. The whole making a very rigid and compact machine, capable of standing the most severe service. Made in any length.



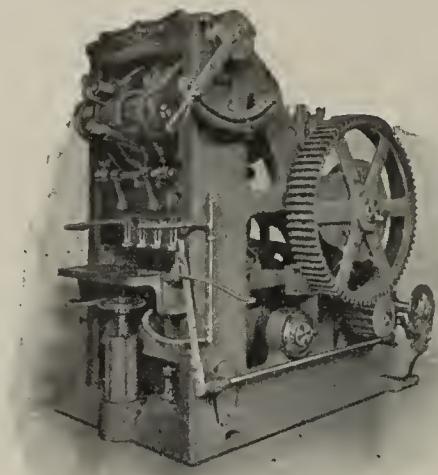
Extra Heavy Hoosier Pug Mill.

Our Pug Mills built with the same generous proportions as granulators. They are machines for large capacity; either bevel or spur gear; made in any length.

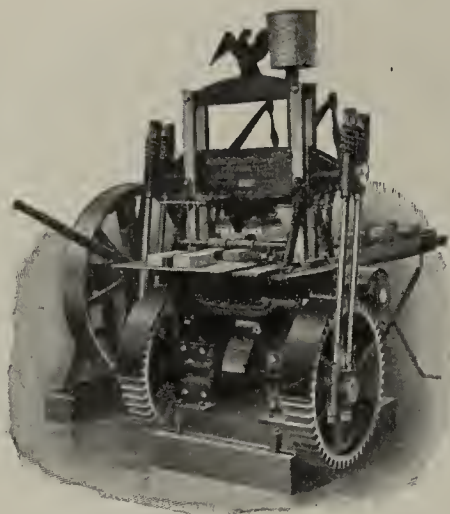
Write for Catalogue.

Rushville, Ind.

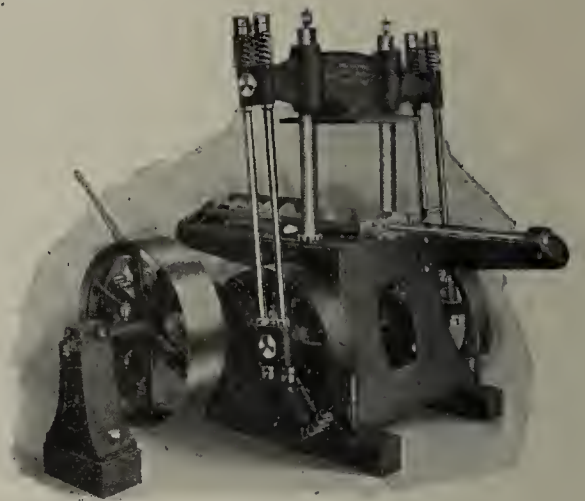
THE AMERICAN CLAY *MACHINERY COMPANY* BUCYRUS OHIO, U.S.A.



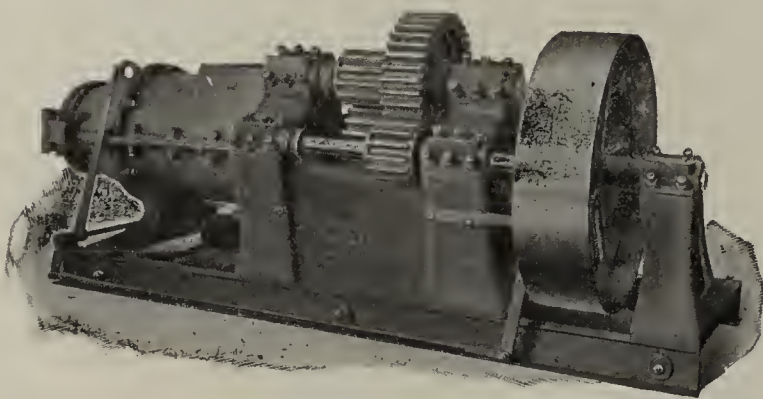
D-3 Dry Press



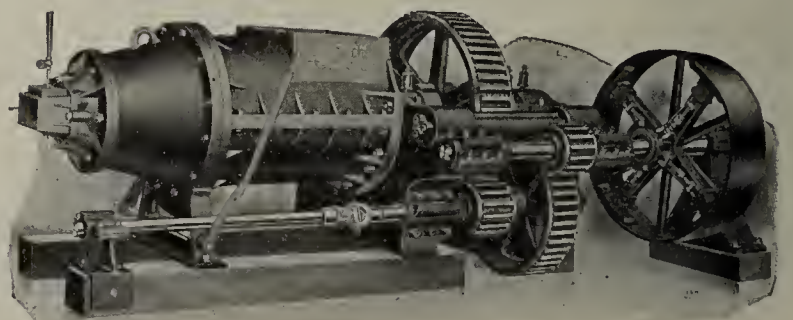
Eagle Reprass



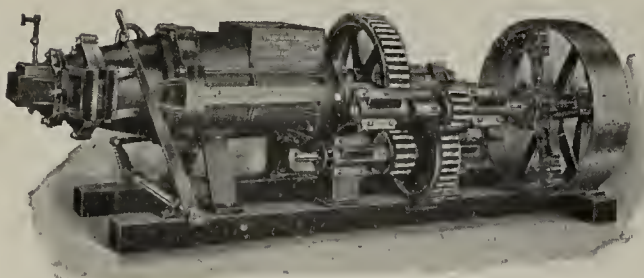
Roofing Tile Press



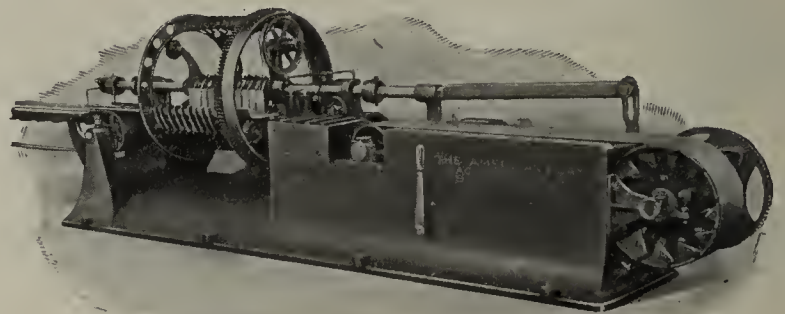
No. 65 Auger Brick Machine



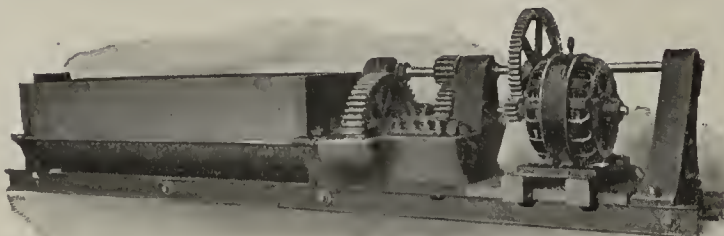
Special Giant Brick Machine



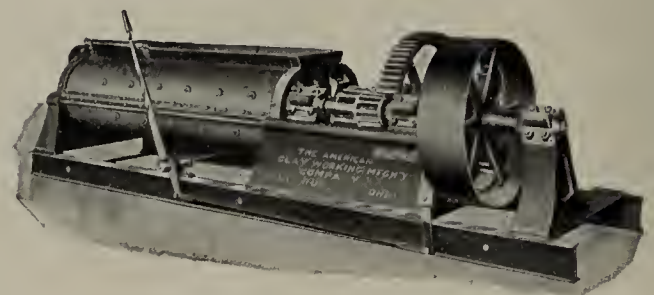
No. 2 Giant Brick Machine



No. 83 Automatic Cutter



No. 51 Electrical Driven Pug Mill



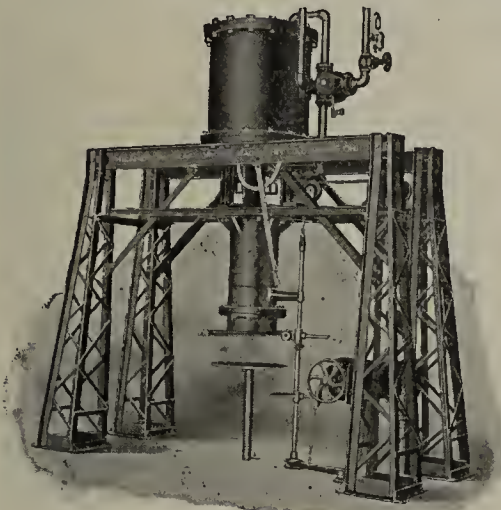
No. 38 Double Shaft Pug Mill

We Build Every Machine and Every Appliance Needed for the Manufacture of Every Class of Clay Products by Every Process.

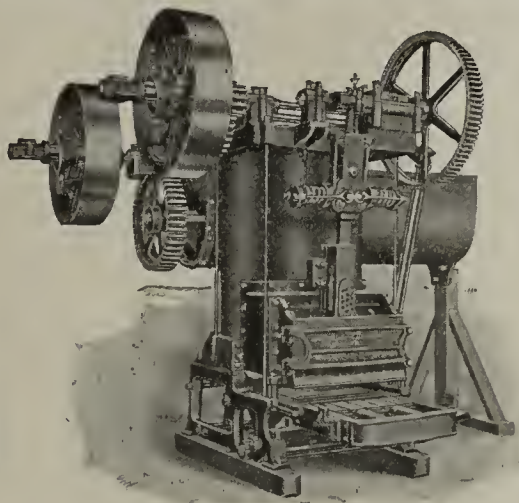
THE AMERICAN CLAY & MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

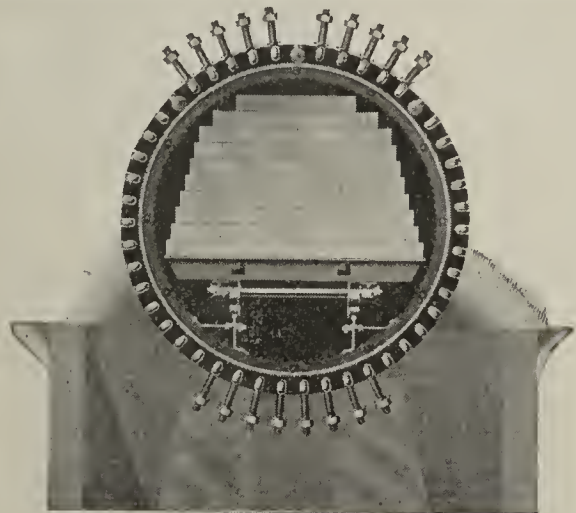
BUILT RIGHT
RUN
RIGHT



Sewer Pipe Machinery



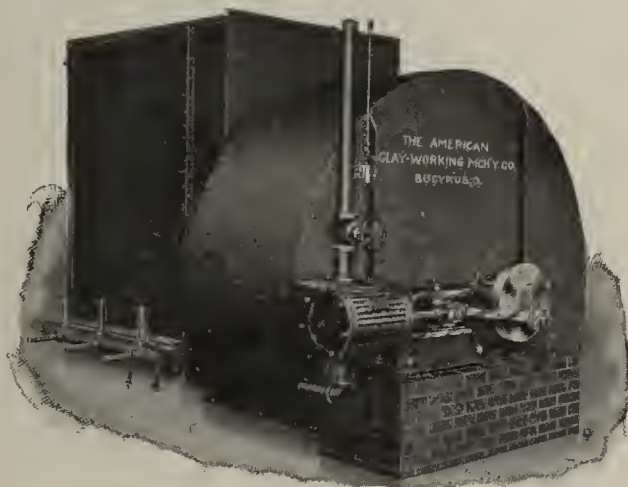
Upright Stock Brick Machine



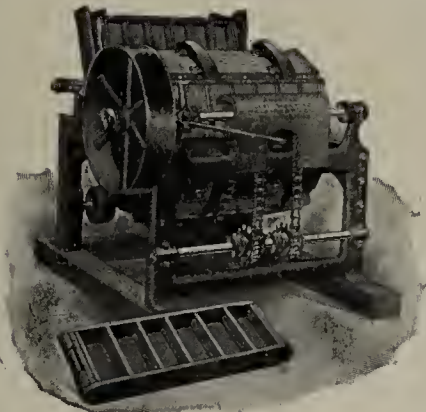
Sand-Lime Brick Machinery



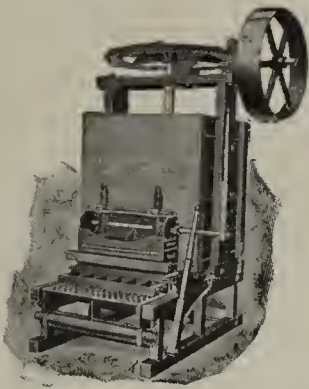
No. 64—9 Foot Wet Pan



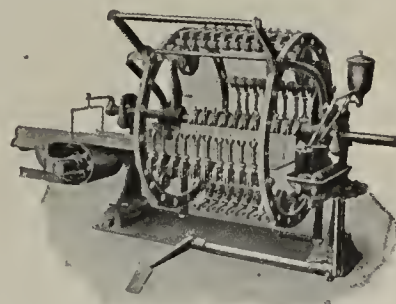
Blower Dryer Apparatus



Mold Sander



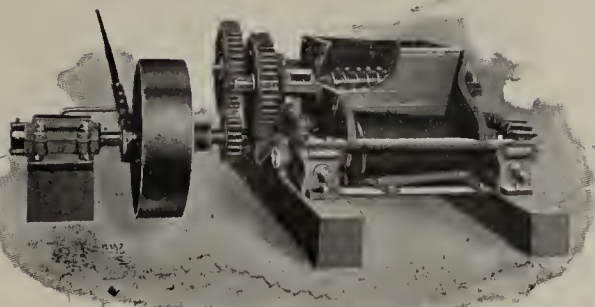
H. P. Brick Machine



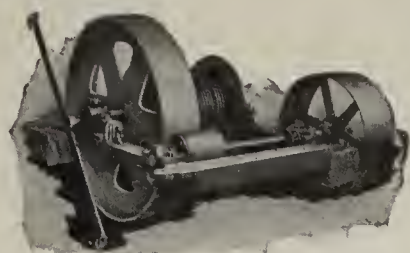
No. 62 Hand Power Cutter



Dry Cars



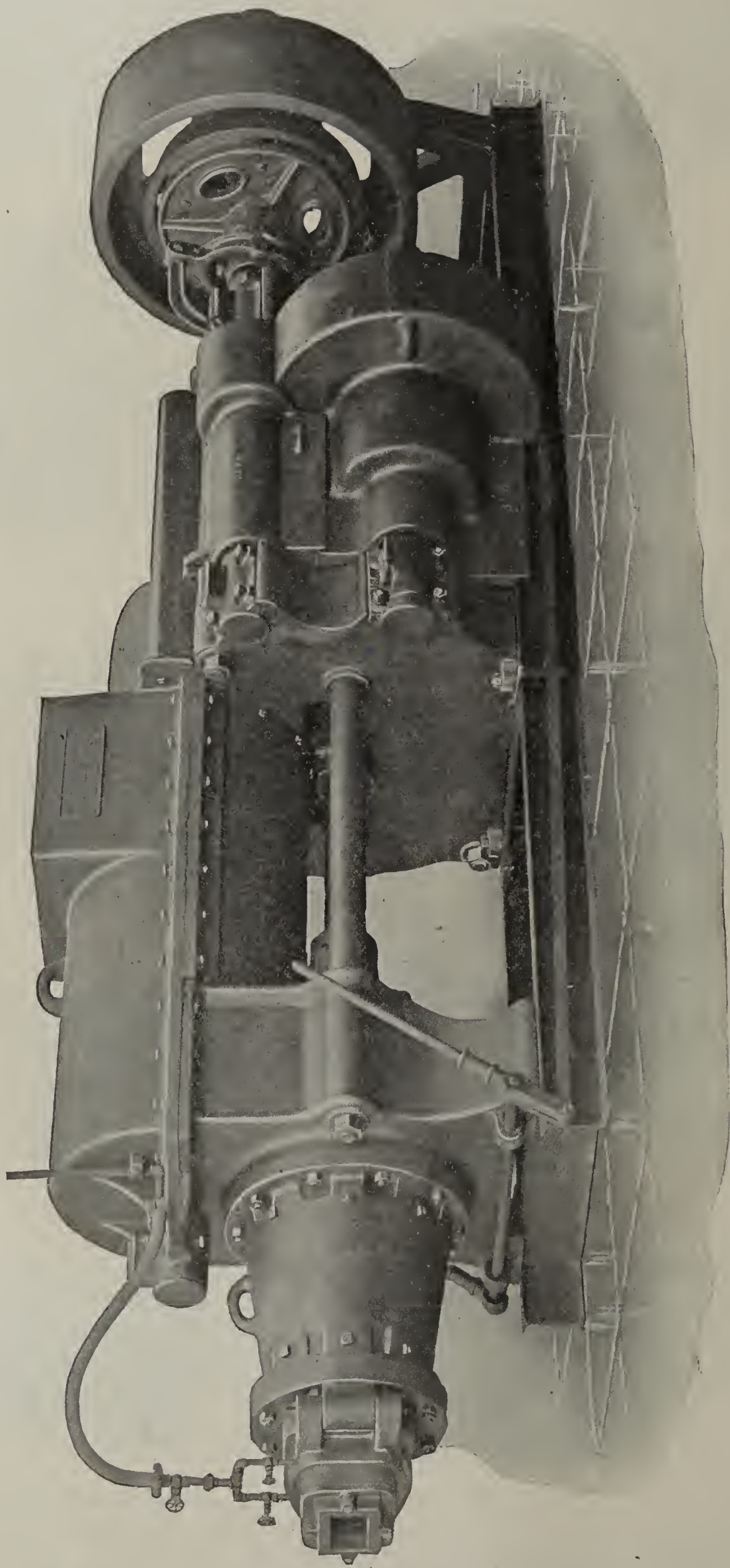
No. 25 Smooth Roll Crusher



Winding Drums

We Are Much the Largest and Much the Most Extensive Manufacturers of Much the Best Clay-working Machinery in the World.

Another Brick Machine.



This is a Brick Machine of massive proportions and of modern construction throughout, designed for large capacity and severe service. The gearing, shafting and other parts are very heavy. The gearing is protected by a removable dust and accident proof covering, hinged for convenient access to the interior. The feeding chamber is of ample diameter and length, and this result is obtained without excessive overhang of auger shaft. The auger shaft is supported by three journal bearings of sufficient distance apart to give it a substantial support. The part of the auger shaft in the clay chamber is about 4 feet in length, while the part outside is more than 9 feet long.

The machine is mounted on steel "I" beam sills between which are placed heavy cast iron spreaders with flanges, affording a substantial method of attaching the machine to its foundation. The outer end of the pulley shaft is supported by a rigid stand having an adjustable journal box.

Height from floor to top of hopper, 5 ft. 8 in.

Length of machine over all, 19 ft.

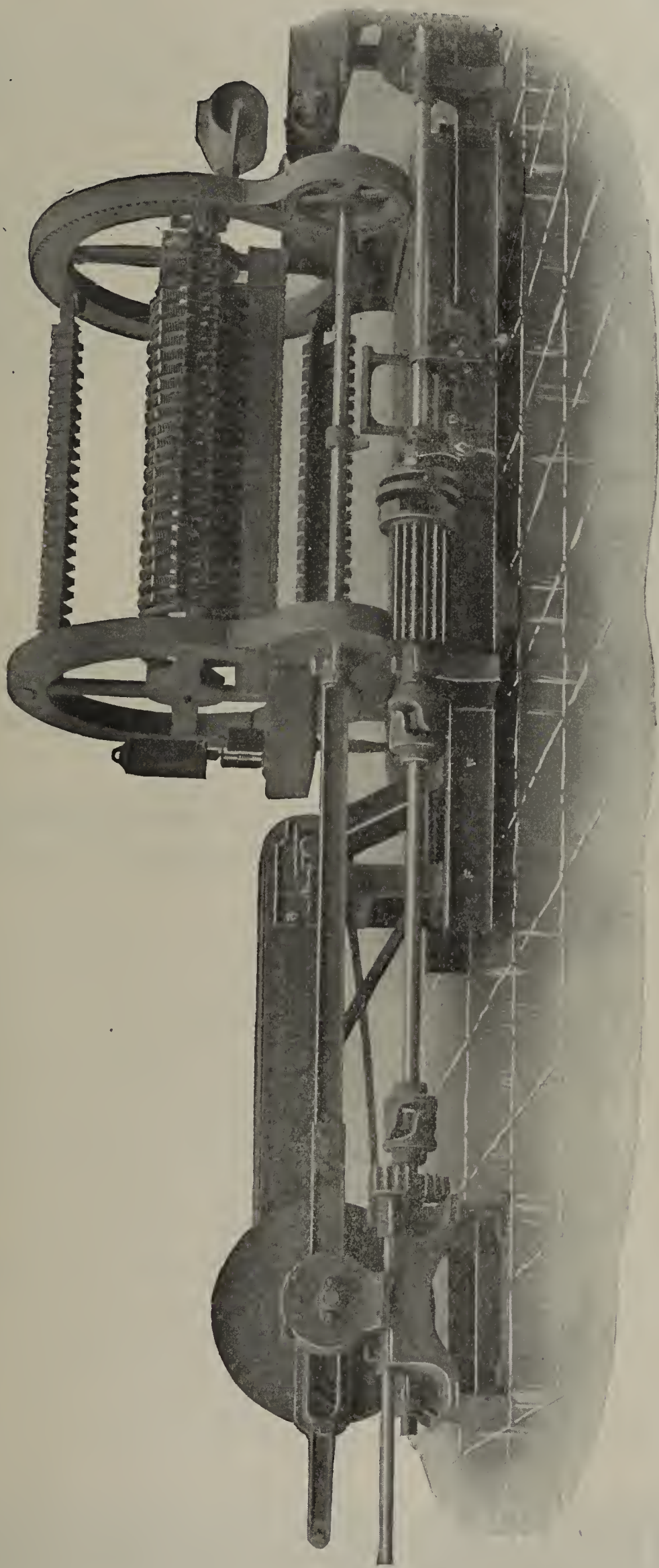
Size of hopper, 26-in. x 26-in.

Weight of machine about 26,000 pounds.

E. M. FREESE & CO., Galion, Ohio.

(Mention The Clay-Worker.)

An Improved Rotating Automatic Cutter.

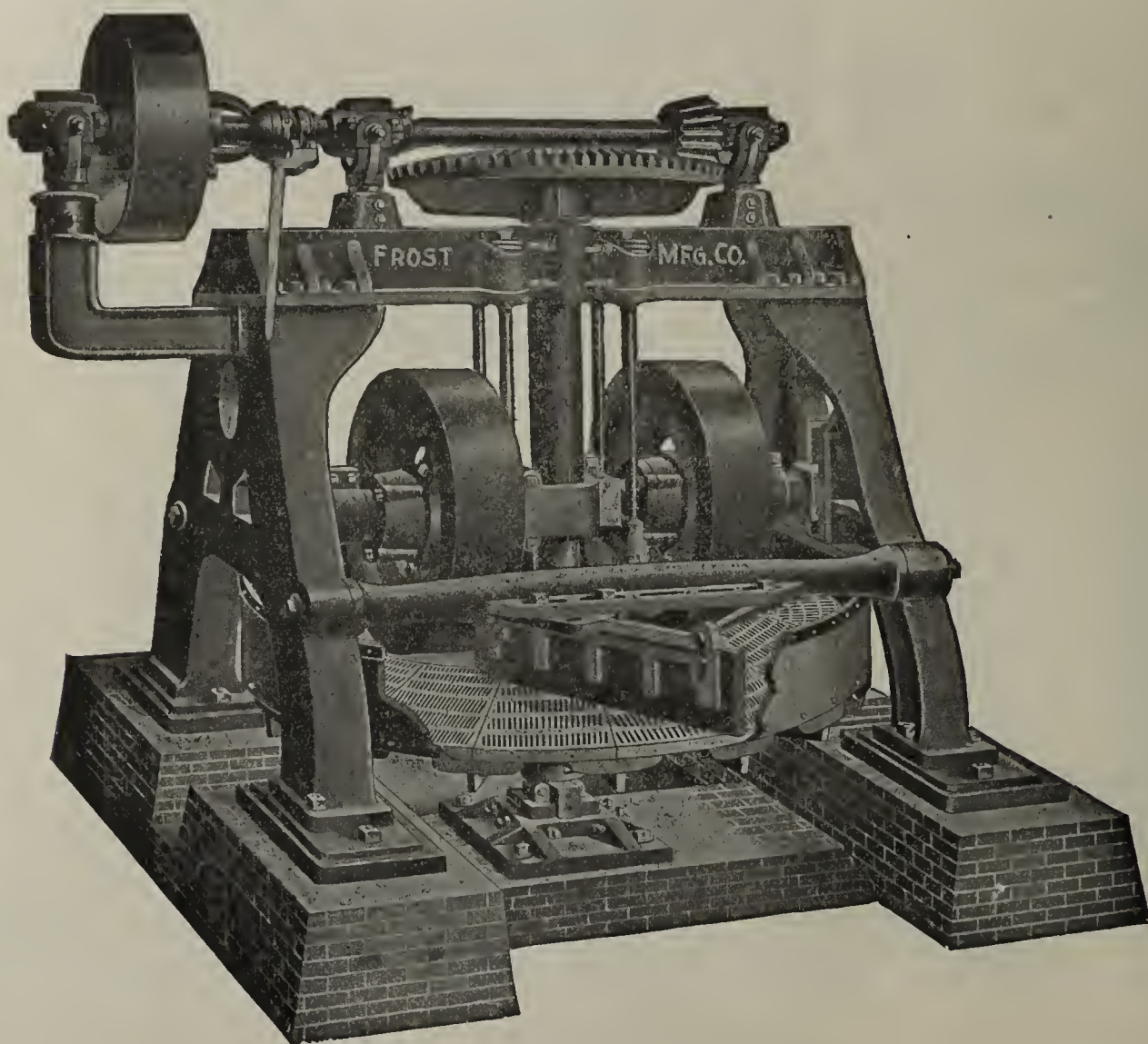


Our Rotating Automatic Cutters are the result of many years' constant hammering at a single type of Cutter. One of the three sizes we are building will suit your Stiff Mud Brick Machine. We ship on trial—YOU say whether our guarantee of "satisfactory operation" is fulfilled. If desired a man will be sent to arrange details of installation. These Cutters will give you satisfaction when all others have failed.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

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The FROST Pan is the BEST Pan. All Others Imitate but Never Equal.
A Few of Our Customers.

Purinton Paving Brick Co., Galesburg, Ill. 16 Frost Pans
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 Buffalo Brick Co., Buffalo, Kan. 3 Frost Pans
 Cherryvale Pressed Brick Co., Cherryvale, Kan. 2 Frost Pans
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 Enid Vittrified Brick & Tile Co., Enid, Okla. 2 Frost Pans
 Phoenix Brick & Construction Co., St. Joseph, Mo. 2 Frost Pans
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 DeSota Brick and Tile Co., DeSota, Iowa. 1 Frost Pan
 Dixon Wood Company, Pittsburg, Pa. 1 Frost Pan

Choctaw Pressed Brick Co., Mansfield, Ark. 1 Frost Pan
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PERFORATED STEEL FOR CLAY SCREENS.

Samples or blue prints with prices furnished on request.

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For Cleaning and Grading Clay, Shale, Sand, Cement, Coal, Stone, Etc.
For Pallets or Trays, Car Bottoms, Drying Floors, Conveyor Bottoms, Separators, Etc.

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No. 114 Liberty St.

No. 231 North Union Street,
CHICAGO, ILL., U. S. A.



THE ? IN YOUR MIND.

Will next season prove a successful or an unsuccessful business one for ME? That's the question in the mind of every brick manufacturer in the country.

Upon the equipment of each plant will depend, largely, the result of the season's efforts. Good clay will not make good brick in a poor Dryer, and poor brick will not make a good season.

Since success in the brick business is so greatly "Up to the Dryer," the above question is best answered by another: Is your Dryer a success? If not, the answer then is: You've only to install the

RODGERS WASTE HEAT SYSTEM OF DRYING

in order to have gone far on the road toward success before the season opens.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment
in the U. S.

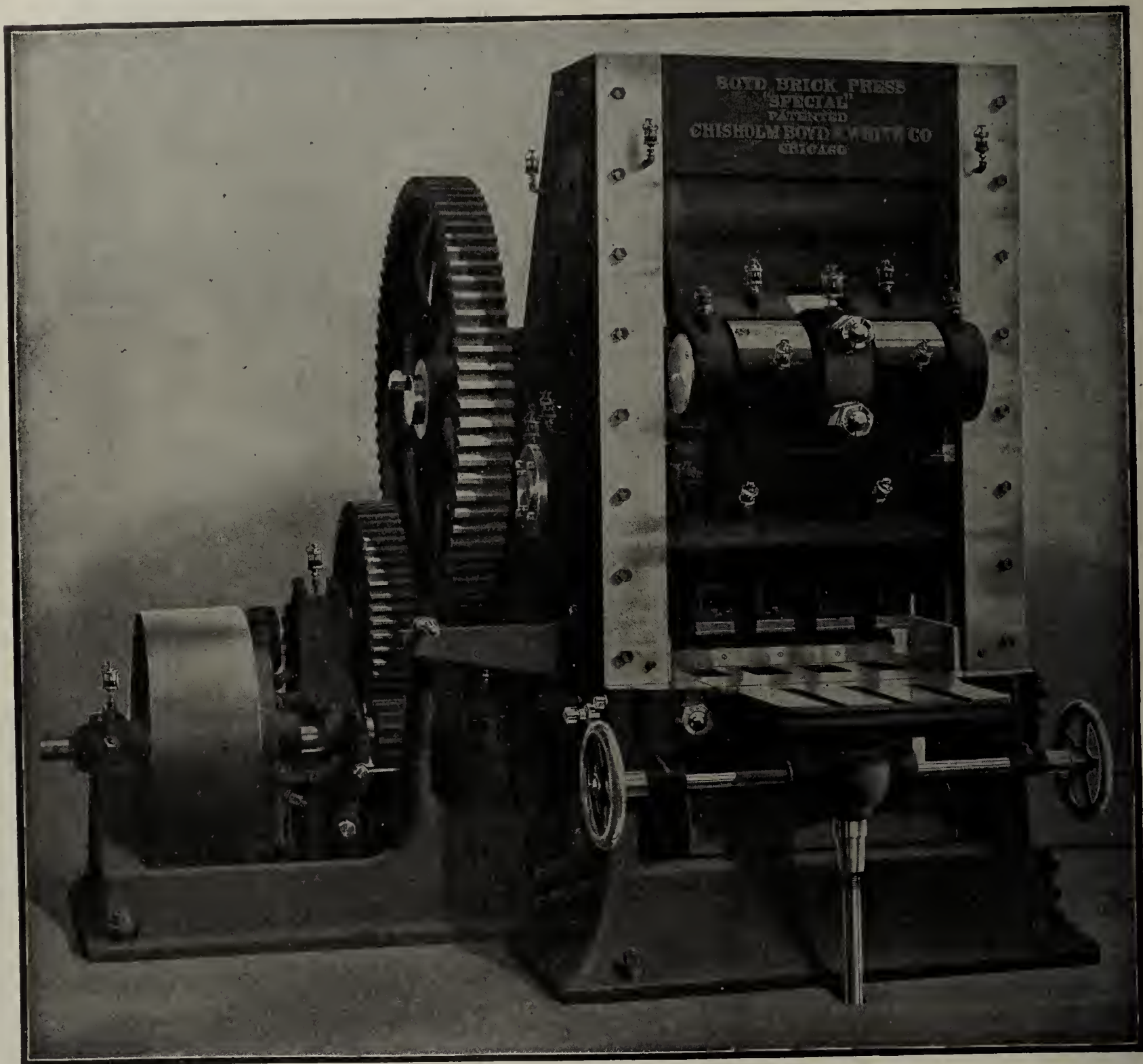
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CHICAGO.



The Boyd Brick Press

Built in Two, Four and Six-Mold Sizes.



FOUR-MOLD SPECIAL.

BRICK PLANTS designed and complete machinery equipment furnished. Machinery and product guaranteed.

More Boyd Presses in use than all other Press Brick Machines combined.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 19 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end.

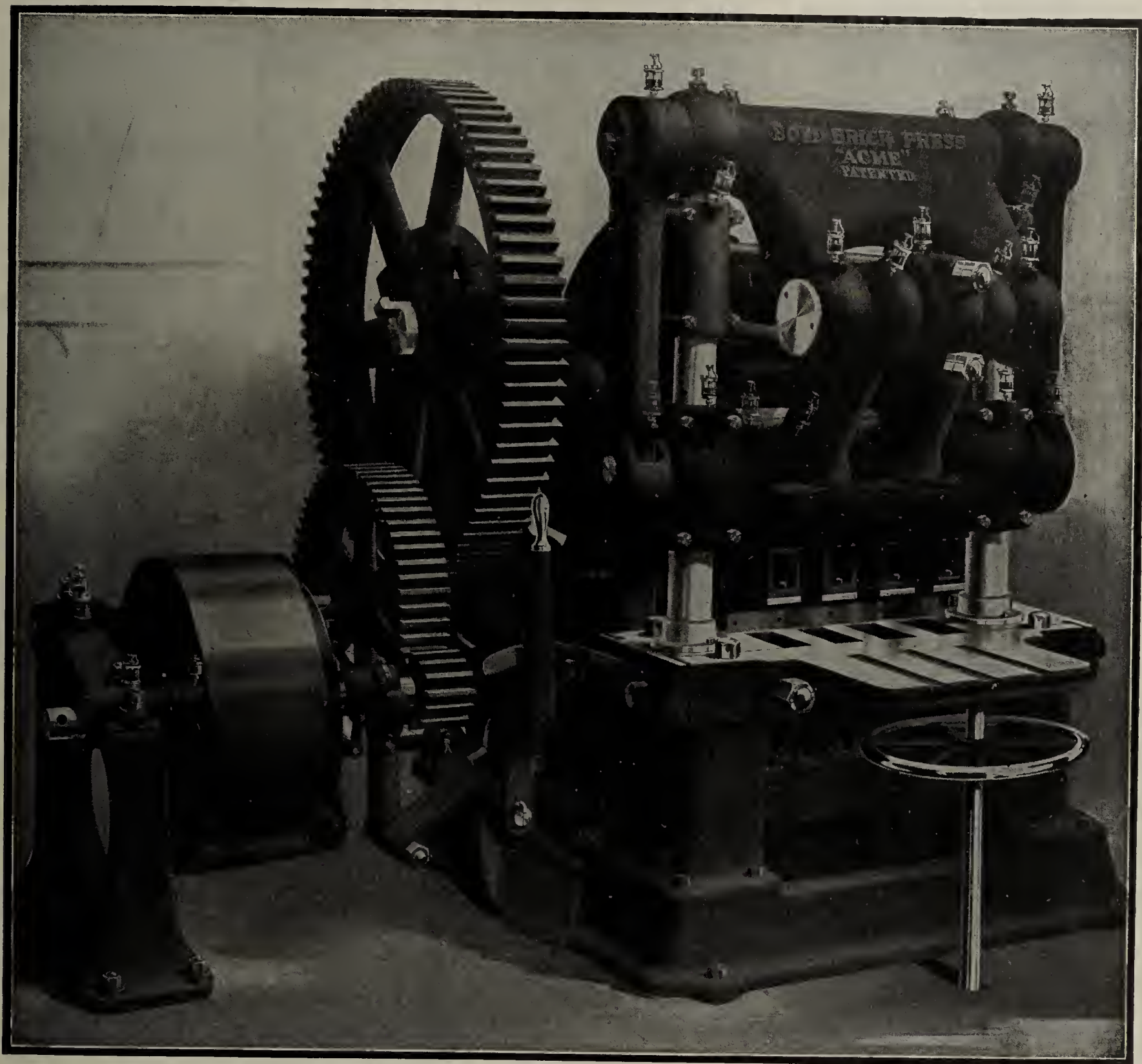
Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Boyd Brick Press

Four-Mold "Acme."



We have been building this type of machine for over ten years. It has all improvements to date and embodies all the special features of the original Boyd Press.

Detailed perfection, strength, endurance and quality of product have made THE BOYD the Brick Press by which all others are judged.

We will send to any responsible party a *Boyd Brick Press on trial* under the broadest and safest guarantee. We take the machine back if not satisfactory.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

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The Grath Special Brick Press

Patented.

Made in Two, Three, Four and Five-Mold Sizes.

THE ONLY PERFECT BRICK PRESS

For SAND-LIME and DRY CLAY BRICK of Unequaled Quality.

FOUR MOLD MODEL.

Seek No Further
for the Equal
Can Not be Found



BRICKMAKERS

Do not buy Brick Presses every month or year.

When you **do** buy get a **modern** press. It costs no more than one which is **out of date**.

Unless the press is **double geared**, with gears between frames and bearings, which prevents all side strain and twisting of crank shaft, it is out of date and behind the times.

The above construction is contained in the **Grath Special** and is securely covered by patents. All infringements will be prosecuted.

THE PRESS OF TODAY.

THE ALBERTA PORTLAND CEMENT CO.

W. P. Grath, St. Louis, Mo.:

[Copy]

Sandstone, Alta., Sept. 26, 1907.

Dear Sir—Replying to your favor of recent date regarding Grath Special press purchased from you, would say that after working your press alongside another well-known make, your press has proved itself vastly superior in every way; it is stronger, simpler, easier of adjustment, makes more brick, and of much better quality.

After a long experience with presses, having operated five (5) different presses each of different makes, I consider yours "THE BEST YET," in short, "AN IDEAL PRESS."

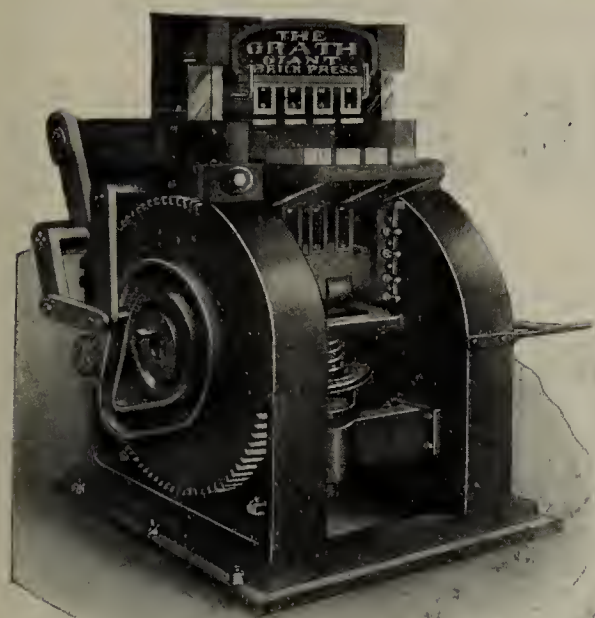
Wishing you the success your press merits

Yours truly, G. W. DELLER, SUPT.
Alberta Portland Cement Co., Limited.

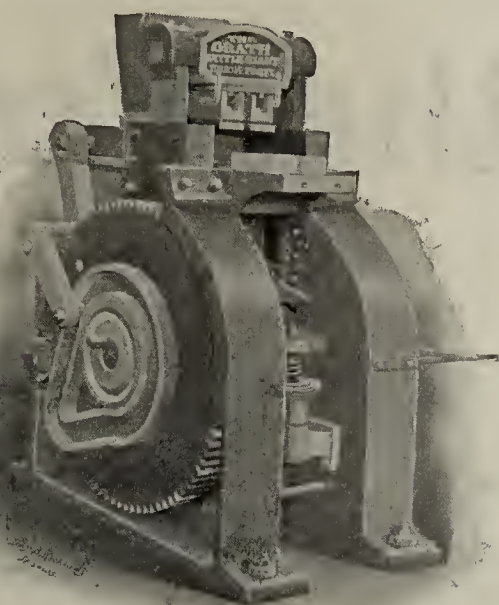
Illinois Supply & Construction Co.,

Suite 512 and 513 Holland Bldg.

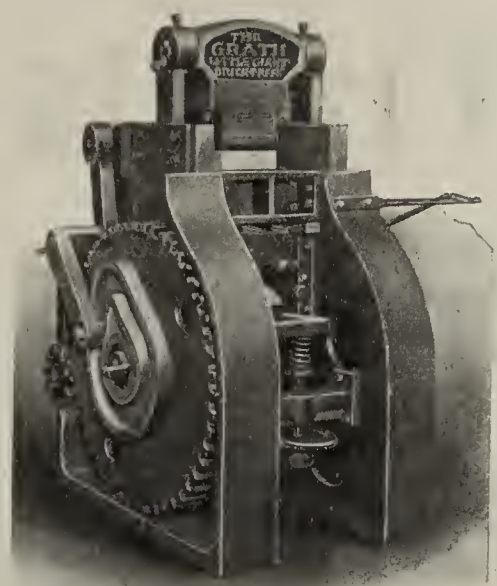
St. Louis, Mo., U. S. A.



**THE GRATH GIANT FOUR MOLD
BRICK PRESS**
For Fine Press Brick
From Dry Clay or Sand-Lime.



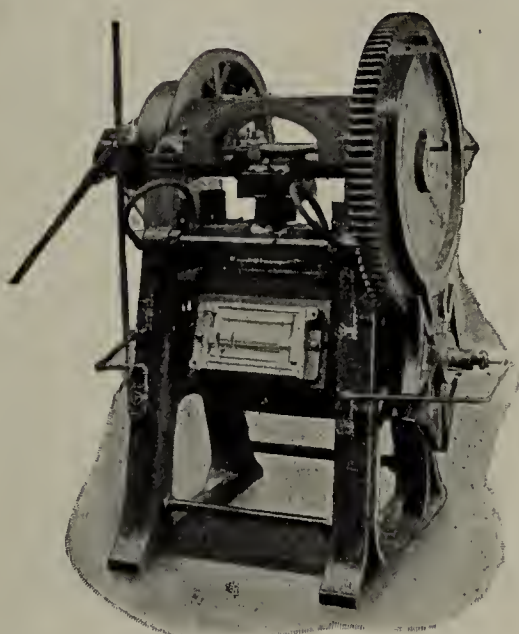
**THE GRATH LITTLE GIANT TWO
MOLD BRICK PRESS**
For Fine Dry Press Brick.



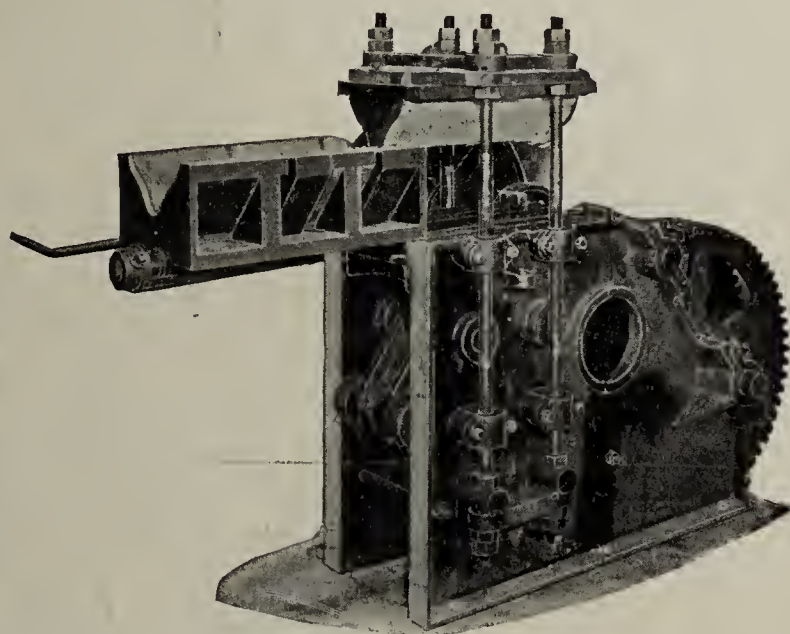
**THE GRATH LITTLE GIANT
ONE MOLD BRICK PRESS**
For Perfect Sand-Lime or
Dry Clay Face Brick.



**The Grath Special Hand-Power Brick
Press, for Plain and Ornamental
Press Brick.**
From Dry or Semi-Dry Clay or Sand-Lime.
Guaranteed against breakage.

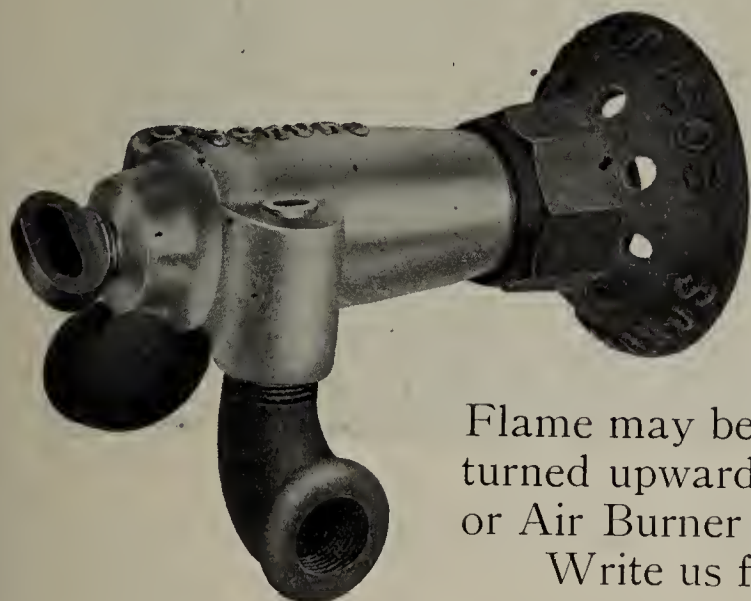


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Tile Press.**
Strongest and Simplest Made.
For Plaster or Metal Dies.
Top Cross Head and Pentagon Adjustable.



The Grath Roofing Tile and Trimming Press
No Roofing Tile Plant
Complete Without This Press.
For Plaster or Metal Dies.
For Special Tiles, Hips and Crestings.

GUARANTEED AGAINST BREAKAGE.



**Selling Agents for The
SCHURS PATENT PERFECT
OIL BURNERS**

Especially designed for burning Brick, Tile, Terra
Cotta and Lime. For Up and Down Draft Kilns.

Flame may be regulated as desired and to produce any heat, can be
turned upward, downward or sideways. Most economical Steam
or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices and information.

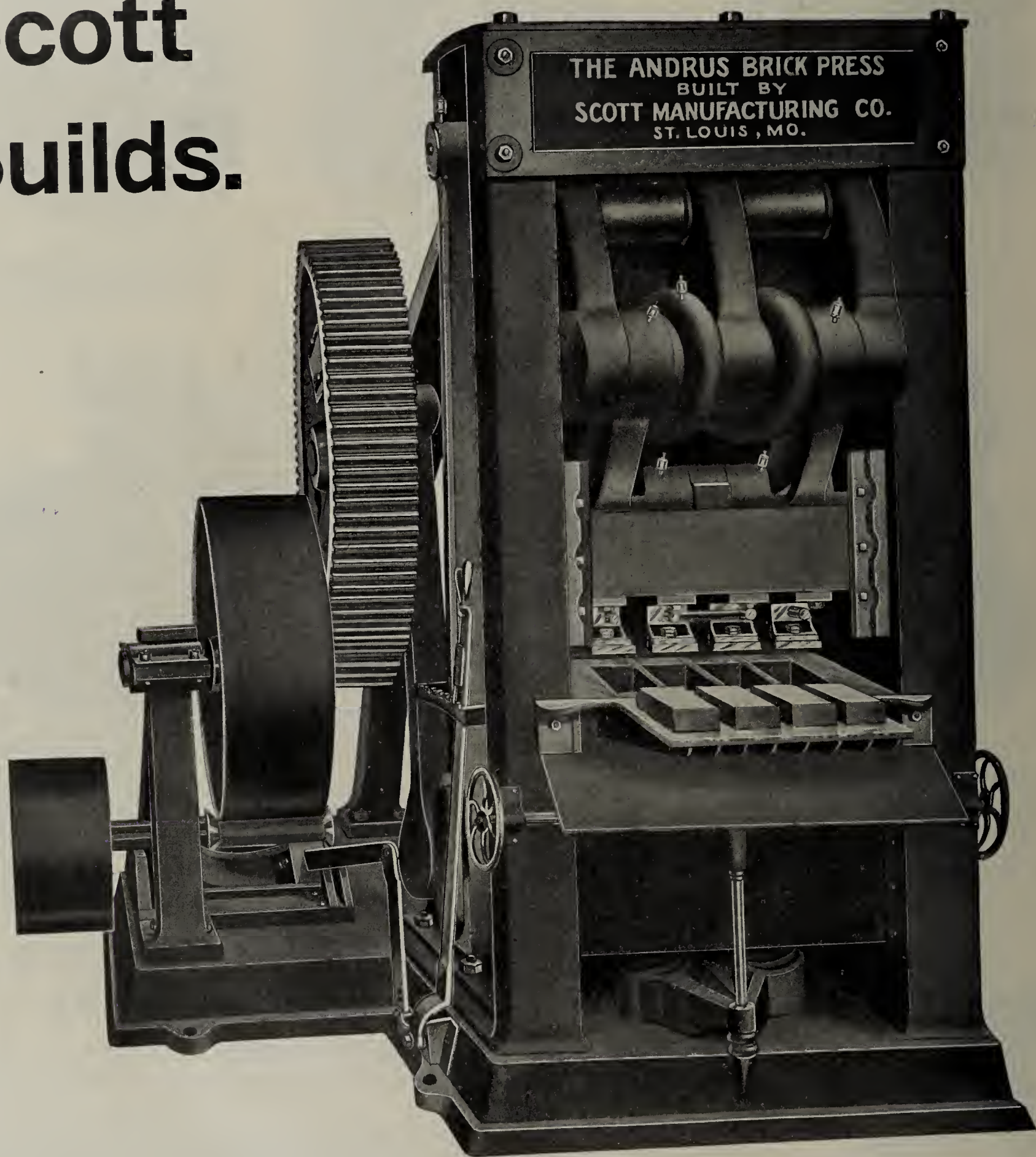
Lieber's Code.
Cable Address,
GRATH, St. Louis.

Illinois Supply & Construction Co.

HOLLAND BLDG.. ST. LOUIS, MO.

Long Distance
Phone
Bell, Main 235.

This is the Press that Scott Builds.



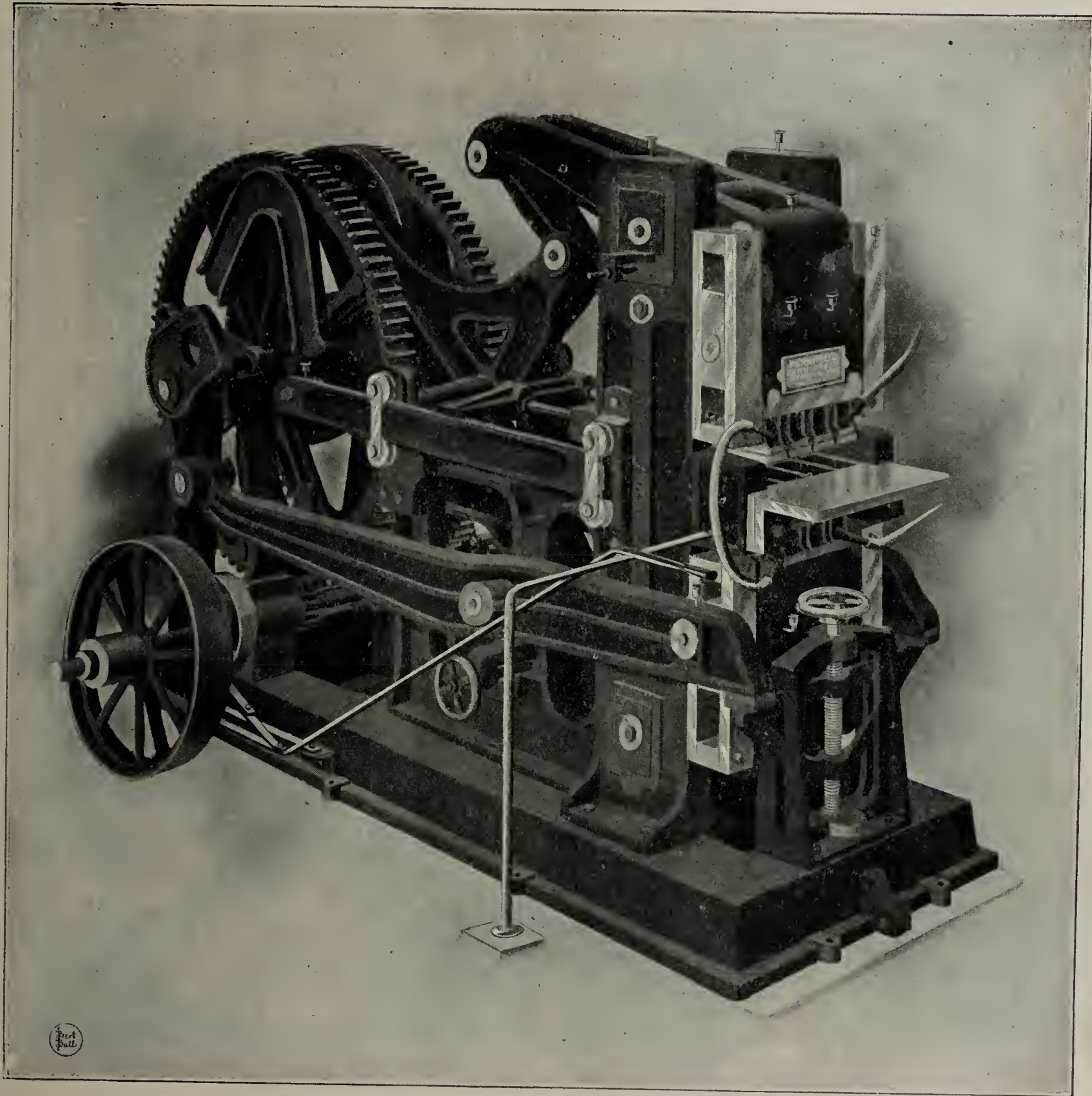
Our Latest Model.

A postal will bring
you its description
and price.

Scott Manufacturing Company,
421 Olive Street, St. Louis.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.



If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

WHAT'S IN A NAME?

B **E** **R** **G**

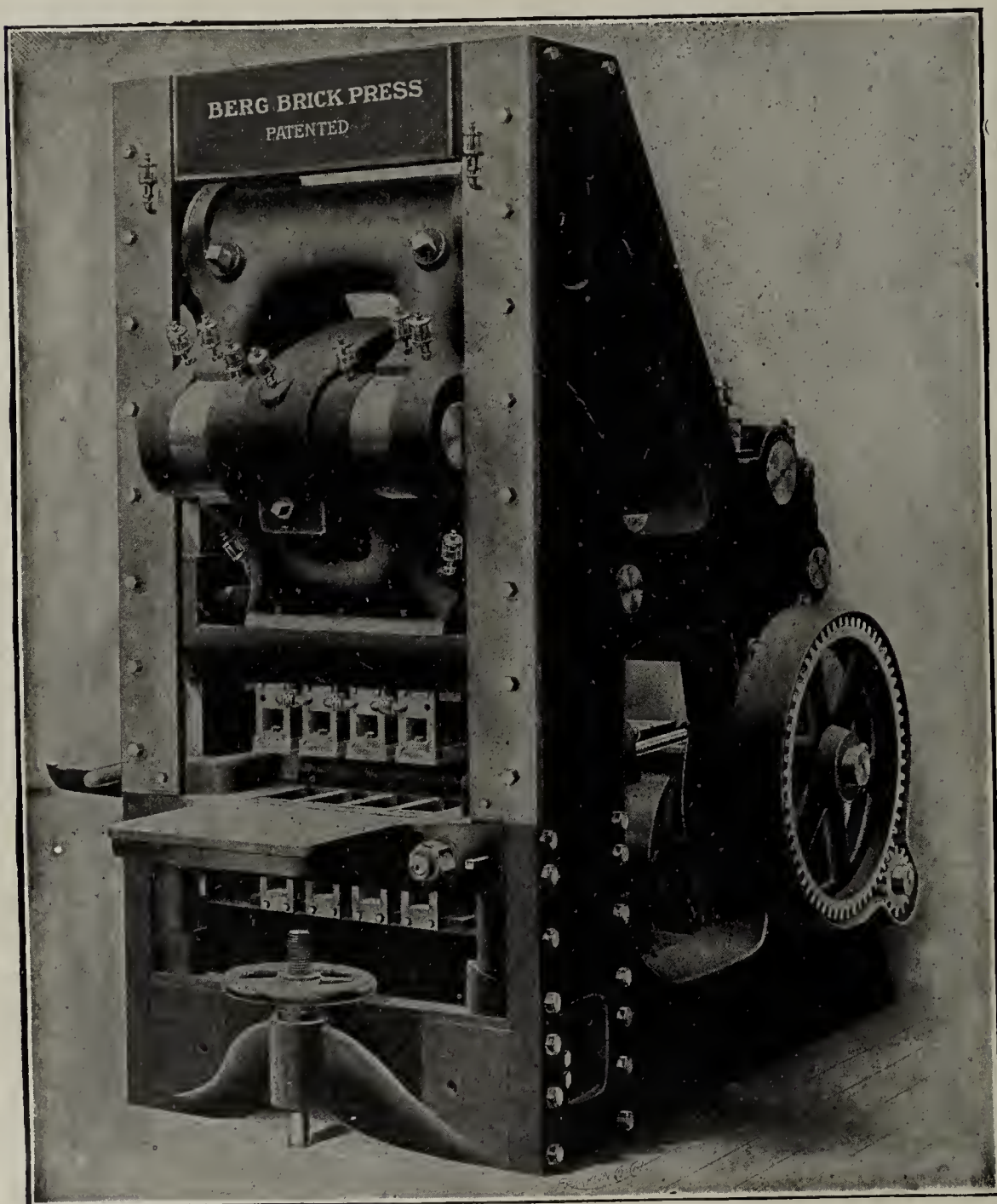
SIMPLICITY
STRENGTH
DURABILITY

ACCESS
TO ALL
PARTS

GREATEST
PRESSURE

BEST
PRODUCT

The "Berg Press" is The Highest Development in The Art of Brickmaking Machinery, so Pronounced by The U. S. Government.



IMPROVED BERG BRICK PRESS.

Cut Gearing, and many other steps forward in *Improvements*, and built of the *Highest Grade of Material and Workmanship*. *Fully Guaranteed* as to its *Success*.

Manufactured by its Inventor in Toronto, Canada, exclusively. Also all equipments for Pressed Brick Plants to make *Sand-Lime Brick*, *Sand-Cement Brick*, *Shale Brick*, *Clay Brick* and *Fire Brick*. Correspondence solicited.

A. BERG & SONS,

Mention The Clay-Worker.

Manning Chambers, TORONTO, ONT., CAN.

THE BERG PRESS EXCELS
for

Shale Pressed Brick.
Clay Pressed Brick.
Sand-Lime Pressed Brick.
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Fire Brick.

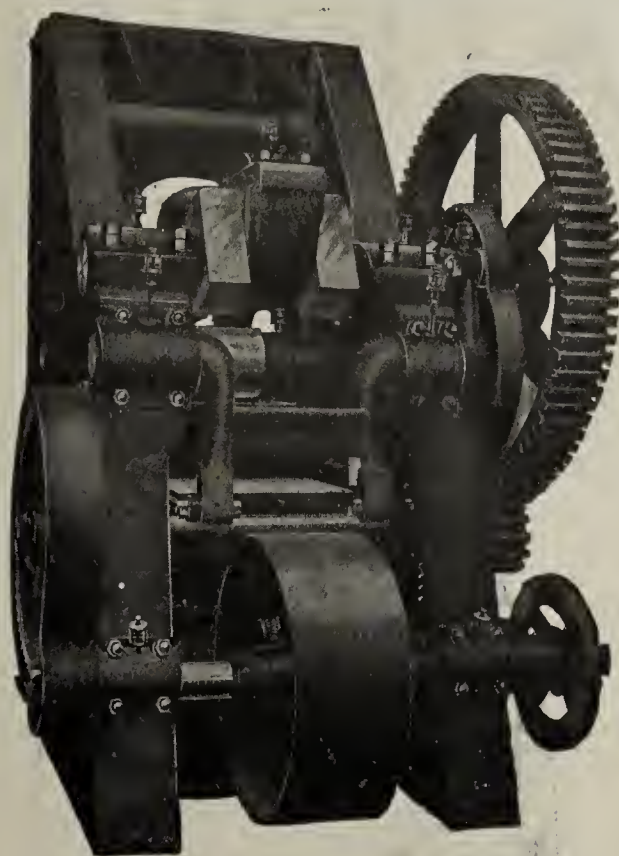
THE BERG PRESS
Gives THREE Distinct PRESSURES:
Result is,
No Granulated Centers.

THE BERG PRESS
HAS ALL WORKING PARTS ABOVE
Clay Line.

THE BERG PRESS
is fitted with "THE BERG PATENTED
MOLD BOX"—the DELIGHT of brick-
makers, and which many OTHERS
have tried to IMITATE.

All Sizes and Shapes
Can be Made.
Molds Can be Changed in a
Few Minutes,
Owing to the
SIMPLE MECHANICAL
CONSTRUCTION.

New Model Berg Brick Press



Back View.

Still in the
Lead
and
One Step
Further
Forward.

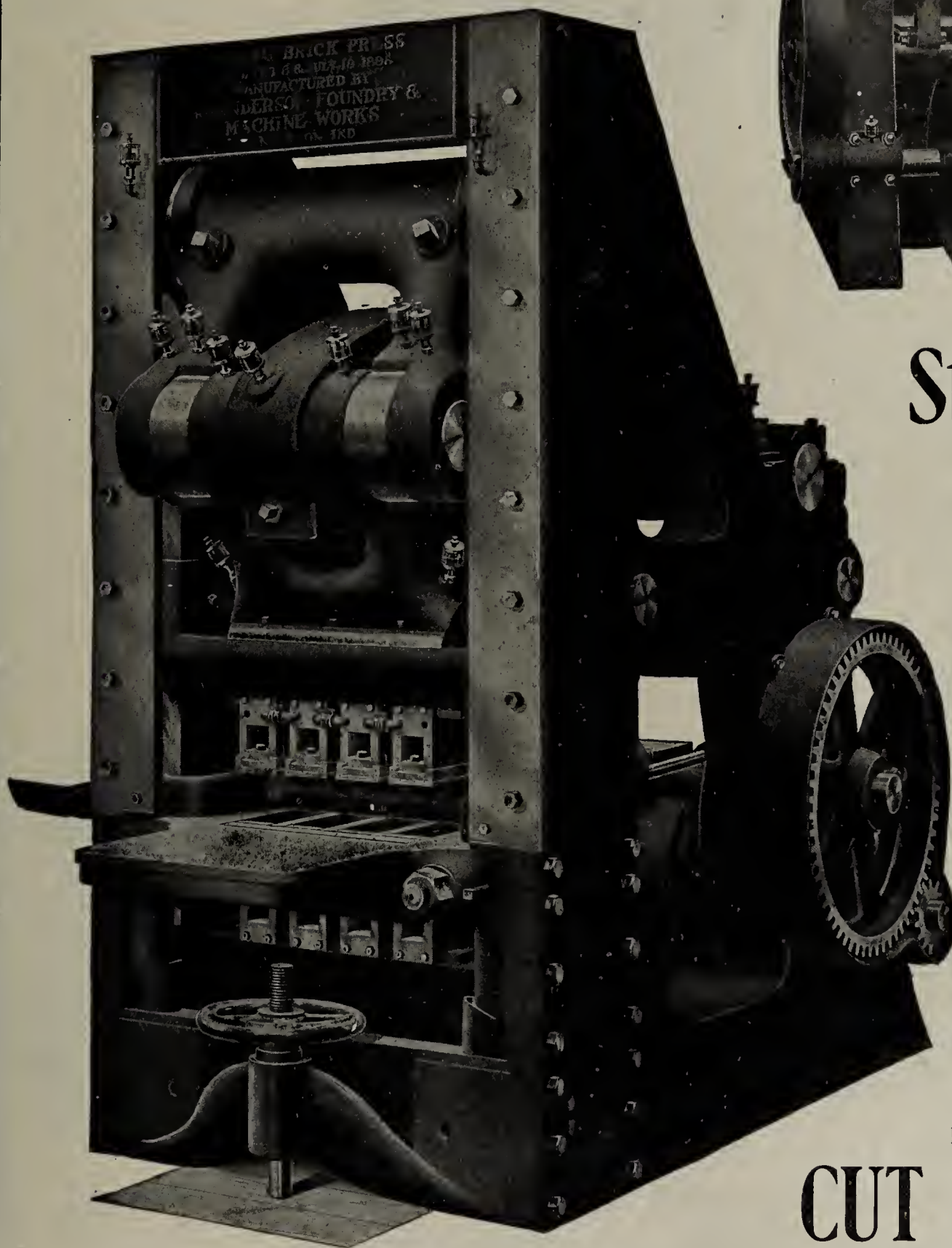
Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact, and

SHIPPED IN ONE
PIECE.

Provided with

CUT GEARING

of either iron or steel, if desired.



Sold by

CHICAGO BRICK MACHINERY CO.,
Great Northern Bldg.
77 Jackson Blvd.
CHICAGO.

Manufactured and Sold by

Anderson Foundry & Machine Works,

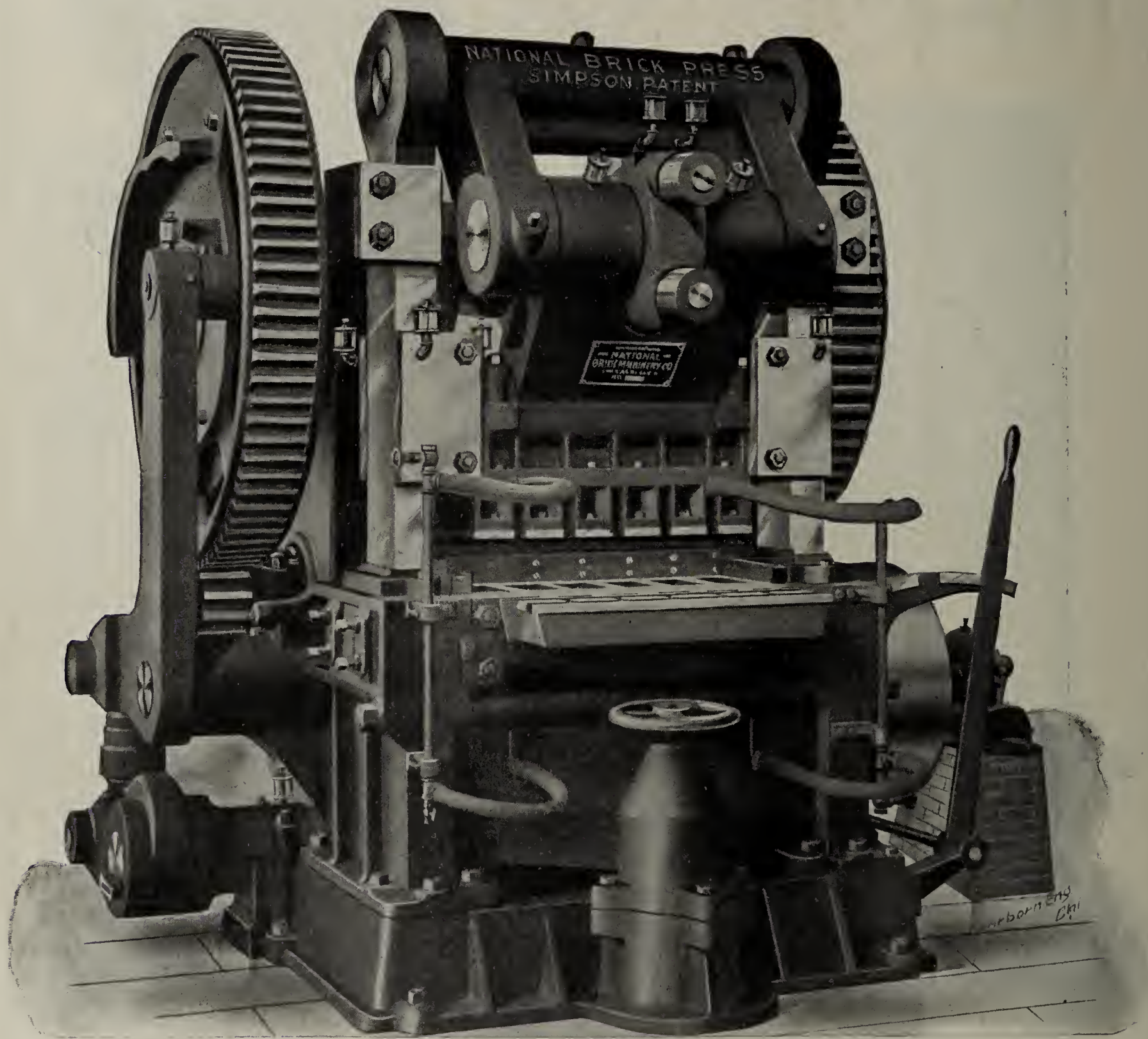
Southwestern Office, Wilson Bldg., Dallas, Texas.

ANDERSON, IND.

NATIONAL BRICK PRESS

SIMPSON PATENT

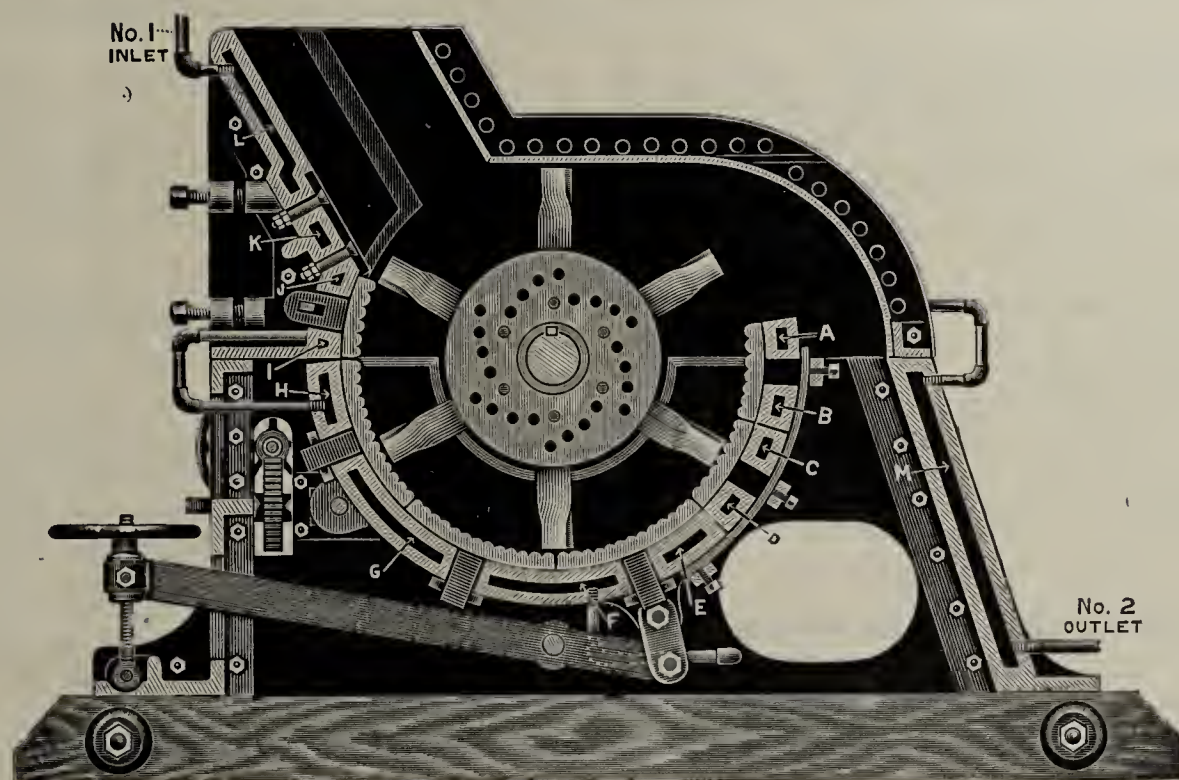
SIX-MOLD



Built in Four, Five and Six-Mold Sizes.
Send for our new Treatise on Dry Press Brickmaking.
Complete Outfits for Brick Plants.

National Brick Machinery Co.,
Chamber of Commerce Bldg. CHICAGO.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

Williams Patent Crusher and Pulverizer Co.
St. Louis, Mo., U. S. A.

Write for Bulletin 21.

Over 1300 of the Williams Hinged Hammer Crushers and Pulverizers in daily operation.

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:

"Directions for Laying Brick Street Pavements."

"Why Vitrified Brick Street Pavements Are the Best."

"Why Should You Pave at All?"

"A Directory of Manufacturers of Vitrified Brick."

Address **WILL P. BLAIR**, Corresponding Secretary, Terre Haute, Ind.

PRESTON BRICK COMPANY,

Manufacturer of

Vitrified Shale Paving Brick,

SEWER AND HARD BUILDING BRICK.

Hornellsville, N. Y.

JOHNSONBURG VITRIFIED BRICK CO.

Johnsonburg, Penn.

Street
Paving

Brick and Block.

Samples on Application.

SHAWMUT VITRIFIED PAVING BRICK WORKS,

Shawmut, Pa.

Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay Paving Bricks and Blocks.

Burned in Yates' Patent Kiln.

Samples and Prices on Application.

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VITRIFIED PAVING BLOCKS, CHOCOLATE-RED
BUILDING BRICK.**

KUSHEQUA BRICK CO., Kushequa, Pa.

PAVING BUILDING • **BRICK AND BLOCK** • SIDEWALK FOUNDATION

The Barr Clay Co.

C. C. Barr, Pres. • Streator, Ill.

**POSTON BLOCK and
ORIENTAL BUILDING BRICK.
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THE COLLINWOOD-DECKMAN-DUTY COMPANY,

Manufacturers of

High Grade Paving Brick.

Factories at Collinwood, Malvern and Carrollton, Ohio.

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**Thurber Vitrified Paving Brick
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Made of the finest shale, absolutely free from lime.

Arthur S. Goetz, Agent,

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T. B. McAvoy, Pres. and Treas. John C. McAvoy, Sec. & Gen. Man.

McAVOY VITRIFIED BRICK CO., Philadelphia, Pa.

Is the largest and best equipped plant in the East for the manufacture of Paving Brick. All brick sold under a guarantee. Correspondence solicited.

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The Danville Brick Company,
Manufacturers of the Unsurpassed
Danville Paving Block.
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LET US QUOTE YOU PRICES.



**The Best
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Made**

**SIX FACTORIES
DAILY OUTPUT
500,000**

**The Metropolitan Paving
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CANTON, - - OHIO

How to Properly Construct Brick Streets.

Drop us a postal and we will send you free of charge
a complete set of

DIRECTIONS.

TERRE HAUTE VITRIFIED BRICK CO.

Successors to
TERRE HAUTE BRICK AND PIPE CO.,
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New York Brick & Paving Co.,

Manufacturers of

VITRIFIED PAVING BRICK,

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... ALSO ...

Berlin Vitrified Brick that Withstands all Acids.

OFFICE:
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The Wabash Clay Company,

MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS,
"SPECIALS," for crossings on macadam streets, GUTTER BLOCKS,
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Our material has for nearly fifteen years successfully stood the
heaviest traffic of Indianapolis, Terre Haute, East St. Louis and
dozens of other large cities of Indiana and Illinois. We ask inves-
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Samples furnished on application.

Office and Works at VEEDERSBURG, IND.

Clinton Paving Brick Company,

Manufacturers of the Highest Quality of

Paving Brick

Which are offered to the municipalities of the Cen-
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quality. None better.

Prices and samples sent on application.

Correspondence solicited.

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Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DE-
POSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kao-
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Have been in the business for TWENTY-FOUR
years, and are prepared to meet every reasonable demand.
Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,

(C. A. Bloomfield, Treas. and Manager)

P O. Box 413.

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J. G. BUTLER, JR.,
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CHAS. M. CROOK,
Gen'l Manager.

Bessemer Limestone Co.

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MANUFACTURERS OF

BESSEMER BLOCK,

An unexcelled repressed shale paver.

Correspondence solicited.

The Purington Paving Brick Co.,

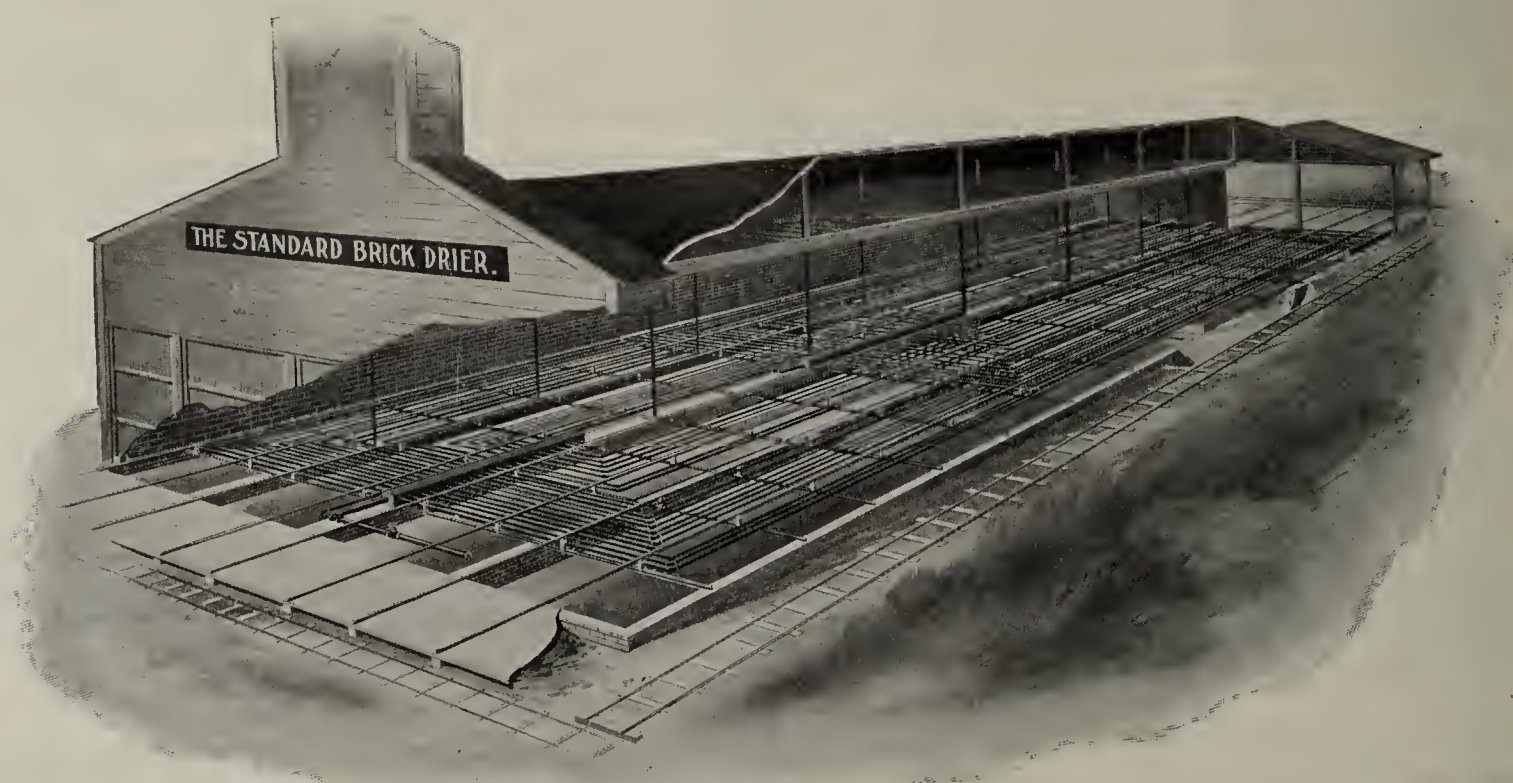
of GALESBURG, ILLINOIS,

HAS the largest and best equipped plant in the United States for the manufacture
of Paving and Sidewalk Brick. The Galesburg Paving Brick have a reputation
second to none, and this Company points with pride to its record for quality of
material and its methods of conducting its business.

Correspondence respectfully solicited.

THE STANDARD DRIER

Successfully Dries All Kinds of Clays



THE New Standard Heating System embodies important modern improvements that every brickmaker should know about. It is this New Heating System that makes The Standard Drier the most effective on the market in utilizing *exhaust steam* for drying. Send a postal today for our interesting illustrated booklet, "Money-Saving Drying."

The "Book of Smiles," our modest but mirthful little monthly publication, sent free to brickmakers for the asking. Write in to have your name placed on the regular mailing list.

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647 South Pennsylvania Street :: INDIANAPOLIS, INDIANA

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. XLIX.

INDIANAPOLIS, IND., MARCH, 1908.

No. 3.

Written for THE CLAY-WORKER.

MOSAIC PICTURES IN THE LIBRARY OF CONGRESS.

By Charles James Fox, Ph. D.

THE LIBRARY OF CONGRESS has been described as an exhibit and memorial of the native art and ability of the citizens of the United States. Its elaborate interior and exterior decorations are wholly the work of American artists, architects, painters and sculptors, more than fifty of whom contributed their best efforts to the consummation of the work. In consequence every branch of American art is well represented in the building of the National Library, as it is called. If there is any one branch of decorative art of which this is more particularly true than all others, it is in the creations of the American mosaicists.

The mosaic pictures in the Library are Elihu Vedder's Minerva and Friedric Dielman's History and Law; the former decorates the wall of the landing of the stairway leading to the gallery of the rotunda of the reading room, and the latter are panels above the mantels at either end of the reading room set apart for the members of the House of Representatives. Elihu Vedder is an American artist, painter and illustrator, who has spent many years of his life in France and Italy, and now resides in Rome. Friedric Dielman is a native of Germany, but was brought as a mere child to this country, where he has lived and worked.

Each of these mural pictures is executed in what is known

as glass or vitreous mosaics, according to full size cartoons painted by the artists in simple outlines, and in the exact colors desired in the mosaic. From these cartoons the Italian workmen prepared the finished panels, and sent them to this country to be put in place. For generations the Italian workmen have been famous for their skill in executing mosaic work in which delicacy of expression, accuracy of coloring and nicety of fitting are essential qualities. The Italian shops are said to contain enamels in twenty-five thousand different shades and tints.



Mantel at the South End of the House Reading Room
Library of Congress, Washington, D. C.

Vedder's Minerva, the most elaborate mosaic in the library, is an arched panel fifteen and a half feet high and nine feet wide. The Goddess of War is presented by an almost masculine chief-tainness, who has partially discarded her armor, as she turns her mind to the more noble arts of peace. She stands forth as the armed guardian of peace and civilization, ever ready to defend her country against any adversary, be he foreign enemy or internal foe. At her side is the little winged statue of Victory, standing on a globe, with the palm branch in one hand and the olive wreath in the other, just as she was represented by the ancient Greeks, offering peace to the vanquished and reward to the conquerer. The sun of Prosperity shines forth radiantly as it dispels the clouds of discord and strife. Minerva still retains her spear as a defensive weapon, as she contemplates an un-

folded scroll in her left hand, upon which are inscribed the names of the great branches of science and art: Law, Statistics, Sociology, Philosophy, Mechanics, Zoology, Botany,

and other sciences. Upon the ground at her feet, lie the helmet and shield within easy reach, should necessity demand their use. The head of the Gorgon Medusa is seen upon the shield, and the usual ram's heads decorate the helmet. The owl of Wisdom is perched upon a low parapet on her left. The olive trees, as symbols of Peace, are seen growing in the background. The entire design is surrounded by a border vine of the conventionalized laurel tree. Perhaps the most advantageous view of the Vedder Mosaic, as it is known, is obtained from the floor below, where the grand and stately conception of the artist is seen at the top of the marble stairs, and bounded by the beautiful pillars and archway.

Dielman's mosaic panels adorn the magnificent mantels of Sienna marble at the north and south ends of the House reading room. The pictures are seven and a half feet wide, and three feet seven inches high.

At the north end, Law is represented as a beautiful young woman, enthroned upon a dias of marble, the sword of chastisement in one hand and the palm branch of reward in the other. The doves of peace, the bound volume of the statutes, and the scales of justice are at her feet. A glory surrounds her head and she wears the aegis of Minerva, to signify that she is protected by the armor of wisdom and righteousness. On the right of the throne are Industry, Peace and Truth, the friends and supporters of law and order. The name of each is inscribed on a streamer above. On the left are Fraud, Discord and Violence, the terrified foes toward which the sword of Justice is extended. Each figure has its distinguishing emblem. Industry is represented as a man with a hammer and artisan's cap. Peace wears the olive crown and holds the olive branch in her right hand. Truth has her lilies. Violence holds his sword and the lighted torch lies at his feet. Discord is portrayed as a woman with malign serpents. Fraud is shown as a skulking, withered hag.

Over the mantel at the south end of the room, History is represented by a group, the central figure of which is a stately woman, standing erect, with the recording pen in her right hand, and holding a gold-clasped volume in her left arm.

The names of the great historians, ancient and modern, are read on marble tablets on either side of the muse: Herodotus, Thucydides, Polybius, Livy, Baeda, Comines, Hume, Gibbon, Niebhur, Guizot, Ranke, Bancroft and Motley are those whom the artist has deemed worthy of representation in the tableau. Peace and War, the two great topics of history, are indicated by a laurel wreath, and an oak wreath at the base of the tablets. Mythology is seated to the right of History, where she represents the legends of the gods and heroes, and story of the universe, symbolized by the styles of the globe, which she holds in either hand. Beside her is the Sphinx and Pandora's box.

On the left of History sits Tradition, a venerable woman, who relates to the youthful poet beside her the legends and folklore which he will sing to the world, accompanied by his lyre, which rests on his knee. In the background are the pyramids of Egypt, the Parthenon of Greece, and the Colosseum of Rome, signifying the three great nations of ancient history.

In addition to the pleasure they give as works of art, and to their interest as remarkable specimens of technique, these three mosaic pictures stand out as brilliant examples of the creations of American artists in a class of work for which several of the older nations of Europe have been



Elihu Vedder's Minerva—A Beautiful Mosaic Picture.

famous for centuries, but which in the new world is still in its infancy.

A Toledo preacher has gotten a little inexpensive notoriety by asking a number of distinguished people for a definition of the word gentleman, or an idea of what it should mean in the way of a man. The ostensible purpose is a series of sermons on the religion of a gentleman. Some people look at the term as it is said of Washington's relation to the word lie, in that they don't even know the meaning of the word when they meet it.

Written for THE CLAY-WORKER.

CLAY PRODUCTS VS. CEMENT FIREPROOFING.

By F. W. Fitzpatrick, Washington, D. C., Consulting Architect
and Executive Officer, International Society of State
and Municipal Building Commissioners
and Inspectors.

Mr. President and Gentlemen:

Frankly, I don't like the subject assigned me, or, rather, the heading under which it comes is what displeases me. Either detail, the clay products, or cement fireproofing, affords

thing. The versus already alluded to shows that there is an absolute contravention of that established principle. By the same token we might as well descant upon "hats vs. shoes," or "coats vs. pants." In both cases, either of the ingredients, as we might call them, is necessary and desirable, and just the proper caper in its assigned place. The trouble would begin only when some one insisted in mixing them, or in trying to replace the hat, for instance with the shoes, and swearing that a fellow ought to wear the latter upon his head. So in this question. As far as buildings are concerned, the greatest industry in the world, concrete, and the cement products generally, have their places. It is an important one. The trouble and the

"versus" began when the cement producers became avaricious and displayed an over-weening desire to use cement for everything. No man believes more thoroughly in concrete than I do, and none realizes its potentiality and possibilities more than I, but I also know that it has its limitations, and, in all modesty, I may add that no one has fought more zealously than I against the misrepresentation of its qualities, and the foolish endeavor of its exploiters to make it do duty for hat and shoes and coat and pants altogether.

To begin with, let us view the subject in its larger aspect, and when we speak of concrete, let us mean concrete construction generally, and not merely that portion of it that some of its advocates call its "fireproofing qualities," in regard to the protection of buildings from fire and quite apart from its structural qualities. I think I can justify myself, too, in thus ignoring one of the material's chiefest virtues, as claimed by its most ardent advocates.

Unlimited tests, common sense, and close investigation of the material when actually under fire, satisfied me when still a very young man that concrete was only as fireproof as was its chief ingredient. The primal and best sustained claim for concrete is that it is an artificial stone. You all know what stone of any kind will do under fire. You have seen granite pop like so many fire-crackers, and under but moderate heat; you have seen sandstone spall and go to pieces under the same degree of heat, and, using as much mortar as you do, you certainly are quite familiar with

what limestone becomes under heat test. So it is with marble. And so also is it with concrete, if it is of limestone aggregate it will stand fire a little bit better than the straight limestone; if of granite it will also stand a little bit better than granite; if of brick or broken tile aggregate it stands the best of any concrete, but yet vastly less heat than will the good, reliable, old straight burnt clay itself.

At first the cement producers and other concrete advocates, who, wanting everything to be of concrete (like the storied Maineite, who wanted his porridge and his meat and



Marble Stairway Approaching the Mosaic Picture.

in itself a most fascinating theme upon which to dwell, but the "versus" is what riles me, for it implies a contention between the two, opposition, rivalry. It were better not so, but alas and alack, that versus and all it means is only too true.

Above all things, am I a firm believer in the great economic principle of all things in their places and a place for every-

*Paper read before the Illinois Clayworkers' Association, January, 1908.

his stewed apples and his salad all made in pie form), combatted my opposition with the official dicta of Government engineers, and other high authorities, who pronounced without any equivocation that concrete was "fireproof." Later Baltimore, and then San Francisco, and other things made these learned gentlemen think a bit more. And now it is a matter of some personal gratification to one so humble and modest as yours truly, who never has attained or even wished for the distinction of being an "authority," to have those same great ones of the earth come out over their own signature with the assertion that concrete is a most perfect structural material, but that it is not fireproof and ought to be protected from fire, just as is steel or any other structural material, by some incombustible and undamageable, protective covering, preferably clay tile! So we may be perfectly justified in eliminating the word "fireproof," save in a very circumscribed degree, in what we say about concrete in this heart to heart chat.

No such comedown has ever been necessary in regard to the clay products. True, overzealous chasers of profit among clay producers have at times rather severely punished that material by making it too thin, underbaking it, or otherwise abusing it to the point of rendering it almost as ineffective as concrete when exposed to fire. But, per se, the material is unquestionably the most fireproof, the least damaged by excessive heat, of anything that has ever been known and used, or is known and used in the building trades! And it is not of yesterday or the day before. Like gold that has been the standard of value from time immemorial, so is burnt clay the standard material of imperishable construction. Go examine the ruins of ancient Greece and of Rome, and you find monuments of stone and of marble crushed and battered and decayed, and their dates a matter of question an speculation; but whatever you find of burnt clay is intact, clean cut, exactly as it was fashioned by the hand of the primitive clayworkers, who, like you gentlemen, knew his trade well and wrought in imperishable material. In Egypt, in Assyria, in Babylon, we have even sun baked bricks 3,000 and 4,000 years old, and as good as new. The first Christian works were fashioned in the clay products, and the art was carried to great perfection in the first capital of Christendom, Byzantium. And since that time, cavil and carp at that notion as we may, we must concede that Persian art and then Arabian art (preserved to us by a strange anomaly, by the so-called barbarian and all destroying Moslem) has been the refining influence of our modern art. And the perfection of its expression is to be found in the sub-art of ceramics—the burnt clay products.

And right here let me say, before any concrete enthusiast makes the jab at me, that whatever of deterioration or ruin there may ever have been in the buildings of brick and of tile, of antiquity or of modern times, has never been caused by the disintegration or any inherent fault of the material itself, but has always occurred through a failure of the binding material, the mortar, or, if our cement friends prefer it, the cementing of those parts together.

In some of their glowing advertisements and well-written eulogiums of concrete, those same enthusiasts point with pride to the noble Pantheon, at Rome, as the very apogee of concrete construction, the greatest piece of vaulting ever done in the olden times. It may be well to add, lest we forget, that the main ribs of that magnificent vault are built, not of concrete, not of stone, not of steel, but of a far more perfect material than any of these—BRICK. The whole structure, in its structural parts, is of brick, and concrete is relegated to its true place in construction; it is used in masses, in the filling in, in the panels of that dome.

And in that same relation to the structure is concrete a most valuable material today in masses. There is nothing better than concrete for foundations, for great piers under compression, and buried deep in the ground where they are safe from fire, for piles driven into the bowels of the earth, for tanks and aquatic work, bridge abutments, street work, and railroad work. But where you want to preserve a dry interior in a building, there is the place to use brick or hollow tile; where you want stability and thin floors, there is the place for steel and hollow fireproofing tile; where you want light and fireproof partitions, there is the place for

hollow tile; where you want beauty or external surface, and one that will stand the ravages of time and fire and climate, there is the place to use brick; where beautiful relief is desired and ornate exterior, there use well modeled and well burned terra cotta. And so with the roof of your building. What is there better than a roofing tile? And what is there handsomer, more subtly beautiful and so susceptible to artistic handling than the dainty colored and finely molded and softly glazed wall tiles for interior decoration? But everything in its place is my shibboleth.

The claims of our too enthusiastic concretors, and the hungry grasping of the cement manufacturers, clamoring for everything in concrete are foolish and ill-placed, but I likewise deplore the tendency of some manufacturers of some one clay product or another who would have this material the only one used. The idea, for instance, that a hollow tile block can serve, not only as a structural unit, but also as a finished wall surface, as an ornament, as a roof, ay, even as the mortgage on a house!

If the concrete people could only stick together and establish some standard of construction, produce something like a uniform formula and be satisfied to thoroughly test their work and find out its merits and demerits before asking the people to accept their theories, and to go on with important work according to this one or that one's pet notion, they could accomplish something like progress. As it is, most of the work they do can all be boiled down to the one maxim, let us call it, and that is to sell cement, regardless of the result. And what have we as a consequence? An endless record of collapses and dangerous, hazardous construction. Cinder concrete has been much advocated. It is the cheapest form of concrete on the market and disposes of as much cement as any other, and, at the same time, by its cheapness, makes it attractive to the business man, unversed in real values, and believing that he can obtain for that lessened cost something as good as brick or tile. And it has been proven the most fire-resisting concrete, provided, of course, that it is absolute cinder, real slag, something that it is almost impossible to secure. Of course, if there is any unburned coal in it, something that happens nine hundred and ninety-nine times out of a thousand, it can not only be damaged by fire, but actually burns. But here comes one of the latest and highest authorities on concrete, who avers that cinder concrete deteriorates with age, and he tells us that his experiments have decided him to never use coke breeze or cinder, "as one can not tell, except upon analysis of every part of it, what impurities are in the material." Among the tests that the same authority gives for reaching that conclusion, is one where a cube of cinder concrete seven days old stood a crushing resistance of over 190 tons per square foot, and a similar cube, one year old, collapsed at 123 tons, and a chemical analysis proved to him conclusively that the deterioration kept growing apace. Other of these authorities find that the steel reinforcement buried in such cinder concrete soon becomes a victim to oxidation and ultimate total disintegration.

Have you ever found a brick, a tile or a piece of pottery of any kind, that, when once properly made and burned, deteriorated or disintegrated? No, as it is today, so will it be tomorrow, and next year, yea, and a thousand years hence. Fireproof? Why it's utter nonsense to call concrete that. Most of it loses over fifty per cent. of its efficiency in but 750 degrees of heat, and their highest authorities admit that it will, in nine cases out of ten, be utterly ruined in 1,000 degrees, a figure at which your products, gentlemen, are just beginning to take form in their kilns.

But supposing by some accident or oversight a few brick or tiles should be imperfectly burned and pass inspection, and be finally introduced in a structure. That structure will not be as perfect, of course, as if every unit was of the highest grade, but one of the great beauties of brick or tile construction is the smallness of the units. Any one imperfect unit or even a unit entirely removed, can be replaced at any time, and, meanwhile, does not actually imperil the whole or any considerable part of a building. Not so with monolithic concrete construction. Like a chain whose greatest strength is only equal to that of its weakest link, so must that concrete be perfect in every respect. The least little

flaw imperils the whole; one barrel of poor cement, a little too much water or not enough, a neglected tamping, a removal of a center a little before time, any one of those can, and does, spell complete and fatal disaster. And any one of those imperfections is not only liable but almost certain to occur in every concrete building. The very nature of the labor employed would assure that. At its very best, labor of any kind is not perfect, and in order to secure the cheapness the concrete people desire and boast of, they must employ the cheapest of labor, which also means the most inefficient.

In this assertion, I have more than my own opinion to back me up. The United States Government, in a recent bulletin issued to the press officially, warns people against the too promiscuous use of concrete, particularly in inexperienced hands. And the greatest honor is due the author of that bulletin, the expert in charge of the Government tests of materials, who is himself a cement producer, for the manliness and frankness of his report. Writing of the various collapses of the year, he says: "From what I have seen of other concrete buildings in process of construction, I am satisfied that the same errors are being repeated, and that further collapses will surely come unless the officials of the cities take the question in hand now. This danger of careless construction confronts nearly every city of the country, and IT IS A MIRACLE TO ME THAT MORE CONCRETE BUILDINGS HAVE NOT COLLAPSED." Strong words those for a Government official, and who is, at the same time, the president of a cement organization?

As an officer of the Building Commissioners' Association, I am giving that gentleman all the support he can desire in impressing upon the authorities of our cities the necessity there is to surround reinforced concrete construction with every safeguard possible, of inspection and tests, etc., to secure at least comparatively good work and a reasonable immunity from the fatal collapses that have prompted the leading engineering journal of the country to exclaim: "Carelessness, incompetence, and unscrupulous skinning appear to have about reached the limit in reinforced concrete construction. Two failures of large buildings under construction, occurring within a fortnight of each other, both of which had their harvest of dead, is a serious blemish on the record of reinforced concrete. A radical reform is imperative. The gray of our concrete structure is already too much stained with blood. Shall we allow that stain to spread and grow still darker?"

The work has not been without its results, for our cities are beginning to see things in the right light and legislate accordingly. A while ago, the concrete propagandists, having made most strenuous efforts to get everything their way, fairly gloated over the fact that architects and engineers generally were fast becoming staunch advocates of this or that system of reinforced concrete work, and the cities, being influenced by their architects and engineers, were leaning in the same direction. For a while it actually looked as though this was indeed to be an era of concrete construction. But collapses and such concrete vicissitudes and better judgment have had their effect and a saner condition now obtains. New York's building code, for instance, says that fireproof buildings may go up to a height not exceeding 200 feet, but it limits buildings of reinforced concrete and of mill construction to eighty-five feet. It must hurt the concrete folks to be classified with "mill construction" that is now universally accepted as obsolete, most expensive and senseless. The Building Code Commission also officially says: "Concrete construction has been given close study, the commission availing itself of lessons taught by the collapse of several buildings of this construction." Chicago has lately amended its regulations and is stricter in its supervision of concrete construction. Minneapolis has just passed one of the sanest of ordinances, that compels every owner of a proposed concrete building to place in charge of that work a specially trained and licensed inspector, who is responsible to, and reports direct to the city, but is paid by the owner. It thus recognizes the hazard of concrete construction and places safeguards about it that are not required for any other form of building, thus also successfully barring the excessively "cheap" feature of concrete. Seattle, in a section

that has gone almost solidly concrete, has just passed a new ordinance that recognizes the inferiority of that mode of construction by specially legislating as to its use, and limiting the height of reinforced concrete buildings to ten stories, or 120 feet, while it permits fireproof buildings of Class A to go up to sixteen stories, or 200 feet. And so it goes.

But Mr. President and gentlemen, and this is my preacher's "lastly," you have something to learn from our concrete friends; one of their virtues you might well emulate—their activity. You are satisfied, and so am I, that you have the best structural material ancient or modern science has been able to develop, but the layman don't know it. And seven out of ten of the architects don't know it. Who sells the goods today? Is it the merchant who buys the very finest things made and puts them in a store in some inconspicuous and remote corner of the city and sits down and waits for customers, or is it the chap who puts on a bold front, places his goods in the finest emporium on the most prominent street and spends every penny he can borrow in advertising? Alas and alack, for the concupiscence of some and the frailty of others, it is the latter gentleman who garners the shekels! True, the especially discerning, the connoisseurs, may find out something about the virtues of what the first one has to sell and he may build up a very select little trade, but his will never be a great mart of commerce. But back that man up with plenty of capital, put him in a fine store, advertise properly, and he will simply wipe out all competition before him. He will not have to sell at the same prices as the other. People will come to recognize that his goods are the better and will pay him preferential prices. The illustration, I think, hardly requires further elucidation. You are too complacent, too satisfied.

The concrete people squabble among themselves, and are ready to cut each other's throats on prices and everything else, but they are banded together under one common banner, "CONCRETE," and that they wave mightily and are gradually working it up and up in the hope that it will some day surmount the tallest pinnacle and dominate the structural world. You can not be blind to the fact, too, that they have gotten it pretty well up on the stand. Do you ever pick up a newspaper without reading something about concrete? How many architects are there who have been converted to the cult? The average builder thinks he sees a pretty wide margin of profit in handling the new material, and he, too, is enthusiastic about it. Result: A few years ago there were a few hundred thousand barrels of cement made and used in this country; today we tell the story in almost as many hundreds of millions.

Snug complacency and satisfaction must be set aside and earnest co-operation and great activity must take their place. Look over your architectural and building journals and you will see sufficient cause to awaken you. The concrete people take up a vast deal of space with advertising and the influence of the business office is felt in the editorial room. True, you have your own splendid journals, *The Clay Record*, *THE CLAY-WORKER*, *Brick*, *The Brickbuilder*, and so on, but they don't reach the layman, and, in the final analysis, you will find it is the layman who directs what his building shall be, how it shall be constructed, and of what material. If he has been impressed by the concrete people and suggests concrete to his architect, you will find that the latter gentleman, even if he has predilections toward your materials, will run along like a good little boy and build of concrete. It is imperative, it is necessary, and the time to do it is NOW; you must stick together, you must do YOUR part in educating the people in the direction they ought to travel; if you believe in the clay products, you must MAKE the layman see the point, too. Advertising in the regular way and all that sort of thing has its virtues, but you must go into a campaign of education on the broadest lines and in a general way, and at the same time present your claim in its most attractive form to the individual who intends to build. Something has been done in this line, but only in a small way, the ground has hardly been prepared even, there is yet much fertilizing to do and a heap of sowing—but mark my words, if you do it properly the reaping, the harvest, will repay your every effort.

Written for THE CLAY-WORKER.

ALABAMA'S FIRE PROOF BRICKYARD.

"Master" John Copeland's New Venture Proves a Gratifying Success.



AFTER MANY WEEKS of patient search for a suitable location, it was finally determined to build the plant of the Copeland-Inglis Shale Brick Company, at Alton, twelve miles east of Birmingham on the Seaboard Air Line. Many things influenced the choice, i. e., the abundance of raw material which tested well and was comparatively free from overburden; good shipping facilities; evidence of plenty of water to be had by wells and a good creek in easy reach; a fairly level piece of ground big enough on which to build the plant immediately along the railroad; the offer of fair rates on inbound and outbound shipments; and in addition the persistence of Seaboard's industrial agent, Mr. H. B. Bigham.

Stakes were driven November 14, 1906, and work begun clearing the site proper of brush and timber, and digging drainage ditches, for while there was abundant fall for drainage, portions of the site chosen were slightly marshy at that time. The pitch of the ground was away from the railroad. What is considered a slight pitch, merely good drainage in Jefferson county, would be a hill in other places. In this



The Fan House and Adjoining Buildings.

case the levels ranged from three feet above grade line to fourteen feet below it. The grading necessary from this condition, however, was more than offset by certain advantages gained in the handling of coal, the setting of dry pans and the running of heat ducts in the dryers. It also gave opportunity to establish a system of drainage sewers below all foundations which cannot fail to be a source of future satisfaction.

It was necessary to establish quarters for the labor employed, which was mostly negroes and a few neighborly farmers who found it convenient to work in the construction gangs occasionally. It can not be truthfully said that the plant was overcrowded with labor at any stage. The scarcity was felt severely throughout the entire South, but in a few days after commencing active operations we had a temporary track through the center of the works and were unloading slag, sand and cement directly into the concrete mixer, on a portion of the dryer foundation. As the other forms were completed they were filled up to grade line and as fast as the concrete set in one place the forms were moved to another. The engine foundation, the main piers for the line shaft and the brick machine foundation were all run together in one solid piece of concrete and these walls and piers support a portion of the main building.

From grade line up, brick were used and the roof which is also concrete is supported upon and reinforced by steel "I"

beams and woven wire. The only portion of the entire works not fire proof is a portion of the dry pan room and the incline.

The grading for the kiln foundations, heat ducts and railroad tracks, was laid out and carried on with the foundation work.

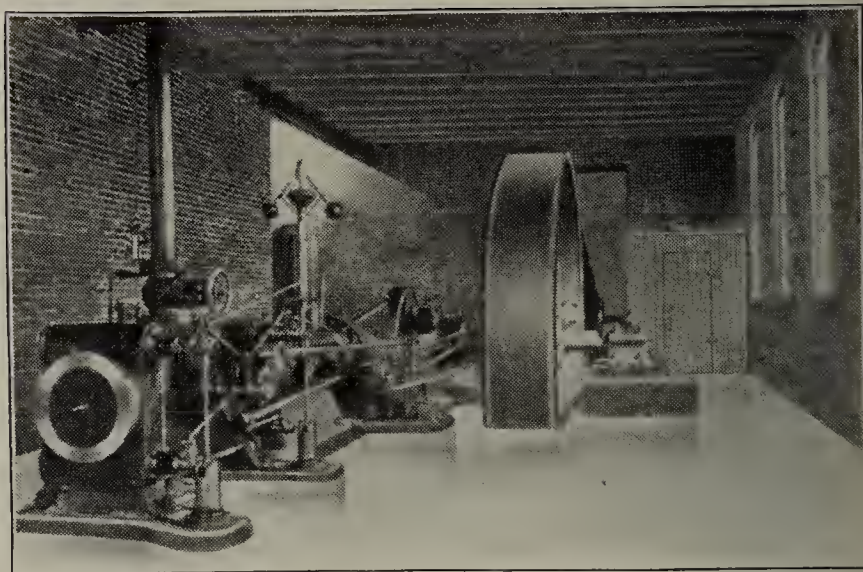
As shown in the general view of the plant, there are three tracks; two are parallel loading tracks about eight hundred feet long and capable of placing six to ten empties in reach of a single kiln. The other is a coal track terminating in a trestle some twenty feet above the boiler room floor, and long enough to accommodate six cars. The coal chutes lead direct into the boiler room and will be loaded from bins



General View of the Plant of the Copeland-Inglis Shale Brick Company, Alton, Ala.

into carts for coaling kilns. This trestle has proven to be worth from eight to ten cents per ton in unloading coal.

Much care was taken to see that all portions of the plant were well ventilated and lighted. The various photos, especially those of the engine and offbearing room, give some idea of the results accomplished. Two places often neglected in this regard, on top of boilers and the pug mill platform,



The Engine Room.

are especially noticeable. The room, too, is exceptional and lest it be neglected in proper place, special mention should be made of the steam piping here, which is extra heavy throughout and in which long bends are used to the exclusion of short elbows. The main steam pipes between header and boilers are furnished with two valves to insure positive disconnection when not wanted.

The Power Plant.

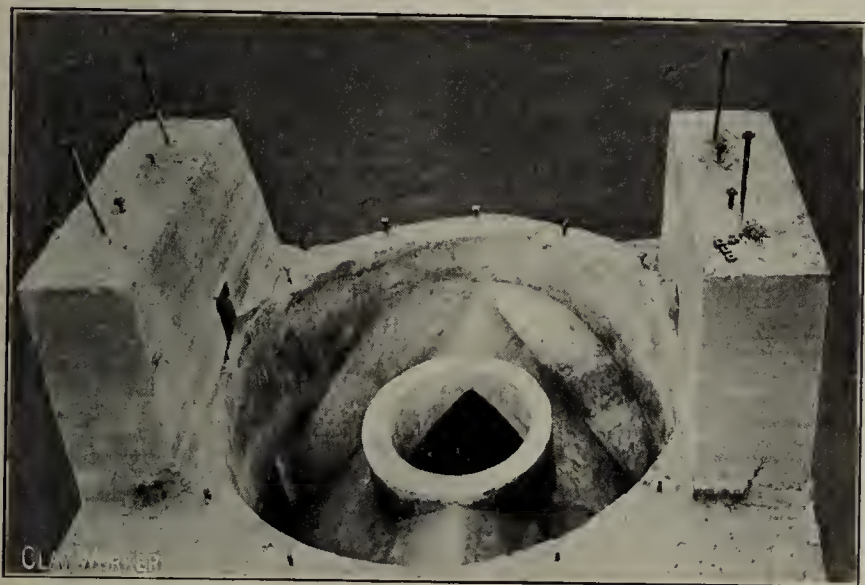
There are three return tubular boilers, 150 h. p. each. The waste heat from the boiler furnaces, which are of special

construction, is used to dry the brick, the dryer fan supplying draft which accounts for the short smoke stack to be seen in the general view of the main building. The stack is only used in firing the first boiler if all should go dead.

The engine room contains the main engine, a 500 h. p. Corliss (Hardie Tynes), with 16-feet x 29-inch belt wheel; a 40 h. p. fan engine, a dynamo for lighting purposes driven from the fan engine, and the pumps, feed water heater, etc.

Between the engine room and machine room is an ample shop, also supplied with power from the fan engine.

In the machine room is the brick machine (Chambers) fitted with cut steel gearing and Luce screw case, a side



Concrete Setting for Dry Pan.

cut automatic table (Freese) and the represses (Raymond). The main line shaft is 5 7-16 reduced to 4 15-16 running in high grade ring oiling boxes set on heavy concrete piers. The main belt, however, is entirely in the engine room.

The dry pans, two in number, are of a special concrete setting and so designated as to do away entirely with under scrapers. The accompanying elevating and conveying system



The Offbearing Belt.

is a departure from the ordinary practice and must be seen to be appreciated. The system can be extended to any number of pans, there always being one more elevator than pans. The elevators are of the chain and bucket type and dump the ground clay upon inclined screens. The screens are low and in easy access of both dry pan feeders, and the hoist man.

The screened clay all runs through a concrete storage bin, making the continuous operation of brick machine and dry pans independent of each other. The elevator from the storage bin discharges on to a horizontal conveyer which

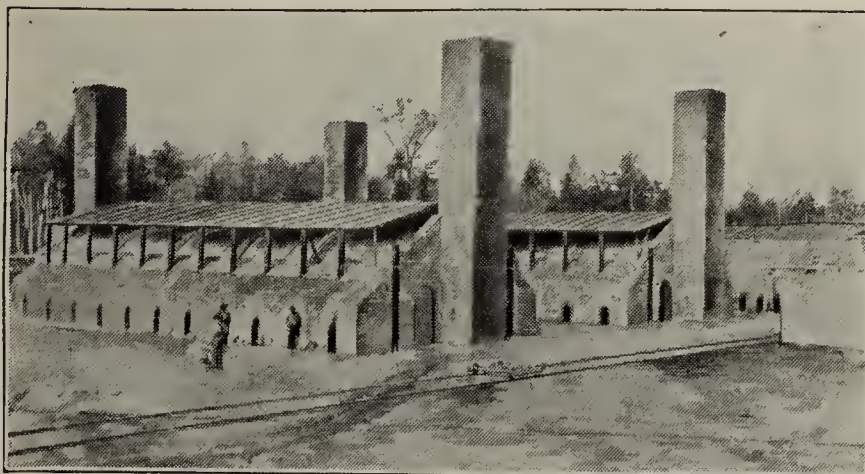
empties into a hopper above the pug mill. The loading tracks in the machine room are arranged to take care of either repress or wire cut brick or both.

The first brick made were burned in scove kilns and used in the construction of the permanent kilns. The quality of brick produced was of the finest, the color ranging from a good red to chocolate and free from any whitewash.

Continuous Kilns Turn Out 95 Per Cent. No. 1 Pavers.

The permanent kilns, the first two completed being shown in the accompanying view, are of the square or oblong type. They are 20 feet wide by 80 feet long, and, while fired independently, are connected by a fan and system of underground tunnels so that one kiln can be watersmoked by waste heat from another. The heat distribution obtained in these kilns is very uniform, the draft flues and stacks being extra large. As the material contains considerable carbon and reaches its best state at 2,100 degrees F., the company's report of 95 per cent. No. 1 pavers was very flattering to the designers of the kiln.

The plant is now producing 30,000 paving block daily and this output is to be increased by the addition of more dry pans and kilns. A noticeable feature of the plant is the fact that it can be increased in the essential departments, boiler, dry pans and dryers, without in any way disturbing the



The Square Continuous Kilns.

original plant or destroying the convenience of arrangement.

The dryer is arranged to utilize both the waste heat from the kilns and from the boiler plant. The air is supplied by a 12-foot fan and is exhausted by means of stacks. The car equipment for the dryer was built on the ground as were also the clay cars. The former are extra heavy, with 35-pound wheels, 2-inch axles and "T" beam frames. The clay cars are of gable bottom style, fitted with an automatic latch, which makes them self-dumping. The clay is at present handled by hand, but it is the company's intention to install a steam shovel as soon as the output of the plant justifies.

At the present time the paving brick market is most active in the south and while it is expected to handle some building brick trade in Birmingham and vicinity, the energies of the company are now directed toward the production of pavers.

Mr. J. R. Copeland, known as one of the most genial and hospitable brickmakers who ever served as President of the N. B. M. A., is president of the company and expects to look after the selling end of the business.

Mr. B. A. Inglis, a new arrival in the brick business, having come into this enterprise from the cotton and phosphate

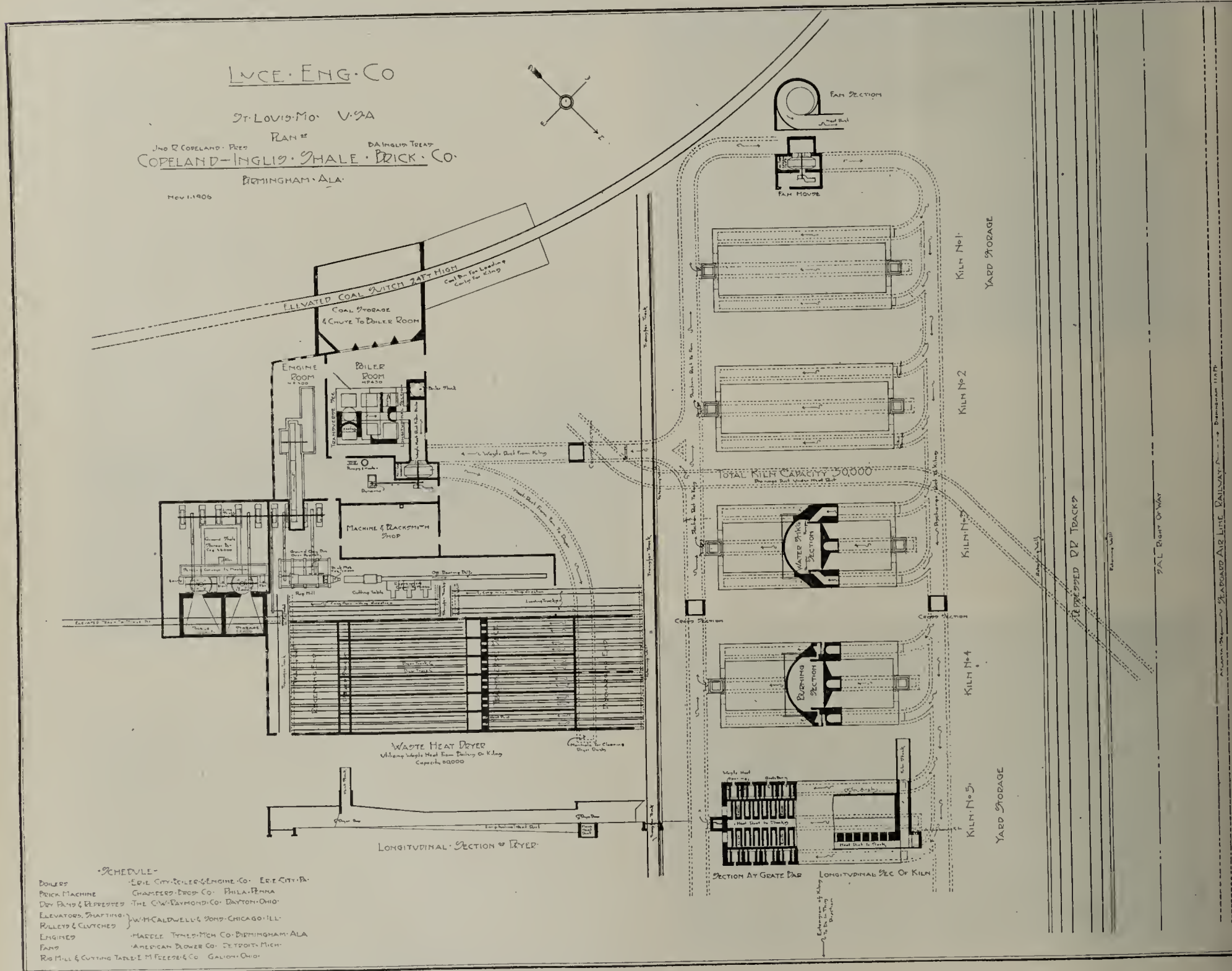
business, of Florida, is manager and spends most of his time at the plant.

Mr. W. L. Inglis, a brother of B. A., has charge of the office, and Mr. T. J. McMichael, formerly in the brick business at Sylacauga, Ala., is the superintendent. Mr. C. W. Focht, who has had a wide clayworking experience in Pennsylvania and the South, has charge of the burning, while the needs of the hungry negroes are attended to through the company's commissary by Mr. T. B. Gillispie.

The plant was designed and the construction superintended by the Luce Engineering Company, of St. Louis, Mr.

WANTED—A CHECK REIN.

Some people are offering one specific and some another as a sure cure for financial flurries and periodical business depression, and many who are classed as wise enough to know, argue that we need currency reform and a more elastic or more expansive currency. Many of the wise ones differ as to detail, but generally agree as to essentials in this regard, and all turn more or less towards the government like sons turning towards home and father when they get into trouble, looking for aid. Maybe it is a more expansive currency that we need, one that can be stretched



G. E. Luce and Mr. M. W. Blair of that company being actively in charge during the construction period.

The plant has every indication of a brilliant future and the owners are enthusiastic over their investment.

Some of the Western States have been in the limelight quite a lot this year, but the attitude of certain doings have shown them up in a not very enviable light, and if we may be permitted to make a suggestion, it is that a few more good brick, both of the clay and human kind, and a few less bombs, both of the explosive and the human kind, will show the west up in a much better light.

to cover any and all conditions that arrive, but yet there are times when, after mature deliberation, it looks like what we might need is a check rein, a stay chain or something of the kind to keep us from see-sawing or plunging recklessly. It takes a good man to keep his head level and his feet flat on the ground when the waves of prosperity roll high around him, and what applies to individuals applies to the nation, for it is made up of individuals. And what every individual needs when prosperity expands his chest and his ideas go soaring is a check rein, something to make him lay up in his collar steadily, to keep his head down and his feet flat on the ground.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



BRICK MARKET IN San Francisco, and, in fact, throughout the State, is still in a rather dull and lifeless condition, and dealers are beginning to wonder how long it will be so. Some say that there has been quite a noticeable improvement since last month, while others fail to see any betterment in conditions, and look for a quiet and weak market all year. The market was flooded with brick last year, particularly common brick, and there is a great deal of cheap and inferior stock still on the market, which tends to keep prices down all around. The total output of all the coast plants now far exceeds the consumption, even in times of active building, and this year seems unlikely to be quite up to 1907 in the demand. The majority of plants have been shut down for the last few months, but with a good deal of stock still offered at the low prices that have prevailed for some time, most of the manufacturers have announced their intention to begin operations again in the near future. If they do, it is quite likely that there will continue to be a large surplus, and that prices will show no improvement for some time. This is by no means entirely due to any marked inactivity in building activities, though there is little going on in this line at present, but principally to the overproduction, which would have its effect under almost any circumstances.

The building situation is rather better, and, judging from the plans that are being laid, and the present inquiry for materials, there is a prospect for a great increase as soon as the March rains are over. So far, work is somewhat held back by scarcity of money, as the banks refuse to lend to any extent, but considerable sums are now being secured for building purposes from private sources, and the financial difficulty is gradually diminishing.

At present, however, building is somewhat retarded by the wet weather and the fact that taxes soon fall due. While many people are preparing to build within the next few months, so far few new contracts have been taken. One dealer says that there is a great deal of inquiry for brick, but the parties hold off when it comes to signing the contracts. Common brick is still too low for much of a profit, with no sales made above quotations last given. As for demand, there will undoubtedly be considerable increase before long, though some dealers look for a quiet year. The statement is made that more money will go into frame buildings this year, and fewer large structures will be built. This will not be the case, however, if local property owners are able to get the capital they desire. The outlook, then, is for continued low prices, but a fair and perhaps a good demand. Pressed brick prices are about the same as before, with perhaps a little weaker feeling, and the market is not active, as new work is slow coming in, and former contracts are gradually being finished up. Great improvement is expected in this line later in the spring. Sewer pipe is also slow now, but there will be a much larger demand when work begins under the bond issues of San Francisco and several neighboring cities.

The Stockton Fire and Enamel Brick Company, which produced its first kiln of brick a month ago, has begun to ship fire and face brick to the San Francisco market.

The California Brick and Clay Manufacturing Company is now making a salt glaze enamel brick for chimney and foundation work. This article makes a very attractive effect, and is already in some demand.

The Port Costa Brick Company's works, which have been closed since the first of the year, started on March 10, as some very good orders have been taken, which will more than absorb all stock left on hand.

Howard Frost, of the Los Angeles Pressed Brick Company, was in San Francisco last week.

The United Materials Company has taken an order for the Berkeley National Bank building, of Berkeley, Cal., which

will be faced with ivory white Roman brick, made by the Los Angeles Pressed Brick Company.

N. Clark & Sons are building some new kilns, and while this work is going on they are running their plant to only about half its capacity. They report a great deal of business in view, but few large contracts have been closed lately. They look for a good business in sewer pipe later in the season.

The Great Western Brick Company is doing a good deal of business with the suburban towns around San Francisco Bay, where some large orders are taken. It is stated that a better price is paid for first-class brick there than in San Francisco, where too much inferior stock is offered.

The Pacific Clay Manufacturing Company has changed its place of business from Los Angeles to Corona, Cal.

J. Simons and E. O. Simons, of the Simons Brick Company, Los Angeles, have organized the Bituminized Paving Brick and Tile Company, with a capital stock of \$100,000. They will begin work on the plant within thirty days at Simons Station, near Los Angeles. An addition to the former plant of the Simons concern will be built at an expense of \$25,000. It is claimed that the output can be marketed at a lower price than that of most articles of the kind now in use.

Dr. F. W. Vowinkel, plaintiff in a suit last spring against N. Clark & Sons, over the alleged nuisance caused by smoke from their plant, in Oakland, Cal., has filed another suit against the company, in regard to its claims against a portion of his property. The former suit is set for retrial.

The Bay View Brick Company has levied an assessment of five cents per share, delinquent March 17.

The Ogden Sewer Pipe and Clay Company, of Ogden City, Utah, is preparing to rebuild its plant, which was burned in October, 1906. The company has just received its insurance, amounting to \$8,700.

The paving brick question in Los Angeles is still uncertain. The Alviso (Cal.) street contract for brick pavement, amounting to \$36,201, which was let August 27, 1907, is still unfilled, the Western Paving Company claiming that it is impossible to get paving brick. It is now believed that this and other paving brick contracts will be cancelled and asphalt substituted. The brick manufacturers at Los Angeles claim that they are able to furnish the material, but that the paving companies discriminate in favor of asphalt.

L. E. Hayes, manager of the Bay City Brick Company, of San Francisco, is at the head of a company which intends to put in a \$12,000 brick machine at Exeter, Cal. Mr. Hayes was recently in Exeter to arrange for the installation of the plant.

The Congress Street Brick Company, of Tucson, Ariz., began operations last week with a force of twenty men, making common brick.

The Los Angeles Brick Company, of Los Angeles, Cal., has removed its offices to room 503 Security building, in that city.

James Holt, of Redding, Cal., of the Holt & Greg Brick Co., spent last week at the plant in Anderson, Cal.

G. J. Buckeye, general manager and part owner of the Buckeye Engine and Foundry Company, Joliet, Ill., was in San Francisco last week. He has just completed the installation of a brick machine at Marysville, Cal., for the Marysville Sand-Lime and Brick Company. He expects to put in another plant at Oakland, Cal., next May.

J. L. O'Shea, president of the O'Shea Promotion Company, is installing a brickmaking plant at Tucumcari, N. M.

The property formerly owned by the Composite Pressed Brick Company, at Sellwood, a suburb of Portland, Ore., has been acquired by the Diamond Pressed Stone Company, a new corporation, with a capital of \$100,000. The company, according to its plans, began work on brick, hollow blocks and concrete columns about March 1. The president of the company is C. N. Sherman, the other directors, R. B. Coyne, A. V. Frills, E. H. Stone and W. D. Palmer.

The L. E. Clawson Company, dealers in terra cotta chimneys, was recently incorporated, with a capital stock of \$20,000. The parties interested are W. H. Clawson, E. M. Moldrup and J. E. Cone.

The Kosmos liner Serak, which arrived a few days ago from Hamburg, had 500 tons of sewer pipe in its cargo.

San Francisco, Cal.

SUNSET.

Written for THE CLAY-WORKER.

THE EFFECT OF HEAT UPON CLAYS.

SIXTH PAPER.

BY A. V. BLEININGER.

Coloration.

THERE REMAINS yet to discuss the changes brought about by heat upon the surfaces of clay ware. The color shown by clay ware after burning depends upon the composition of the clay and the character of the firing conditions. Seger divides for this purpose the clays into the following groups:

1. Clays high in iron oxide, low in alumina, and free from lime. Red burning in oxidizing gases.
2. Clays high in iron oxide and lime, but low in alumina. Buff burning.
3. Clays fairly high in alumina and with a moderate iron oxide content, about three per cent. of the latter. Buff burning.
4. Clays high in alumina and low in iron. White to light buff burning.

1. The first class is represented by the usual red burning clay in which the iron oxide varies from about five to nine per cent., and the alumina from about ten to twenty-two per cent. These clays burn to all shades of red in oxidizing conditions, but when the gases are reducing in character the color darkens and may become gray to black. The same change takes place also under oxidizing conditions when the temperature is carried too high, though there are a few clays which retain their bright red color, even when vitrified. These, however, require very careful burning, and any reduction due to careless firing is at once shown by the dark color produced. Wherever a good red color is desired, reducing fire conditions should be strictly avoided. The presence of sulphuric acid has no particular effect on the color if oxidizing conditions prevail, its tendency is beneficial rather than otherwise, as far as color is concerned. Sulphuric acid counteracts reducing conditions and assists the clay in retaining its red color, provided oxidation follows; the red color under these conditions tends to assume a violet tint.

Red burning clays thus can easily be made to assume a dark or even black color by causing reducing conditions to prevail during the last part of the burn. That is, all we need to do is to fire heavily, causing black smoke to fill the entire kiln. According to the length of the reducing firing the black color penetrates more or less deeply into the ware. We can intensify the reduction by introducing into the kiln some hydrocarbon, like tar, crude oil, or similar cheap substance, whose vapors will penetrate into every part of the kiln. In this case, of course, the color will be an intense black. On the other hand, by facing the brick and sanding them, a less intense reduction will partially blacken the face, leaving a red colored space in the middle. This results in a pleasing effect which architects have not been slow in using. We see, therefore, that simply by regulating the firing conditions we may have red, gray, or black colors obtained from the same clay. The claim made by some that a special compound is necessary to produce the black color is, of course, absurd.

In England, the bluish black Staffordshire brick, known as clinkers, and used quite extensively for pavements, and, in the shape of tiles, for floors, are produced in just this way. In other European countries, especially in Holland, this reduction is carried still farther in the manufacture of the so-called blue-smoked roofing tiles. In this case the reducing conditions caused by introducing into the kiln, wood, or especially hydrocarbons, like tar or refuse oil, are

so intense that not only all of the iron is reduced to ferrous oxide, magnetic oxide or metallic iron, but some carbon in the form of graphite is actually deposited in the pores of the clay. In this manner the surface of the ware becomes coated with the silver gray graphite, which gives a color well liked by the consumers in certain districts. In some places the process of blue smoking is carried on by firing the kiln to the proper temperature and then closing up the furnaces and all other openings and crevices air tight. After an hour or two the oil or tar is introduced into the kiln in intervals. The heat volatilizes the oil and at the same time decomposes it. Intense reduction thus takes place. The kiln is then allowed to cool and kept closed air tight. In fact, some of the manufacturers hasten the cooling by spraying water onto the kiln crown. The success of the process depends upon the cooling of the ware without the admission of air, at least not while the kiln shows red heat. If a current of air were allowed to enter the kiln the carbon would be again burnt out, and to some extent the iron would be reoxidized, thus restoring, in part, at least, the lighter gray or even the red color. The same principle holds, of course, also, in the burning of the dark colored or black brick mentioned above. It is important that the kiln be cooled down to a dark red heat, closed as tight as possible. From this point on, the cooling may be hurried by exhausting air from the kiln.

2. Clays high in iron and lime, but low in alumina, carrying, say six per cent, ferric oxide and fourteen per cent. carbonate of lime, burn, as we know, to a cream or buff color, owing to the interaction of the iron and lime which destroys the red color due to the iron. When vitrified, such a clay shows a green color and when fused it forms a brown or black slag. A clay of this character, when applied as a glaze upon such ware as stoneware, is found to be a brown and black glass, which, when cooled slowly, becomes red on the surface. The Albany slip clay belongs to this class. If a calcareous clay of this kind contains sulphates, that is, sulphuric acid, either naturally or by absorption from the kiln gases, the lime is held by the sulphuric acid and is thus prevented from reacting with the iron. Under these conditions the clay burns to a reddish color. However, by causing reducing conditions to prevail, followed by oxidation, the sulphuric acid is expelled and the union between the iron and lime takes place with the resumption of the cream color. If reduction is carried on too long and intensely, some of the ferric oxide is reduced to the ferrous state and subsequent oxidation may, at least in part, result in the production of a red color.

3. The type of clays containing a fairly large amount of alumina and moderate content of iron is represented by the so-called No. 2. fire clays, used so largely in the manufacture of buff and flashed front brick. In these the alumina runs from about nineteen to twenty-six per cent., the iron oxide from 1.5 to nearly three per cent. The iron nearly always is present in two forms: Some finely divided ferric oxide in the clay body itself and fine or coarser grains of iron pyrites. These clays always burn to a lighter or darker buff under oxidizing conditions except when exposed to high temperatures. In the latter case, the grains of pyrites boil out on the surface and form pimples and blotches. When burned normally these grains are not perceptible. In the manufacture of the so-called flashed brick, the No. 2 fire clays are exposed to reducing conditions, so that we have the pimples of the black slag on the surface, and, in addition, have likewise converted the small amount of finely divided ferric oxide to the ferrous oxide. If, therefore, a brick were pulled out of the kiln immediately after reduction, it would show a light or grayish background covered by the black spots. There would be no evidence whatever of any flash. Where, then, is the reddish or golden colored flash produced? Evidently in the cooling. The air entering the white hot kiln passes through the bricks and oxidizes the surface of the ware, forming that flush of reddish brown or golden color known as flash. It is evident, therefore, that the rate of cooling is bound to influence the kind of flash produced. Slow cooling must necessarily produce more flash than rapid cooling. The reduction has an effect with regard to the amount of the iron forming the black spots. The

more intense the reducing effect the more of these must be brought out.

The presence of sulphuric acid in these clays, especially in the oxidizing fire, tends to give a pinkish film of color, which occasionally persists after reduction and subsequent oxidation. This frequently is very annoying to the manufacturer of front brick.

4. Clays high in alumina and low in iron are represented by the kaolins, china clays, ball clays, and No. 1 fire clays. These are rarely burnt alone, excepting the fire clays used in making fire brick where color is practically immaterial. Usually they are employed in mixtures with feldspar, flint, and perhaps a little lime in the production of porcelain, whiteware, tiles, etc. The kaolins burn nearly always to a clean white color, whether the kiln conditions be oxidizing or reducing. At higher temperatures, when burnt alone, they assume a creamish tint in the oxidizing fire, while in the reducing atmosphere they retain their white color, or, if the iron is somewhat high, a grayish tint is shown. Sulphuric acid has no effect upon these clays in the oxidizing condition, but on reduction gives rise to a pinkish surface effect. On oxidation in gases free from sulphuric acid this color disappears.

The ball and fire clays have a decided cream color after burning. In the former the iron is, as a rule, quite finely disseminated. In the latter iron pyrites occur in small amount, which, at the high temperatures of burning, cause spots of reduced iron slag to show on the surface. In bodies composed of kaolin, ball clay, and feldspar, it is advisable to close the firing with slightly reducing conditions, so as to maintain as white a color as possible. This is to be followed by cooling as rapidly as is practicable. If the kiln conditions were strongly oxidizing at the close of the burn and the cooling slow, the ware would assume a cream color, due to the ferric oxide, which would render the ware unsalable.

(To be continued.)

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



ACCORDING TO THE report of the dealers in builders' supplies in Kansas City, the inquiry they are having would indicate a great deal of interest in building operations for the coming season. They say contractors tell them that they are figuring on an immense amount of work here, and there seems to be little doubt about the coming season being a good one for the brick industry in this section of the country.

There appears to be a tendency among people who have been holding stocks and bonds as an investment toward getting their money into something they can see, and this is probably one of the greatest stimulants building will have in this city, for the capitalists living here do not need to go away from home for good investments, and a good many capitalists from other points are apparently looking upon this city with much favor. As an instance, just this week an incorporated estate of Denver, Colo., purchased a property here for \$150,000 for rental purposes.

Another stimulus for the building trades is the work of the Manufacturers' and Merchants' Association, with its advertising campaign. Some time ago this association secured the subscription of loyal Kansas City people to a total of \$20,000, to be used in advertising this city as a location for factories. The advertising was begun only a few weeks ago, by the issuing of a little book called "Factory Facts," which is teeming with exactly the right kind of information to interest the manufacturer who is looking for the best site for his plant, and is also illustrated with maps, showing the center of production of the different kinds of raw material, etc. These maps are the strongest arguments that could possibly be produced, and, as they are made up from statistics, they should be pretty accurate.

Hundreds of manufacturers have not only sent for these books, but many of them have already been out here and looked over the ground, and real estate men claim that they are selling a good many locations already, and that the next year is going to show greater development in the way of factories than the city has ever before seen in the same length of time. This book, "Factory Facts," is the first of a series of such information to be issued, and, as the work progresses, the development should be much stronger. The railroads are also taking up the work, and the secretary of the Manufacturers' and Merchants' Association has been informed by both the Santa Fe and the Northwestern that they will soon have out books illustrating Kansas City as a good point for both home and factory, and they want to send one of them to each party asking for a copy of "Factory Facts." These efforts are bound to bring much good to the building trades, for factories not only must be built, but homes for the many people employed.

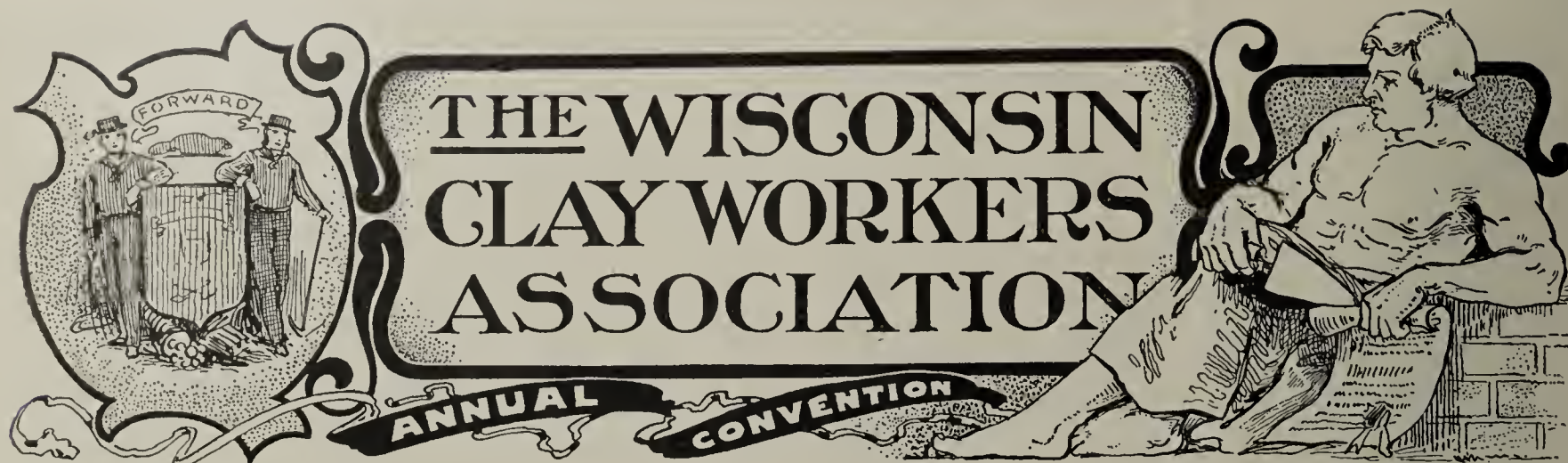
Jas. Oliver Hogg, an architect of this city, has compiled a table which shows the number of new buildings, and the total value for each year since 1885, in Kansas City, the information being obtained from the Superintendent of Buildings, and not including permits for repairs or the permits issued in Kansas City, Kas., just across the line, which has built up wonderfully in this length of time. In 1885, there were 1,800 new buildings erected, with a total value of \$5,598,587. There was a boom on in Kansas City at that time, and the permits increased in number and value until the total for the next year, 1886, was 2,430 permits, with a total value of \$9,731,181. From this point there was a gradual reduction, after the crest of the building boom was reached, to 1892, when 172 permits were issued, with a total value of \$806,200. By this time the growth of the city had caught up with the building growth during the boom and there was a steady increase each year until 1905, when there was 2,518 new buildings erected, at a total cost of \$9,569,430, and since that date the number of permits and value have both decreased slightly, until, in 1907, there were 1,917 permits issued, with a total value of \$8,605,647.

Mr. Eadie, of the Eadie Building Supply Company, has just returned from a trip to Texas, and is very enthusiastic over the prospects for building in that state. He says: "I was in a number of Texas cities, and found that the builders could not build fast enough to supply the demand. Houses are being filled as fast as completed, and, I am told, at good rentals. Of course, the larger part of the small homes are built entirely of lumber, but business buildings are almost entirely built of brick now, and I found they were putting in face brick from St. Louis and other northern points, and using the Texas common brick. This activity in building was apparent in every Texas city I visited, and possibly all the way between here and Texas, at least every town in the new state of Oklahoma that we passed through before dark overtook us showed the same prosperous conditions. I feel that we are going to have an era of great building prosperity in the southwest, as this section of the country is now developing more rapidly than ever before, and I believe that right here in Kansas City we are going to have a big year. As far as my own business is concerned, the months of January and February show that we have done double the business that we did in the same period of last year, and, if inquiries are any indication of business, there will certainly be a world of it, for we have never had so many inquiries, or made so many quotations before."

The Western Terra Cotta Company, whose factory is over in Kansas, City, Kans., report indications very bright for an exceedingly busy season. They recently closed contracts for terra cotta on a number of large buildings, including the Patterson & Sanderson building, the Hudson Mercantile building of this city, the Y. M. C. A. building at Lincoln, Neb., a number of schoolhouses, and the Kansas State University, at Kansas City, Kans.

D. R. Ingram is forming a company to manufacture brick, and will put in a plant near Turner, Kans., a short distance out from Kansas City, on the banks of the Kaw River. He expects to use the Kaw sand, and make a sand and lime brick.

K. A. W.



REVIEW OF THE EIGHTH ANNUAL CONVENTION.

Held at Milwaukee, Wis., February 12, 13, and 14.

THE WISCONSIN CLAYWORKERS' Association met in annual convention at Milwaukee, Wis., February 12, 13, and 14, for the eighth consecutive time. The Hotel Blatz was the hostelry selected for headquarters, and the thirty to forty delegates were well entertained during the three days' sessions.

Wednesday morning was spent in registration and the enrollment of members. The first session was called to order Wednesday afternoon by President A. W. Hilker, of Racine, who introduced to the convention Mr. R. B. Watrous, secretary of the Citizens' League of Milwaukee, who acted as substitute in behalf of the Hon. Sherburn M. Becker, Mayor of Milwaukee, who was unable to be present on account of illness.

In his speech of welcome, Mr. Watrous spoke of Milwaukee the beautiful, pointing out its many places of interest and extending to the visitors the freedom of the city, with the wish that the association would enjoy such a successful convention that it would decide to hold all its future meetings in the Wisconsin metropolis. He urged the delegates to visit the Layton Art Gallery, the large manufacturing establishments, and the City Hall, during their stay, remarking that only their badges were needed to gain admission.

Mr. L. T. Crabtree, of Crandon, responded to this speech of welcome, and in part said, that the association realized the importance of Milwaukee as a manufacturing center, and was proud of her magnificent appearance, her educational institutions, her manufacturing and industrial enterprises and products, which go to every corner of the globe where civilized man is found. Milwaukee, he stated, has not only shipped her engines and mining machinery to South Africa, Mexico, Central America, Australia, Asia, Alaska and Panama, but has also furnished the product for moistening the parched throats of our little brown brothers in the far Philippines. In behalf of the association he thanked Mr. Watrous, the representative of the largest commercial association of Milwaukee for his hearty, welcoming words.

President Hilker then read his address.

PRESIDENT'S ADDRESS.

Members of the Wisconsin Clayworkers' Association:

It is a pleasing duty to address you on this occasion of the eighth annual meeting of the Wisconsin Clayworkers' Association. Many of us have pleasant recollections of the hospitality of the Milwaukee brickmakers and dealers at the time of our last visit to this city. Milwaukee is as famous for its brick as for its beer, and it is, without any doubt, the most important clayworking center in the state. We have listened with interest to the address of welcome and feel assured that our comfort is in able and willing hands, and that our stay will be both pleasant and profitable.

Reviewing the industrial situation during the past twelve months, it is satisfactory to note that the demand for brick and other

clay products has been steadily on the increase. A number of plants in consequence of this have increased their capacities, and, notwithstanding the recent financial depression, the general outlook for the present year is encouraging, and it is not likely that 1908 will be behind its predecessor in financial returns to the clayworkers of the state. There has been no violent boom in building circles, nor has there been any great change made in manufacturing conditions. The development has been steady and along normal lines. The market demand has been of such a character as would not lead the average clayworker to experiment with and adopt new processes or machines for the manufacture of his wares. The State of Wisconsin is probably peculiar in this regard among states possessing associations. The varieties of our clays are limited in number, and, if any marked change is to take place, it will probably come about as a result of investigations carried on by our geological department at Madison, Wis.

Of interest to all of us will be the report of our railroad committee on the adjustment of freight rates. It is not for me to take away the thunder of the committee by commenting upon it and the results obtained, in my presidential message, but it is my privilege to state that the association is to be congratulated on the conscientious work of the members of that committee, and the committee is to be congratulated on the success of its efforts—a success obtained only as a result of much self-sacrifice and a great deal of pertinacity. It may be possible that some pessimistic members of the association may take the attitude that the results gained have not been of such importance as to make an appreciable difference in rate conditions. Whether that be so or not, one thing is certain, that the carrying on of this work to a successful conclusion has given the Wisconsin Clayworkers' Association a definite standing as a factor to be dealt with in the industrial field. Such action on our part will tend to forestall further encroachments on our rate privileges, and will insure greater stability in our freight dealings in the future.

One thing I would like to call the attention of this association to, and that is, that I consider the annual dues of \$1.00 altogether too small for the effective carrying on of the work of this organization. The association represents in a peculiar sense the interests of every clayworking plant throughout the state, and certainly there is no plant in Wisconsin that can not and should not cheerfully contribute annual dues to the amount of \$2.00, as a measure of its appreciation of its effective representation. I would call the special attention, therefore, of the Committee on Resolutions, which will soon be appointed, to this point, and recommend that in these resolutions there be embodied an individual resolution for raising the annual dues of this association from \$1.00 to \$2.00. This will enable the secretary to have funds at his disposal for the active prosecution of association work, and the enlistment of new members to the organization.

The past meetings of our association have been profitable, but greater things are yet to come. Our development can only be obtained by a unity of spirit and a realization of the individual responsibility of each member to contribute his share to the success, not only of the meeting, but of the year's work. I would urge, therefore, that each member take upon himself the duty of freely participating in all discussions, thus adding to the general fund of knowledge on the subjects presented. Each member also should realize that when written to by the secretary during the year, such letter is an evidence of the secretary's need of assistance, and, as members, they are bound by duty of membership to respond cheerfully and promptly to any such call. I trust that there will be a marked improvement in the co-operation offered by members during the coming year to the officers of this association.

Our secretary will present to you later a resolution adopted by the clayworking associations of Illinois and Iowa, which provides for the appointment of a committee, whose object shall be to evolve a plan by means of which a general publicity bureau, repre-

senting the clayworking industry of the country, shall be established. In view of the strong competition encountered by manufacturers of clay products from manufacturers of cement and kindred products, I heartily indorse the object of such a resolution, and trust that our members will give it their serious attention. Every step taken to impress upon the public mind the usefulness, reliability, and adaptability of our products will be of material benefit to the industry at large.

In conclusion, I thank the association for its support during the past year, and testify to the co-operation of the other officers with me in enabling me to fulfill my presidential duties satisfactorily. I wish my successor to the presidential chair all success in his work, and, in view of the many items of interest before us on the program, conclude this address, and thank you for your kind attention. (Applause.)

Secretary Oscar Wilson then read a number of communications, chief among which were letters from different association secretaries, relative to the establishment of a General Publicity Bureau.

After the appointment of Auditing, Resolution, Communication and Nominating Committees, Secretary Wilson gave his report stating that the total membership of the associa-

from the coal than wood, buying coal at \$3.50 per ton and wood at \$3.50 per cord. It cost him eighty-seven and one-half cents per thousand to burn with coal to \$1.75 per thousand to burn with wood, the latter being much harder to handle and giving poorer results all around.

After a lengthy discussion of this paper, Mr. Samuel Weidman, State Geologist, read a paper on "Clay Products of Wisconsin as Compared With Those of Adjoining States." In his paper, Mr. Weidman discussed the rank of the various clay products in the surrounding States of Ohio, Indiana, Illinois, Iowa, Michigan, and Minnesota, and compared this with Wisconsin, showing that Wisconsin is behind all of them in quantity and value of ware. Wisconsin, he said, is at the present time twenty-fifth in rank of the various clay states, while in 1890 it was in tenth place, due to natural causes, i. e., the absence of high-grade shale and clays and coal for fuel in Wisconsin.

Following this, there were discussions on the clays of Wisconsin, the question of substituting hollow clay block for brick and economical burning.



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tion was seventy-nine and that the association was in debt \$75.95. A committee was appointed to collect sufficient funds during the convention week to clean this up.

Treasurer Oscar Zimbal then read his report, which was approved as read.

Mr. W. G. Kennedy, chairman of the Railroad Committee, read a brief report, showing that as a result of their campaign for better railroad rates regulation, they had been able to get better adjustments of rates, but not as satisfactory ones as had been expected. A vote of thanks was tendered the Railroad Committee by the association, for the effective work they had accomplished during the past year.

A paper by J. D. Pratt, of Menomonie, entitled, "Advantages of Coal Over Wood For Burning Brick in Up-Draft Kilns," was read by Secretary Wilson. In this paper Mr. Pratt stated that coal is as far superior to wood for burning as an automobile is to a wheel barrow for locomotion and transportation. He told of his experience with both wood and coal as fuel, declaring that he got two-thirds more heat

Mr. G. W. Kennedy, of Manitowoc, read a short paper on "The Use of Coke for Burning Brick," in which he spoke of his experiments with coke as the fuel in watersmoking, saying that it was far cheaper, better, and easier to handle than wood.

After the Committee on Campaign Fund had reported that it had secured sufficient funds to make up the deficit, and a vote of thanks had been tendered by the association, the convention adjourned for the day.

Thursday Session.

The convention was called to order promptly at 10 o'clock Thursday morning. The Committee on Communications made its report, which recommended the raising of the annual dues from one dollar to two, and that a committee of three be appointed to co-operate with the other state associations to organize a joint publicity bureau.

An invitation to visit the large coke plant of the Milwaukee Coke and Gas Company, where the Milwaukee Solvay

Coke is manufactured, was read and accepted with a vote of thanks.

"Clay Building Materials, Old and New," a paper written by A. C. Clas, of Ferry & Clas, architects of Wilwaukee, was read by the author. He traced the history of the brick industry through the ancient and medieval to modern times, telling of the different methods formerly used in manufacturing and the use made of the finished products. He also spoke of the first appearance of terra cotta in the early part of the fourteenth century in Europe, and showed the influence and benefit it had with brick in architecture of today. Clay products for structural materials are the most in demand today, and are taking up the place left by the rapidly decreasing lumber supply. In conclusion, he said, that an intelligent and an alert co-operation with the architects and builders in the ever increasing demand for clay products, their adaptation to new requirements, and the developments of new forms constantly suggested by the daily practice of the building profession was necessary to the development and growth of his business. A vote of thanks was extended to Mr. Clas for his valuable paper.

"Burning Brick Without the Use of Grate Bars," was the title of the next paper, this being presented by W. H. Craney, of Kenosha. He dwelt at some length on his experiences in using oil, coal, and wood for fuel in scove kilns. He declared that coal screenings is the finest fuel one can use and the idea that grate bars are beneficial is entirely erroneous. He said in part, "We consider the grate bar a nuisance, for we do not have to excavate to make our fires; if we get the proper amount of coal screenings in, we can burn our kilns without the grates, and without the trouble of putting them in, and without the expense of having a careless man melt up a grate or two for us."

"The Wisconsin Brickmaker, His Work and Opportunities," was the title of a paper by E. R. Buckley, who has the distinction of being the first secretary of the Wisconsin Clayworkers' Association.

THE WISCONSIN BRICKMAKER, HIS WORK AND OPPORTUNITIES.

BY E. R. BUCKLEY, PH. D.

Mr. President and Gentlemen of the Convention:

In business, as well as in pleasure, we are often creatures of circumstances. I met a friend the other day whom I had not seen for six years. At that time he was studying law, now he is a geologist. When I was a student in the high school, I was steering my ship into the sea of law, but I never got as far as my friend. Early in my career I became a geologist. I think it was before I really had any conception of what the profession meant. I know that it would take me into the hills and through the fields, and that I would touch the commercial activities of our nation at the fountain head.

The state in which you live is one of the choicest in the Union. It is built upon verdant fields, magnificent forests, rich mines, and boundless resources in stone and clay. All of these have attracted a sturdy manhood and a gentle, thoughtful womanhood, which, together, make up the state to whose generosity we are all indebted for a large part of the success which we may have attained.

In traveling nearly 500 miles, the distance which separates this city from my home in the Ozarks, I was prompted by a desire to repay in a small measure the debt I owe to an association of men who manufacture the materials out of which the most durable structures of today are builded. My interest in this association prompted me to send to each of the members a letter of inquiry, that I might know better the condition of the brick-making industry in Wisconsin, and thereby be the better able to offer some suggestions for its general improvement. I sent out sixty such letters, receiving about thirty replies. I also sent letters to about sixty brickmakers who are not members of the association, to which I received twelve replies. Thus you may understand that this contribution to your proceedings is a sort of a composite paper in which the association may be looked upon as addressing itself.

Among the brickmakers replying to my inquiries, I find that outside of the reports of the Wisconsin Geological Survey and the

encyclopedia, there are only two firms that have in their library any books on clayworking. Now, this is very much as I had expected, and I do not know that this condition should be a subject for criticism. However, I believe that the clayworker, as well as the man who is engaged in any other business requiring some degree of technical skill, should have at his command the best literature that has been published bearing on his profession. The technical journals, valuable as they may be, do not take the place of the special publications to which I here refer. When I took up the study of the clayworking industry I obtained by purchase and otherwise, many of the books in which are discussed the technical and commercial aspects of the industry. Why should not the brickmaker of Wisconsin study his business through the publications bearing on the industry, as well as through the occasional opportunity which he has for observation? Has not this opportunity for advancement been neglected? My inquiries lead me to believe that the brickmaker of Wisconsin is trying to make a more perfect brick; one which is stronger and more durable, and one, which, when placed in the wall, will make a more beautiful structure. This being true, one ought to be able, through study, to add much to the perfection of his product.

I find that in 1901 twenty-eight firms replying to my correspondence were, at that time, taking twenty-four clayworking journals. At the present time these same firms are subscribing for forty-nine copies. I do not know whether this is due to an increase of interest in the technical journals upon the part of our brickmakers, or to a more persistent and active canvass for subscribers on the part of the agents for these journals. However, be that as it may, we always rejoice when the church pews are well filled, even though it is sometimes difficult for the congregation to separate the wheat from the chaff in the parson's sermon.

I have frequently had men tell me that the only purpose they have in their business or profession is the acquisition of money. Now, I hope that this is not true of our clayworking trade journals. Indeed, I do not understand how such a condition can exist as long as the periodicals to which I refer maintain the standard of excellence which they now possess. These journals are replete with practical, serviceable suggestions which, in many instances, may be useful to you when once understood. The brick machinery man pays directly and you who buy machinery pay indirectly for these suggestions. It is the advertiser and not the subscriber that supports our magazines and journals.

It is a sign of progress to find an increase in the number of trade journals read monthly by the members of this association; and our friends who edit these papers should rejoice not so much in having to that extent increased the revenue of their business, as in the consciousness of having been of service to one of the most important of our manufacturing enterprises.

Out of replies from twenty-eight firms only six stated that they had made no improvements of importance during the last seven years. New machinery has been going into all parts of the state. Hand mold plants have been transformed into power plants; electricity has been substituted for steam; pallets have replaced hacks; patent dryers have been substituted for pallet sheds; up-draft and continuous kilns have replaced scove kilns; forced draft has been substituted for natural, and so, along the entire line of equipment, progress and improvement has been made.

Who is responsible for this progress? Surely not the brick machinery agent, who haunts you in the lobby. Surely not the trade journal that sells the best space in its paper to the machinery man who startled you with his alluring ads! How did you know that there was any other method of making brick except by hand? Did you read about it, hear about it, or see it? And when you read about it, heard of it or saw it, how did you find out that there are still other methods of making brick? Answer these questions yourself, you perhaps know how to better than I.

But let me say a word to you about our machinery man, our patent kiln man, and our other men who have something to sell. I believe that if they were not convinced that they could better your product or decrease your expenses by introducing their machinery they would not offer it for sale. Of course, they do not always know your needs—sometimes they would rather not know—and the brickmaker often not knowing himself, is led to make unwise purchases. The machinery man is a good fellow, and you do not have to buy his pug mill because he wants to sell it to you. When a man buys a dry press when he ought to have a soft mud machine, it is usually because he believes that his clay will make dry press brick as well as other clays which he may never have seen. As a rule this is not the fault of the machinery man. In fact, I know of more than one case where dry press machines have been sold, by a least one company, under protest.

While you are engaged in making a more perfect brick, the machinery man is busily engaged in devising plans by which he can furnish a more perfect machine. He is an essential part of your business, as necessary as the harvester company is to the farmer. The agents of these companies should at all times be welcome, not only at our association meetings, but also at your

factories. It is a wise man who avails himself of every opportunity to increase his knowledge of the mechanical devices being manufactured to facilitate the manufacture of clay products. I do not advise that you always buy what he offers, but he may have something that you need. If you do not see any advantage in having his machinery, tell him so, and bid him Godspeed to the next factory. He is an important and an essential factor in the clayworking industry.

I do not know what is being done in this state in the way of a further technical investigation of the clays. I am sure of one thing, the field is not exhausted. I might mention many avenues into which investigations of a technical character should be directed, but chief among all at present is the cost of burning. You and I have both wanted the State Geological Survey to carry on the examination of the clays continuously from year to year. Up to the present it has been sporadic. A well equipped experimental plant, presided over by a competent ceramist, is greatly needed.

The trade journals, the machinery men and the men engaged in experimental work are all important and integral parts of the clayworking profession. All have had an active part in the improvements made in the Wisconsin factories during the last seven years; they can assist in the future.

In spite of the improvements which have been made in the equipment of brick plants in Wisconsin, my inquiries seem to indicate that the cost of manufacturing brick per thousand has, in most cases, increased. Only one manufacturer out of thirty reported that his brick were costing less to manufacture than in 1901. The machinery at this plant has been changed from soft mud to stiff mud. The owner reports that he takes none of



Prof. E. R. Buckley, Rolla, Mo.

the clayworking journals, and that his only reference book on brickmaking is the encyclopedia. He says that there is a difference of opinion as to whether or not his brick are better than they were in 1901.

At one yard the improvements have decreased the amount of labor required thirty per cent., while the cost of manufacturing remains the same. At seven out of the thirty yards reporting, the cost is the same as in 1901, but at each of these yards extensive improvements have been made. One company reports an increase of twenty-five cents, another fifty cents, two seventy-five cents, and eleven from \$1.00 to \$1.50 per thousand over the cost of production in 1901.

Nine of out fifteen of the companies reporting an increase have made important improvements, but the others report no change in the method of manufacturing.

How does it happen that on some yards the cost of manufacturing is maintained constant, in spite of the increased cost of fuel and labor, while on other yards the cost increases with the price of labor and fuel? These are matters which demand your attention.

I suppose that it was very foolish of me to ask you whether or not your brick are better than they were in 1901. Yet, I am egotistical enough to believe that the answers received reflect the honest belief of the clayworkers. Several did not answer the question, but those who did, as a rule, explained the reason for their belief. Eight replied that their brick are about the same as they were in 1901. Harder, more uniform color, more face brick, freer from checks, and better shape, are some of the replies received.

There is nothing, to my mind, over which a brickmaker can

more heartily congratulate himself than over his proven ability to manufacture a better brick this year than he did last year. One can usually obtain a very good idea of the character of the brick being manufactured in a community by an examination of the business blocks and residences, except in the large cities. There can be no satisfaction to the brickmaker in seeing the brick which he made ten or twenty years ago crumbling in the walls of a building. But if he can drive along streets dotted with buildings, constructed out of brick manufactured on his yard, which are fresh and perfect as the day when they were laid, it should be a source of pride and gratification. The appearance of our buildings and the durability of our brick depend, in a measure, upon the architect and the builder. In every way we should encourage a more fitting use of the products of the clayworker. Our buildings should be so constructed that they will stand for ages, not for a single generation. Then let us not be satisfied with what we are producing today, but look to something more perfect beyond, not yet attained, but attainable.

Out of twenty-eight replies to my inquiries, eight of the craft say that they are no better satisfied with their business than in 1901. Five did not answer the question. The remaining seventeen reported that they are either satisfied or better satisfied. Some are better satisfied because there is an increased demand for brick, and a few because they can manufacture a better product. I believe that the man who makes a better brick, does so because he understands the business better, and if the quality of his brick is improved, he will find a better market. I would suggest, therefore, that the brickmaker devote more attention to improving the quality of his brick.

There is nothing which gave me greater satisfaction than the replies to the questions: "Why are you a member of the Wisconsin Clayworkers' Association," and "What benefit have you derived from such membership?" The following are a few of the reasons for being a member: "For an interchange of ideas;" "Discussion of topics relative to the manufacture of brick;" "Sociability;" "Cultivate the acquaintance of members of the craft and to learn from other's experiences;" "To take such action as may be mutually beneficial to the craft," and "Because you started me in."

Now, all of these reasons appear to be good, except, perhaps, the last one. One of the members replied as follows: "As a member, being acquainted with and personally meeting the most aggressive clayworkers of the state, one obtains from first source valuable hints on everything pertaining to the manipulating of a modern yard, from the gathering of the clay and the installment of machinery to the best mode of drying, burning and marketing the brick. This information coming from impartial and disinterested members, who have no machinery for sale, nor patent kilns, often saves you from making contemplated expensive investments in certain machinery, drying devices, patent kilns, etc."

The following are some of the benefits which the members say that they have received: "Invaluable information;" "In a social and material way;" "Interchange of valuable ideas;" "A great deal;" "Resulted in selection of proper machinery;" "Forty-cent increase in freight rates on brick from Chicago;" "New ways of making brick;" "A better knowledge of clayworking and its possibilities;" "Learning the mistakes of others;" "Valuable hints on running brickyard from first source," and one company having yards in Chicago replied, "Raised rates from Chicago and we are out of pocket."

If the brickmakers in the state could realize what these meetings held in store for them; if they knew that they could secure the most helpful of suggestions from their fellow craftsmen; that they could make better brick; that they could cheapen the cost of manufacture, and that they themselves would thereby become better and more useful citizens, there would be no question as to the strength and perpetuity of this organization.

To reap the fullest reward from these meetings everyone should come here with the results of the year's work well before him, so that he may give freely to those who are in need. Come here with the intention of giving something, not of receiving. The latter will take care of itself.

The last inquiry which I made was: "What does the brickmaker of Wisconsin most need?" The answers to this question were varied and interesting. Two of our friends must have been playing a part in the recent millionaires' panic, because they simply replied, "Money." To these men I will say that there are many brickmakers at this meeting who can give you information along this line. The following are some of the remaining answers: "Better market;" "An organization to prevent us from cutting our own and our competitors' throats;" "Making of a living price by Chicago brickmakers;" "A clay that will burn as cheaply as that near Chicago;" "Uniform railroad rates, especially on Chicago brick;" "Keep sand-lime brick and concrete blocks out of the state;" "Some system of burning brick that will reduce cost of fuel for common brick;" "A better price for brick;" "To carry over a larger and better assortment of brick;" "A cheaper fuel;" "A cheap, well-burned, wire-cut brick;" "Better mechanical devices

for handling brick;" "Education;" "A vitrified brick clay;" "Better brick;" "The manufacture of a larger line of clay products to relieve the overstocked common brick supply;" "Better bricklayers, and more of them. Better start a school for them," and "More brickmakers at our conventions."

I think our good friend John Ringle, of Wausau, summed up your needs most concisely when he said: "*The Wisconsin brick-makers need energy, faith and perseverance, which will lead him to the cultivation of his resources, and, by the aid of science and improvements, manufacture the best materials.*" You had better have this printed and hung over your desk, where it will be a constant reminder of one of the greatest needs of the Wisconsin clayworker.

An association of this character grows strong through work. The more that can be undertaken and accomplished by the organization the greater will be its power and importance. The strength of an association does not lie in its numbers, but in its achievements. For this reason, I feel that my address would be incomplete without suggesting concrete lines of activity, which may be taken up during the coming year.

Much has been said in a desultory way about the Chicago brickmaker. It is very true that he has an advantage over the Wisconsin brickmaker in freight rates, but is there anyone here who knows positively to what extent the Chicago clay burns more cheaply than the Wisconsin clays. Would it not be of value to the association members to know just wherein his clay differs from the Wisconsin clay, and just wherein the Chicago manufacturer is able to produce his brick at less cost. There are probably many little things that contribute. This is, perhaps, a field of investigation for the Geological Survey, and if it is, you should urge that it be taken up without delay. As yet, you have not gotten to the bottom of this question.

Another matter of importance is that of increasing the variety of clay products manufactured. Drain tile, hollow blocks, fireproofing and pottery can all be successfully manufactured from the clays in this state. I feel certain that roofing tile may also be manufactured, at least the glazed variety.

The question of manufacturing paving brick has been, and is, on the doubtful list. I have, however, had in mind the possibility of producing a glass or scoria block from the high calcium clays, that might even surpass the ordinary vitrified clay block now in use. This has never been investigated, and is a problem which might be advantageously taken up.

The cost and heating value of coal and other fuels should be investigated. Such an investigation should cover freight rates, heating value, size of coal, and cost. It might be possible for our brickmakers to buy their coal at the mines, thereby saving the expense incurred by purchase from dealers. Much of the value of coal is frequently lost in the manner of burning and this also deserves attention. A committee from this association might do something to bring about such an investigation.

The utilization of water power is a matter worthy of consideration. This naturally involves the question of electrical transmission. In some localities I am very sure that the use of water power would serve to offset in a measure the higher cost of fuel.

This association should have a publicity committee, whose duty it should be to urge the extended use of clay products in buildings and other constructions. The first duty of this committee should be to consider with the publishers of the clayworking journals the advisability of devoting their pages to the industry which they are supposed to represent. It is a little inconsistent to have a journal pose as a clayworker's friend on the outside of the sheet, while the pages within are devoted, in part, at least, to encouraging the extended use of sand-lime and concrete products. It might be well for each member to hereafter select as his journal of reference, the one that devotes its pages to the industry which the cover page stands for.

Next, the committee should supply all local papers in the state with material whereby the public can be kept posted on the superior value of clay products for building constructions.

This committee might also keep a record of all conflagrations in the state which throw light on the relative merits of the several building materials. All of these activities could be carried on through the individual members of the association.

It may be possible that the introduction of more systematic business methods in our factories would be one method of reducing the cost of production. I would very much like to see every brickmaker in Wisconsin so familiar with his own business that he could tell just what has been the cost of each step in the manufacture of every thousand of brick which he produces. How many are there who know this today? How many have such records preserved from year to year?

May I not suggest that a committee of one be named to prepare a blank sheet for keeping records of costs, to be sent to each member of the association. Not that these sheets are to be used for the information of the public, but simply as a means of helping the individual operator to lessen the cost of produc-

tion. If consistent with business policy, it would be of great value to everyone, could these sheets, at a later time, be compared, in order to determine wherein your costs were above normal.

At one time the Geological Survey began the compilation of statistics covering the production and consumption of stone, clay products, concrete, cement and lime in the state. I believe that this has been discontinued. I deem it to be of vast importance to the members of the association that they know the quantity of building materials consumed in this state each year, for it is only in this way that we are able to know the possibilities for the expansion of the clayworking industry. The data might be obtained from various sources, and at very little expense. The architects and dealers in building supplies could, perhaps, give valuable assistance in this work.

Friends, it is easy to make suggestions, but it requires diligence and perseverance to carry them into effect. I rejoice in the great and increasing good which this association is becoming to the clayworking industries of the state. Time has not lessened my desire to help you, and in so far as your mandates and edicts will permit, I invite you to call on me, for I am ever at your service. (Prolonged applause.)

President Hilker: I am sure that we all listened with great interest to this paper by Mr. Buckley, and I am sure that we are all glad that we have Mr. Buckley here again with us. Now, this paper is open for discussion, and if any gentleman wishes to ask Mr. Buckley any questions, he is at liberty to do so now.

Mr. L. T. Crabtree, of Crandon: In regard to one suggestion which Prof. Buckley has made as to the advisability of having some method of testing clays in Wisconsin, I will refer to a matter which no doubt is familiar to you all. There was a committee appointed last year at our Madison convention, called the legislative committee, to see if something could not be done to get an appropriation for the purpose of assisting the State University in such research and tests. I was a member of that committee and our report has been submitted to this convention, and Prof. Weidman, the chairman of that committee, expressed our views to each other. We looked the matter up in Madison, and very soon came to certain conclusions. In the first place, you all know what was going on in the legislature, and that a mere business proposition did not interest anyone there. We found, by nosing around the State Capital and in other ways, that we could not have any show for getting any kind of an appropriation at all, and the only way in which we could have had any recognition, we concluded, would be by exerting a political pull, which we would not do. The State University authorities to whom we went did not seem to take kindly to do anything along our line. It looked to us as though the university authorities were asking for quite large sums of money for the business and the administration of the university, which they considered of very much more consequence and importance than what could have been done in the clay research, and they did not want to compromise any of the money that they might get by asking for an additional appropriation for the clay industry, and they did not want to devote any of the money which they might get to the object of our visit. Prof. Weidman did not tell you all about these details because he and I agreed upon the general points of our report, and he did not want to say this, but I don't care.

Prof. E. R. Buckley: Just one word in that connection. I am somewhat familiar with the situation in Wisconsin myself. I know something about the difficulties that existed in obtaining appropriations for investigations of this kind. I want to offer a suggestion. I know that the Geological Survey Department, with which Prof. Weidman is connected, have a general appropriation which can be used for any scientific investigations, unless it has been changed in the last two or three years. Now, that appropriation is used and intended for just such purposes as the Board of the Geological Survey Department deem most urgent. Now, I think possibly if this association can not secure an appropriation from the legislature direct to carry on this inves-

tigation, they could go to the commissioners of the Geological Department and place the matter before them, asking them to make this investigation out of the funds appropriated to their department for just such contingencies. That fund is intended for just such occasions, and it is drawn upon for a great many different purposes. Now, that board is not going to undertake a research in this line and appropriate the necessary money from their fund, unless there is some demand made upon them, because many other demands of a similar nature are made to them from different sources throughout the year.

Mr. Crabtree: It is quite likely that what Prof. Buckley has said is true and correct, but the resolution passed at our Madison meeting last year, read: "To endeavor to make some appropriation to establish some kind of testing station of clay products and clay, and to buy machinery to be used by the State University in following out that research." We did not go into that other matter at all. That probably can be done now and get some kind of a testing station for clays, etc., under the State University, to conduct that work, or perhaps through the Geological Survey Department, something can be done along that line.

Mr. W. J. Craney, of Kenosha: I wish to make a motion that when this debate is closed, the association give a rising vote of thanks to Mr. Buckley for the very able and interesting paper he has read before us, and the great interest that he has taken in our association.

Motion seconded and upon being put to a decision, carried by a unanimous and rising vote.

Prof. E. R. Buckley: This is very much better than a refund of the five dollars. (Laughter and applause.)

Mr. W. G. Kennedy: I thought we would give you this instead. We need the money. (Laughter and applause.)

Mr. W. G. Kennedy, of Manitowoc: In the report of that committee that I was on this morning, the secretary omitted to put into that report that we recommend that a copy of the proceedings of this convention be sent only to members. I wish to have that added to the report.

Prof. E. R. Buckley, of Rollo, Mo.: I want to say one word on that question. Do I understand you that the proceedings are not to be sent to anyone but members?

Mr. G. W. Kennedy: Yes.

Prof. Buckley: Are there any provisions made for selling copies to other people? There might be a provision to sell the proceedings to others for fifty cents.

President Hilker: Do you make that as a motion, Prof. Buckley?

Major J. W. Hinkley, of Green Bay: About what is the cost of printing these proceedings?

Secretary Wilson: The cost of printing them last year was approximately thirty cents, and possibly that is the cost of printing them now. The cost of reporting, however, would bring that up easily to fifty cents.

Major J. W. Hinkley: I want to see that what we sell them for will pay the cost of producing them.

Mr. H. DeJoannis, of Chicago: Seventy-five cents will easily cover the entire cost.

Secretary Wilson: This year's copies will perhaps run a little higher than that for the reason that we shall not have quite so many printed. It may be that the press work will not be as much and the paper will be less. However, the total cost will perhaps be a few cents higher. The reporting will be about the same, so that it will probably run to fifty cents.

Prof. E. R. Buckley: I make a motion that the proceedings of the association be sold to anyone outside of the membership of the Association for fifty cents, if that is a reasonable sum. I do not think we ought to charge them more than that. That would be about one-fourth of what they cost the membership, and I think that is a reasonable sum.

Motion seconded, and, upon being put to a vote, unanimously adopted.

President Hilker: If there are no other matters to come before the meeting at this time a motion for adjournment is in order.

Whereupon the convention adjourned.

Thursday Afternoon and Evening's Entertainment.

After a hearty luncheon, the delegates were escorted in a body to the Milwaukee Coke and Gas Company's plant, which was literally turned over to the visitors for the rest of the day. Messrs. H. I. Brown, I. C. Stinge and J. L. Blackie, the superintendents acting as representatives, welcomed the delegates with warm hospitality, and showed them over the plant, pointing out the many interesting features, and answering the many questions put to them in a most cheerful manner. It was late in the evening when the well satisfied crowd returned to the hotel and prepared for the evening's entertainment, a jolly theater party, to one of Milwaukee's best show houses. The tuneful music and witty sayings in the Isle of Spice Comic Opera drove fatigue away, so that the evening's entertainment was most enjoyable.

Friday Morning Session.

The secretary read several communications at the opening of the last session, chief of which was one from Mr. O. T. Denison, of Mason City, Chairman of the Committee on Transportation of the Iowa State Manufacturing Association, in reply to a letter from the secretary urging him to be present at the convention. In concluding his letter speaking of the railroad rates regulation, he said: "One difficulty in accomplishing anything with the railroads seems to be that a large portion of the management is still in the hands of the people who learned their railroading theories under very different conditions from those which now exist, and they are not able to learn the modern conditions and modern methods, so that, in my opinion, the railroad problem will never be settled as it should be until a great many heads are 'dropped in the basket,' and their places filled with new and younger men of modern ideas."

The first paper of this session was by J. W. Hinckley, of Green Bay, on "The Most Important Fact and Feature of Manufacturing and Selling Brick." In this he said that he thought that the most important part to most of us, was the acquisition of wealth. He stated that the manufacturer of brick has at all times before him two problems; first, to make his brick ready for market at as low a cost as is consistent with the making of good brick, and, second, to sell them at a price that will leave him a margin between the cost and selling prices. In conclusion, he said that he had treated the subject of his paper from the standpoint of "the money there is in it," for the reason that he had never met, in all his forty years' experience, a man in the brick business for his amusement or his health.

Mr. John Ringle, of Wausau, read a paper, "The Relations of Employer to Employes," which treated the subject in a brief and pleasing manner. "The best results are obtained," he declared, "when employes are taught to feel an interest in the success of the plant, and are lead instead of being driven, making the relation of the employer and employes of a fraternal nature, and of mutual interest in each other's welfare." He showed that these ethical relations were only possible on smaller plants now days, due to the combination of capital in the large corporations, and consequent loss of individuality of the single employe through the process of industrial development. In conclusion, he stated that when the employer and employe become intelligent enough to keep out of difficulty, to recognize the rights of each other, then labor troubles will disappear, but so long as mutual confidence is absent and disturbances do arise,

a system of impartial arbitration of disputes is the only just remedy.

"Interlocking Building Tubes" was the title of the next paper. This was written by George P. Willett, of Bristol, Wis., who recommended the use of the Van Wie building tubes as a structural material for masonry, as in this line he considered that this style of building blocks had no equal for strength and facility of placing. He described the methods of slotting the interlocking building tubes, so that the slots can be utilized for interlocking members between tiers of tiles built one upon the other.

Mr. Norman A. Wigdale, editor of *The Western Builder*, of Milwaukee, read a paper on "The Outlook for 1908," in which he dealt at length and optimistically on the prospects of this year's future business. He quoted from a number of letters received from various points in the State of Wisconsin, on the general outlook, all of which expressed the belief that the year would be one of prosperity, and, while perhaps not as good a year as the one preceding the panic, it would undoubtedly prove a profitable one to the clay-working world in general.

The convention next listened to an address by Mr. H. De Joannis, of Chicago, on the subject, "How to Better the Wisconsin Clayworkers' Association."

The Resolution Committee report followed, which was adopted as read. In this the name of the association was changed to read, The Wisconsin Clay Manufacturers' Association, the annual dues were raised from one dollar to two, and the president was given the power to appoint a committee whose duty should be to work out a plan for the establishment of a general publicity bureau, in the interests of all the various clayworking industries in the state.

The following officers were elected for the ensuing year:

President—G. W. Kennedy, Manitowoc.
Vice President—L. T. Crabtree, Crandon.
Secretary—Oscar Wilson, Menomonie.
Treasurer—Oscar Zimbal, Sheboygan.

After the election, speeches were made by the newly elected officers and the convention adjourned sine die.

BETTER BUILDINGS DEMANDED.

THE MANY ACCIDENTS and actual collapses of buildings while under construction have given force to the warning of such conservative bodies as the International Society of Building Inspectors, that has long advocated more stringent regulations of experimental construction in our cities. New York's building code, now being rewritten, calls for a much higher class of construction in all grades of buildings than the old one, and it throws such safeguards about the use of reinforced concrete as to make that material much less attractive to the speculative builder. Seattle has just passed a new building ordinance permitting standard steel construction to go up sixteen stories, but limiting reinforced concrete buildings to ten stories, and it, too, makes many restrictions as to the use of reinforced concrete. Minneapolis has gone a step farther, and has just passed an amendment to its building laws compelling every owner who builds a reinforced concrete building to have a specially licensed building superintendent constantly in charge of that work, one directly responsible to the city for the efficiency of his superintendence. Little by little the authorities are awakening to the fact that concrete is a most excellent thing when properly handled, but the most dangerous of all building materials if the slightest imperfection is allowed in it.

Fatal collapses of buildings have grown altogether too common. A radical reform is imperative, and is in progress. A year ago one of our important building journals exclaimed: "The grey of our concrete structures is already too much stained with blood. Shall we allow that stain to spread and grow still darker?" Evidently our city authorities have determined to try and prevent the spread of that stain!



Royal German Pottery Decoration.—The Emperor of Germany, who is very enthusiastic about the manufacturing of pottery, takes a great interest in his pottery located at Cadinen. He recently visited the new Metropolitan railway station, and expressed a desire that the station should be decorated with some of the products of his own pottery. He called the director of his pottery to Berlin, in order to confer with him in regard to what decorations could be used. It is very likely that this station will be the first one in which the products of the Royal factory will be used for a public building.—*Moniteur de la Ceramique* No. 3, 1908.

Calcareous Clays for Fireproofing.—Calcareous clays which are very plastic, and do not contain very coarse particles of calcareous material, can be used for the manufacturing of fireproofing. The clays should be properly handled, and care should be taken to temper the clay well. The very fine divided carbonate of lime has in itself some plastic qualities; the clay, therefore, will be very plastic, and can easily stand a large amount of nonplastic material. The advantage of the carbonate of lime is also manifest in the burning, where it will give the body a certain degree of vitrification, which is much desired in fireproofing. By burning of these products the carbonate of lime loses nearly one-half of its weight, which tends to make fireproofing made from such clays lighter than when made from other clays. Some clays will stand as much as twenty-five per cent. of nonplastic material, for which is used either sawdust or fine coal, which will assist the material in the burning. Sometimes the use of peat is very desirable, and will give excellent results. With coal it should be guarded against too uniform material, as coal with some coarse particles intermixed will give better results than all fine coal.—*Deut. Topf & Z. Z.* No. 93, 1907.

Testing of Sewerpipe.—The Government testing station in Copenhagen has just published a report on the tests which were made on sewerpipe made from clay and cement. The tests were only made in regard to the resistance of the pipe against pressure from the outside, and in one instance in regard to the porosity. Different countries have tried several times to get standard tests in regard to sewerpipe. In 1896, a German sewerpipe works made a request to the International Societies for Testing Materials to formulate standard tests. In Belgium, Denmark, France and Holland we find very good tests for sewerpipe. The main principle for a sewerpipe made from clay or cement is the resistance against pressure from the outside. In Belgium, France, Germany and Denmark we find also tests against pressure from the inside.

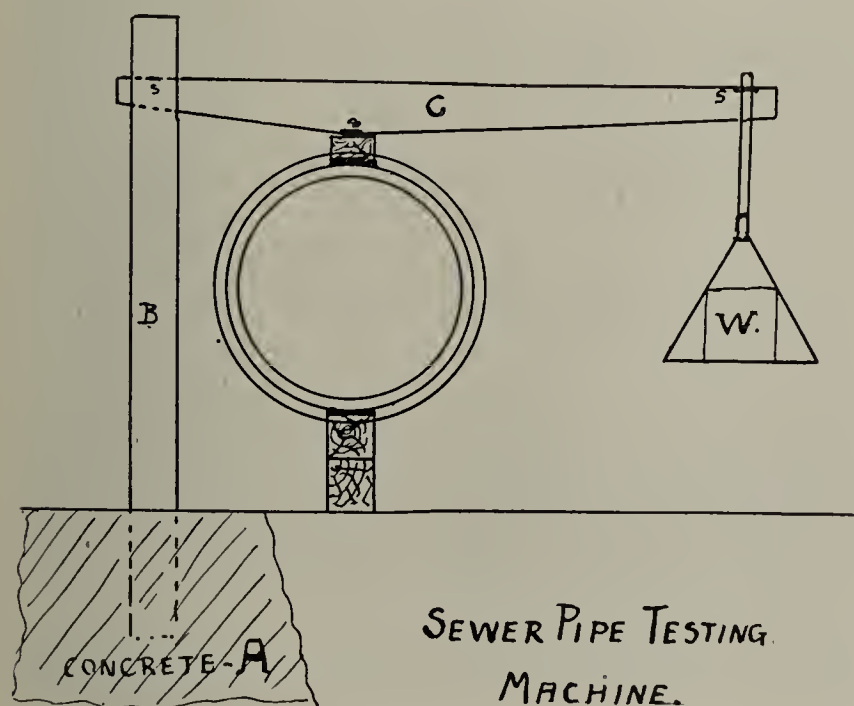
In many testing stations the examination of the broken clay sewerpipe, and the cement mixture for cement sewerpipe, also porosity, and absorption, are tests which are made often, and sometimes sewerpipes are also tested for the resistance against acids.

The International Congress, which was held last year in Brussels, has authorized the tests as made and formulated by Dr. Gary, of Berlin, as standards. These tests include the following four general tests, which are subdivided again.

1. Test on the resistance against pressure from outside.
 - (a) By continuous increasing pressure.
 - (b) By hammer test with the use of a drop weight.
2. Test on the resistance against pressure from the inside.

3. Testing of the materials proper.
 - (a) By the use of blows of the hammer.
 - (b) By determination of the porosity.
4. Testing of the inside surface of the pipe.
 - (a) The acid resisting qualities of the glaze by clay pipe.
 - (b) The acid resisting qualities of the clay body of clay pipes.
 - (c) The resistance against wearing qualities of cement pipe by the use of a sand blast.

For testing the pipes up to six-inch, the apparatus of Tinius Olsen was used. For larger pipe a machine was used, of which we give an illustration below. This lever apparatus is partly built of an iron I beam, B, which has been built into a cement block, A. On top is bolted a knife plane. In this plane works a knife edge of the lever, which is made from wood. The lever, C, has three steel plates, S. In the first is the knife edge which works against the I beam, B, the second plate is used as knife edge for the pipe proper, and the third plate is used for the weight adjustment. The leverage of the power of the apparatus is 1.10. The weights are either water weight or fixed iron weights. The pipe is placed on top of some timber planks. Between the places where the pipe is wedged about six inches of felt is placed, in order to distribute the pressure on all places equally.



The tables will give an idea of the pressure which the clay sewerpipe will stand. For comparison, a few tests on cement pipe are also given.

TESTS ON CLAY SEWERPIPE.

Total Length of pipe in inches.	Outside length to the socket in inches.	Inside diameter of pipe in inches.	Thickness of pipe in inches.	Breaking Test in pounds per cubic feet.
52.0	44.25	8.85	0.60	747.50
53.5	45.85	9.43	0.63	575.95
53.5	46.35	9.00	0.63	723.85
54.0	45.85	8.92	0.60	523.50
52.5	44.60	9.10	0.63	821.80
50.5	42.75	12.10	0.79	1073.90
67.5	60.25	11.85	0.74	957.20
53.0	45.30	11.50	0.75	1347.00
55.5	48.65	12.40	0.75	858.60
51.5	45.30	11.85	0.63	586.50
68.0	60.00	19.55	0.85	376.90
52.5	45.60	18.00	0.75	441.80
52.5	45.30	18.00	0.75	321.40
53.5	45.30	23.45	0.98	428.70
53.0	45.85	23.60	1.00	440.50
52.5	45.50	25.50	0.98	387.50
54.0	46.00	25.00	0.98	361.30

The average test on clay pipe for twelve-inch pipe was 964 pounds per cubic feet, while cement pipe only stood 611 pounds per cubic feet.—Tonind. Z. No. 133, 1907.

Annual Convention of the Austrian Clayworkers' Association.—The annual convention was held in Vienna on December 9th and 10th. Engineer C. Czerny was elected president of the association. Many practical papers were read, of which we will make abstracts at some future date.—Editor F. S.

Ceramic School at Sevres.—The regular examination for the admission to the ceramic school which is held in connection with the National Porcelain Factory, at Sevres, will take place again this summer. Five scholars will be admitted. The scholarship carries a stipend of 800 francs per year. The duration of the course is four years. The applicants should be between sixteen and nineteen years old, and have had common school education.—Moniteur de la Ceramique No. 3, 1908.

Coal Consumption in Up and Down-Draft Kilns.—A porcelain kiln with two stories, which has a capacity of from 1,600 to 1,750 cubic feet in each chamber, uses about 13 tons of bituminous coal, or 20 tons of lignite coal. The temperature at which it is burnt is cone 13, and the kiln is the most improved of the down-draft systems. In the old style up-draft kiln, also with two stories, about twice as much coal has been used to burn to the same temperature. The cost of rebuilding the up-draft kiln to a down-draft kiln is not very great, so that the saving in coal will soon pay for the improvement.—Keramische Rundschau No. 43, 1907.

Ceramic School at Bunzlau.—The Royal Ceramic School at Bunzlau celebrated last November the tenth year of its existence. The director, Dr. W. Pukall, has been the head of the school ever since its start. The school has done some very good work, and the results are shown in the practical manufacturing of the different potteries in the county of Bunzlau. Many glazes have been adopted by the practical potter, which were first tested and studied by the school. Two potteries have gone into the manufacturing of finer pottery for which the school makes the designs. The mechanical application of the school has also been evidenced by the adoption of steam power in the different potteries, and the larger output of better products than formerly. Dr. Pukall is certainly to be congratulated on the results which he has achieved in the short period of the existence of the school.—Tonind. Z. No. 131, 1907.

Artificial Clay Drying.—In connection with a question what apparatus would be most suitable for drying 110 tons of clay containing thirty per cent. of water in twelve hours, we find the following data: The rotary dryer is the best machine for drying clays. It will dry clays containing as high as sixty to eighty per cent. of water, to a dryness of within 0.3 per cent. The first cost of the rotary dryer will be about \$3,000 for the capacity required, and will take between twelve and fifteen horse power to drive it. The coal consumption will be about 300 pounds per hour. The usual length of the dryer is fifty feet. The dryer is built on a slight incline. The clay is charged on the top end, where the gases and moisture are taken off. The inside of the dryer has iron rings, which will hold back the clay to some extent. As the clay proceeds toward the lower end of the dryer, it becomes hotter, and all moisture will be expelled before it drops from the dryer. In order to get a uniform product it is essential that the clay should be charged to the dryer in small lumps. Large lumps will not dry nearly as fast as small lumps, and they will also dry very uneven. The heat at which the dryer should be run should be judged according to the nature of the clay. If too hot, when very plastic clay is used, it might impair the plasticity of the clay. On the other hand, in short and sandy clays it can stand more heat, and will dry faster. It is also not absolutely necessary to have the clay so dry that it does not contain any moisture whatever. From three to four per cent. moisture is quite often desirable, as the clay will not raise a great amount of dust when ground.—Tonind. Z. No. 148, 1907.

VITRIFIED BRICK PAVEMENT CONSTRUCTION.*

By Will P. Blair, Corresponding Secretary National Paving
Brick Manufacturers' Association



VITRIFIED BRICK have been used for more than twenty-five years in this country for paving streets and roadways. In the early commencement of their use for this purpose and for several years afterwards, the manner of construction of such streets received but little attention. They were placed in the street with little consideration for the lasting qualities of the street and much less for the comfort of the user. The convenience and readiness with which they were placed in the street and the fact that they bettered a former condition led to their increased use.

Later, a few engineers began to study the problem of brick paving, with regard to their use and their durability. A few samples of good construction attracted the particular attention of some of the manufacturers, and these men, progressive and far-seeing, looking to the future of their business, realized that the greatest possibilities, from a manufacturer's standpoint and interest, lay in making the paving material acceptable to the property owner and user. In other words, it became finally an accepted proposition that well constructed brick streets meant and still mean more brick streets.

As one result of this conclusion there was organized the National Paving Brick Manufacturers' Association, the chief object of which is to secure the best possible construction of brick streets. By watching closely the efforts of the most careful and progressive engineers along this line, and the effects of this method and that method in the continued use of pavements, many ideas of construction have been thoroughly demonstrated as being the best possible for fully developing the advantages of this paving material. As a result of this, the association has evolved, from the study of methods and their results, a method of brick pavement construction which secures to municipalities the highest possibilities in brick streets.

The following are the chief causes of the great increase in the use of brick paving:

First: We believe the manufacturers have had special regard for the quality of the vitrified brick offered upon the market; at least, this is so with the very great majority.

Second: The adoption in the foundation of the provision that the grade must conform precisely to that of the finished street, whether it be made of concrete, or of a second quality of three-inch vitrified paving blocks.

Third: The use of a sand cushion, upon which the brick of the wearing surface are to be laid, uniform as to fineness and as to the amount of dampness with which it may be charged, two inches in thickness (and the point to be observed as to this cushion is a uniformity of thickness), and with its surface corresponding to that of the finished street. Perhaps as many brick streets have been ruined by a departure from this rule as from any other necessary requirement. Many specifications require the use of a one-inch cushion, without considering the physical function and purpose of this cushion. The deflection and vibration caused by the impact upon the brick overlying the cushion must have sufficient relief that the brick will not chip or break; but that relief nevertheless must be a minimum, and not sufficient to cause a break in the bond of the filler.

Fourth: The thorough rolling of the brick, after it has been laid upon the cushion, and the bringing of the surface

again to a true and even grade. This rolling and compacting necessarily, if sufficiently done, makes perfectly uniform the cushion underneath by pushing up the surplus sand here and there in the joints between the brick; so that after the rolling a perfect grade is attained.

Fifth: The use of an adequate filler. Of all the steps to be taken in the construction of a brick street the application of the filler seems to be the one point where almost an unlimited number of ingenious ways are resorted to, in spite of the fact that we know of but one filler-cement, and one way for the application of this filler, by which the very best possible results may be obtained. We shall not enter into details in this article as to the method necessary to employ in the application of this filler. They are very carefully laid down in our No. 1 Directions for laying brick street pavements, which may be had free upon application to the secretary of the association. Suffice it to say, if the direction is followed and the material used is a good quality of Portland cement and sand, there is no possible chance that the bond will ever break.

Before stating the sixth vital point in the construction of the street, we wish to digress by stating that perhaps the



BRICKS REMOVED FROM PAVEMENT.

Shows Cement Filler Adhering to Bricks. Also Filling Irregularities on the Edges and Wearing Down Uniformly With Surface.

most common objection urged against the use of a brick street (an objection that comes from experience with an improperly constructed street), is the noise caused.

The sixth vital point in construction, to meet this objection, is the expansion cushion, provided for the purpose of eliminating the noise that otherwise prevails. This must be arranged for by placing a board from an inch to an inch and a half in thickness (according to the width of the street under construction), along and next to the curb, which shall remain in place until after the street is in all other respects finished; but within twenty-four hours following the application of the cement filler, this board must be removed. We say "must be" because, if you leave it in thirty-six hours, you can not remove it without very greatly breaking the cement bond formed, or, in fact, will scarcely be able to remove it at all. The space from which the board is removed must be poured two-thirds full with a tar filler. Over this tar filler, and brought to the level of the top of the brick, sand should be well packed. This expansion cushion does not permit of a possibility of the brick surface (now a unit) pushing against the curb by reason of any expansion

*Reprint from Municipal Journal and Engineer.

that may result from extreme temperature, so that you have the wearing surface as a unit lying thoroughly compacted upon and into a bed of sand, thus practically eliminating the noise, or reducing it to a minimum.

Persons who have never experienced the use of a street built under this method are sometimes persuaded to the use of fillers other than cement; but none of these, however good they may seem upon presentation, accomplishes the purpose sought for, and in other particulars they detract very materially from the best possibilities of a street.

Brick streets thus properly constructed present an anomaly, in that they can be said to provide a street growing slightly better as it grows older, and one without a maintenance charge for a great many years to come.

Written for THE CLAY-WORKER.

BRICK PAVEMENTS IN THE LEAD.

Interesting Comparisons of the Various Paving Materials.

THE PAVING INTERESTS of the United States were well compared, with much good being said in favor of brick pavements, in a recent very comprehensive article, in the Municipal Journal and Engineer, in which com-



SECTION OF BRICK PAVEMENT REMOVED.

Shows Adhesiveness of Cement Filler. Brick and Filler Worn Uniformly to a Smooth Surface.

parisons were drawn from information furnished by replies to a circular letter sent out by that paper to city engineers. This circular asked for information relative to the amount and kind of street paving done during the year 1907, and the work contracted for and contemplated during 1908. The comparisons are drawn from the replies from over 250 cities, with population from 10,000 to 100,000 and a few larger ones. This amount represents approximately three-fourths the paving interests in the country, as, aside from the largest cities, most of those who did not reply the editor of the Municipal Journal and Engineer believes failed to do so because of having little or no paving concerning which to give information.

In New England, eleven kinds of paving are used, of which stone block is first in rank in quantity used, with the other paving materials ranking in the following order: Gravel, brick, cobblestone, bitulithic, asphalt block and bituminous macadam. Last year brick paving was in fourth place, preceded by stone block, hassam and gravel, while the only work contracted for this year is bitulithic, but a large amount of brick paving is contemplated.

In the middle Atlantic States the paving materials rank

in quantity in this order: Asphalt, brick, stone block, gravel, bitulithic, cobble stone, asphalt block, asphaltina, slag and wood block. The greatest amount of paving done last year was of brick, while in the work contracted and contemplated, brick remains in the lead.

In the South Atlantic States the order is: Brick, stone block, asphalt block, bitulithic, asphalt and wood block. The greatest amount of paving in 1907 was of brick, with bitulithic second. Work contracted for: Stone block, brick, bitulithic, and asphalt. Work decided upon: Brick leads, with stone second. Work contemplated: Brick, wood block, bitulithic, stone block, and asphalt block.

In the Ohio Valley district the amount of brick paving is far in the lead, and exceeds that of all the others combined excepting macadam. Of the work done last year, brick constitutes more than eighty per cent., and in the work contracted for over ninety per cent. In the work decided upon and contemplated, brick amounts to more than ninety per cent. of the entire paving to be done this year.

In the Upper Mississippi-Missouri district, brick is again far in the lead, forming more than fifty per cent. of the paving. Of the work done last year, a little less than half was brick, and the work contemplated for gives brick nearly seventy-five per cent.

In the Lower Mississippi and Gulf district, brick, bitulithic and asphalt are the most popular. Brick formed fifteen per cent. of the work done last year, and is a close second to asphalt in work to be done this year. In the Rocky Mountain and Pacific coast district, asphalt is the leading paving material, due, perhaps, to the lack of brick paving materials in those two sections. In these comparisons, which show the actual paving done, brick stands up well and appears to be the most popular pavement.

A comparison of the foundations used in the different districts may be of interest to the readers. The Municipal Journal and Engineer gave this in a condensed form as follows:

Construction Details, Brick Paving.

The foundations used for brick paving in the various districts, so far as they were reported, were as follows: In New England, nothing but concrete. In the Middle Atlantic States twenty-nine reported cement concrete, mostly six inches thick; six, macadam; nine, gravel; two, slag; one, sand, and one, ashes. In the South Atlantic States concrete was reported in six cases, macadam in two cases, sand in two cases and gravel in one. In the Ohio Valley concrete was used in thirty-eight cases, macadam in fifteen cases, gravel in eleven cases, sand in five cases, cinders in two cases. In the Upper Mississippi-Missouri district concrete was used in twenty-nine cases, macadam in nine cases, sand in five cases, brick laid flat in four cases, gravel in one and cinders in one. In the Lower Mississippi and Gulf concrete was used in six cases and brick laid flat in one. In the Rocky Mountain district concrete was used in the only city reporting, and the same is true of the Pacific Coast.

The filler used in brick pavement in New England was cement in seven cases, sand in one and pitch in one. In the Middle Atlantic States cement was used in twenty-three cases, sand in seventeen cases, pitch, asphalt or tar in eight cases and ashes in one. In the South Atlantic States sand was used in five cases, cement in seven cases and pitch in one case. In the Ohio Valley cement was used in forty cases, sand in twenty cases and tar or asphalt in fourteen cases. In the Upper Mississippi-Missouri cement was used in nineteen cases, sand in twenty cases and asphalt or tar in six cases. In the Lower Mississippi and Gulf cement was used in five cases, sand in one and asphalt in one. In the Rocky Mountain district cement grout was used in the only city reporting, and on the Pacific coast sand was used in the one city reporting from there.

THE IOWA BRICK AND TILE ASSOCIATION.

REPORT OF THE TWENTY-EIGHTH ANNUAL CONVENTION OF THE IOWA BRICK AND TILE ASSOCIATION.

Held at Des Moines, Iowa, January 22 and 23, 1908.

THE TWENTY-EIGHTH annual convention of the Iowa Brick and Tile Association held at Des Moines, Iowa, January 22d and 23d, was the largest in attendance in the history of the organization. Fully one hundred and forty delegates were present to spend a most profitable and enjoyable two days of convention work and entertainment. The Savery Hotel was the convention headquarters and comfortably housed the visitors.

Only a few exhibits of machinery were made, but there were twenty-five clayworking machinery manufacturers represented and they advertised their products in a variety of ways, and spent a busy week buttonholing the visitors and expounding on the good qualities of their special lines.

Wednesday morning was given over to the registration and enrollment of members and social sessions, while the convention proper began in the afternoon at 2 o'clock. The hall was comfortably filled with a crowd of happy, enthusiastic delegates, when President Brecht of Des Moines called the convention to order.

First Session—Wednesday Afternoon, 2 o'clock.

The President: We have with us a gentleman who has once before appeared before this association, and he again desires to extend to you a welcome to this city. I have the pleasure of introducing Hon. G. W. Mattern, Mayor of Des Moines.

Address of Welcome.

Mayor Mattern: Mr. President and Members of the Iowa Brick and Tile Association—It is a pleasure to me to assure the members of this association that you are welcome to our city. We are glad to have you hold your twenty-seventh annual meeting in Des Moines. You represent one of the greatest, if not the greatest industry of our country. The clay industry of the city of Des Moines is our principal industry, hence it is very fitting and proper that you should hold your annual meeting in the capital city this year.

I congratulate you gentlemen on the number present. It proves to me that you are here for business; therefore, Mr. President, I will only detain you one moment. We hope that your deliberations will be profitable and productive of much good, both to yourselves individually and to your association, and, incidentally to your customers.

Again, gentlemen, on behalf of the citizens of Des Moines, I welcome you to the very best that we have, and hope that your sojourn in the city will be so pleasant that you will return. (Applause.)

The President: To respond to these good wishes and this cordial welcome, I have the pleasure of presenting a gentleman who needs no introduction to this association—our esteemed friend, Judge J. L. Stevens, of Boone.

Response to Mayor's Address of Welcome.

Judge Stevens: Mr. President, Members of the Association, and Mr. Mayor—I am sure that all of our association join with me in thanking the mayor for his cordial welcome to this city. I congratulate the association on the fact that we can meet again in our capital city. Each time we return

here we feel more at home. Each time we return here we realize that the craft in this city are a mighty cordial, good lot of fellows, and that they are building up an industry here of which the whole state may be proud. We are glad to see Des Moines progress, Mr. Mayor and Mr. President, so that it has become the commercial center, so to speak, of this state; and we never come here but what we find something new and valuable. I congratulate Des Moines on the fact that notwithstanding every member from Des Moines that was at the first meeting of this organization twenty-seven years ago has either passed away across the river or retired from business, they have been succeeded by their sons and others who have extended, broadened and improved the industry of which they laid the foundations. The elder Rawson, the elder Brecht, Robertson and others, the founders of the industry, have passed away or gone out of the business; but their business continues and extends, and in that we see only what we may expect all over this state in the other cities. The industry which we represent is the oldest perhaps in the civilized world, and it will continue to grow and extend, and we may congratulate ourselves that in building up industries of this kind we are building something for our children in the future.

Gentlemen, I recognize that we are here for a good time as well as to improve ourselves, and when we come to Des Moines we expect to be royally entertained, because they always do it. Look out for surprises. I don't see Mr. Gotch nor Mr. Hackenschmidt here this time, but I look for something else. I would not be surprised if we were thrown onto one of those ball-bearing conveyors and shot through the hot tunnels over here on the river, or something of that kind. But at any rate we look for a good time. I thank you, Mr. Mayor, for your cordial welcome. (Applause.)

The President: Before taking up the next item on the program, I wish to announce the appointment of the following committees:

Nominations—F. A. Stephenson, Mason City; B. M. Huntley, Boone; D. F. Morey, Ottumwa.

Resolutions—J. B. McHose, Boone; R. G. Coutts, Grinnell; F. W. Stewart, Des Moines.

Legislative—Paul Beer, Des Moines; O. T. Dennison, Mason City; Chas. A. Rawson, Des Moines; W. P. Hawkins, Oskaloosa.

Railroads—C. J. Holman, Sargent's Bluffs; J. W. Shackelford, Des Moines; W. W. Lewis, Williamsburg.

President Brecht then read his annual address as follows:

PRESIDENT'S ANNUAL ADDRESS TO THE MEMBERS OF THE IOWA BRICK AND TILE ASSOCIATION.

Gentlemen of the Convention:

It gives me much pleasure to welcome you to this, the twenty-seventh annual convention of the Iowa Brick and Tile Association. As president and a resident of Des Moines, it is indeed gratifying to me that so many have responded to the invitation to meet in this city, and I am sure that it is equally gratifying to the other members of the executive committee as well as to all of the Des Moines manufacturers, who have co-operated with us in our efforts to make this the most successful convention in the history of the association.

Twenty-seven years ago, when our association was founded, I was not giving much thought to the manufacture of brick and tile, and a number of conventions have been since held in this city, some of which I knew nothing, but what adds to my pleasure at this time is that we are fortunate in that some of the founders have been spared, and that this meeting is graced with their presence. We honor and respect these members who so faithfully devoted their lives and contributed cash when needed to form this organization, and their memory will always be cherished by those who became members later on and those who are yet to become

members. I can not pass without making mention of the fact that to me a history of the association would be most interesting. Such a history could not now be compiled, since complete reports of the conventions have never been kept. I believe that this should be done hereafter and recommend to this convention the passing of a resolution providing that an official report of the proceedings of future meetings be made and distributed among the membership.

At our last convention held in Sioux City, we were all congratulating ourselves on just having closed one of, if not the most prosperous and successful year's business in our history. There had been a market for all that could be produced, labor troubles were few and collections had been good. We were also congratulating ourselves on the prospects for the year just entered upon, 1907. Prosperity was abroad not only in this state, but generally throughout the United States. As far as I can learn, few complaints, if any, came from the brick and tile manufacturers for several months, when a scarcity of labor was noticed. Building operations were heavy; railroad companies were making extensive improvements and extensions; men were in demand at factories of every description. With some it was impossible to secure sufficient help to operate their plants to capacity. In some instances factories lost money because of their inability to fill orders and contracts on time. Through it all many idle men could be found, men whose families were in need, but they were looking for soft snaps at a high wage. The situation as it was reminds me of a gentleman who employed a great number of hands in the west part of England, and, in order to encourage his work people in a due attendance at church on a fast day, told them that if they went to church they would receive their wages for that day in the same manner as if they had been at work. Upon which a deputation was appointed to acquaint their employer that if he would pay them for over hours, they would attend likewise at the Methodist chapel in the evening.

Do not understand me as being unfriendly toward labor. The majority of the American laboring men of today are products of our public schools and they are becoming a power equally as great as capital. Barring the agitators, the dictators and the walking delegates, men who think and believe that the world owes them a living, I see no reason why these two great powers, capital and intelligent American labor, should not establish the most friendly relations. We are not only interested that friendly relations be established between ourselves and labor, but between other crafts and labor, and especially between the mine operator and the miner. The joint meeting of the Iowa Coal Operators' Association and the United Mine Workers of America of this district will be held during the month of March to effect a wage scale for the two years commencing April 1st. Should these two bodies fail to reach an agreement, operations at the mines would be suspended. This is a contest in which the members of this association, large users of coal, are vitally interested. We are confronted with the great problem of how and when a more harmonious and businesslike arrangement can be established between these two powers.

Another question of no less importance and one which has caused the closing down of factories, suspension of building operations, and the suspension of extensive improvements and extensions by railroad companies along with the cancellation of large orders for equipment, is the financial flurry or panic which overtook this country about three months ago. The tide of prosperity which this country had been enjoying for the past number of years had taken a turn. Banks found it necessary to reserve their cash and pay out only limited amounts. Few loans were made, and borrowers were called upon to meet their obligations when due. The brick and tile manufacturers had been enjoying a very prosperous year. The demand exceeded the capacity of the plants to supply and many were planning to increase their output. The wise brick and tilemaker, however, does not rush blindly on, but carefully studies the situation, and first takes his surplus earnings to pay off his debts, if he has any. I have learned that some of you were and are still carrying various contractors for large amounts. I know from experience that many were unable to settle when due because of their inability to negotiate paper which had been given them for their pay.

This situation reminds me of a story, as the situation concerning the labor problem. A Missouri farmer owed a neighbor named Bill Johnson \$25.00, and had owed the amount for years. One day he met Bill and said: "Don't be uneasy, Bill, I have the thing all fixed up by which I can pay you." Bill asked him how he got it fixed and the farmer said: "Well, Bill, if nothing happens, next year I hope to raise a good crop of corn, and I intend to trade some of the corn for a yoke of oxen, and I know an old man in the next county that owns an old mare, and he wants to trade her for a yoke of oxen. Now, Bill, when I raise that corn and get the oxen I will make the trade for the old mare, and then I will bring her home and raise mule colts. And, Bill, the very first mule colt I sell, you shall have the money." Now, gentlemen, I believe that many of us appreciate Bill Johnson's position.

In New York the flurry developed into a genuine panic, values in stocks in some instances falling fully fifty per cent. Interest rates rose to as high as 100 per cent., and many of our wealthiest men were unable to borrow even at that high rate. In Iowa, and the west in general, the situation was not quite so serious, and we may congratulate ourselves and our people.

Their conservatism stands out in bold contrast with the reckless. Their conservatism stands out in bold contrast with the reckless speculation on Wall Street. That the present outlook is better than for some time, there is no doubt. Money is easier. The reserve deficit of the banks is a thing of the past and in its

place is a surplus. Several bankers have said to me in the past few days that it was only a question of a very short time until these manufacturers and contractors who have been so eager to sell their paper would find a market at a good figure. It seems to me that the great trust and confidence which we have placed in each other has had everything to do with bringing about this change and preventing a repetition of former panics, and that the whole situation as it was and now stands and promises to be, goes to show the ability of the American business man when brought face to face with a crisis. The emergency has been met without question and we should congratulate ourselves and each other.

It was my desire before retiring from the presidency of this association to visit the plants and factories over the state and become better acquainted with the craft, but I found it impossible to do so. I understand, however, even though the last two months of the year were not so bright, that the year as a whole was a very prosperous one. The demand was equally as large as the preceding year and prices equally as high or higher. Profits must, therefore, compare favorably. A decrease in building operations may be expected for this year, but I do not believe with serious results to the manufacturers of brick. We see a very noticeable increase from year to year in the use of brick on account of the advancing prices of lumber. The forests are annually being denuded by the saw and axe of the lumberman to an extent which can not be met by the annual growth and we may reasonably expect that this increase in the use of clay products will be greater each year. This may appear to some as being somewhat overdrawn, but a comparison of prevailing prices of lumber with those of several years ago will tend to corroborate my statement. As to vitrified brick for paving purposes the output has been materially increased. The high standard required by the manufacturers and the increased agitation for good roads have brought good results.

I have heard it said that a reduction in the output of clay



Ex-President W. H. Brecht, Des Moines, Iowa.

products might be anticipated on account of the introduction of cement-concrete construction. Now, no man is a firmer believer in concrete—in its proper place—than I. There are many ways in which it can be used successfully. It is admirable for railroad work, bridges and where used in masses and not exposed to an intense heat. It seems to me that the over-ambitious cement producer who is clamoring for a new market and cares not how the cement is used, providing he makes a sale, has brought about this competition, and there should be no alarm among our craft because there are no prospects of it ever supplanting the product of the clayworker. Experts tell us that the fire-resisting qualities of portland cement are between 600 and 700 degrees. Now, what is 700 degrees for a fire? What was it that stood the test of the Baltimore and San Francisco fires? It was not cement, stone, granite, or any other material, but the brick and tile fire-proof structures. Cost of construction is the only serious matter with which we have to contend, and this is one of the criticisms advanced by our cement-concrete friends. One way to make concrete cheaper than brick construction is to use, as most of them do, unskilled labor. This menace might lead to the substituting of concrete work for brickwork, but to no great extent unless we experience a scarcity of bricklayers or an unreasonable exaction of the trade unions restricting the number of apprentices. This practice of the trade unions is causing a diminution in the number of skilled workmen and is depriving the young man of today of the privilege of acquiring a trade. If this privilege is denied the young men of our country, what to do with the rising generation will become a serious problem. This matter demands our attention, and it is our duty to encourage the establishment and continuance of trade schools. If we will do this no shortage of skilled workmen will be experienced, and the substitution of concrete for brick will be reduced to the minimum.

At Ames, Iowa, is located the Iowa State College of Agriculture and Mechanic Art, a splendid educational institution. Many of our young men are taking advantage of the opportunities offered there and are preparing themselves for the activities of business

life, and to do something toward the advancement and progress of the country. Iowa ranks well to the top of the list in the production of clay products, and there should be established and maintained at the Iowa State College a department of ceramics. It will not take much money to equip and maintain such a department, and this organization should again recommend to the legislature a liberal appropriation for this purpose and each member should give the matter his individual support. To this end we have been working for some time, but I do not believe with the right sort of enthusiasm. During the last session of the legislature some of our members appeared before the appropriations committee and were received very cordially. They explained the need of such a department and went away feeling that possibly the bill providing for an appropriation, which was to be introduced, would be acted upon favorably. At adjournment, however, it was found that the whole matter had been overlooked. Let us not feel discouraged, but try again.

The program which outlines the work of this convention gives evidence of great care taken by our secretary in its preparation. It is varied and interesting, and I hope that the papers and discussions may result in benefit to every one present. Our time is somewhat limited, and it is therefore important that we should all make it a point to be here at the appointed time.

My term of office will soon expire, and, in conclusion, let me

THE CERAMIC SCHOOL, ITS VALUE TO THE STATE AND THE CLAYWORKING TRADE.

BY H. R. STRAIGHT, ADEL, IOWA.

Mr. President and Members of the Iowa Brick and Tile Association:

Gentlemen—The function of a state institution is primarily the higher education of those living within its borders who may seek to specialize. The reason for specialization being the development of a greater usefulness to the state's industries, and their uplifting and to personal income.

The students of the school of ceramics must be able to logically attack and solve difficult problems along their special lines in order that they may become of greater usefulness to the State. They must be able to carry out weighty projects and experiments within a few months after graduation. In fact, things in which the experience of a lifetime of self-education would generally be necessary must be laid upon the shoulders of the young ceramic graduate. The record of graduate classes of ceramic schools of this country prove conclusively that such work is being carried out successfully.

Students of ceramic schools find positions as superintendents of factories making pottery, stonewares, building and paving brick, drain tile, building blocks, sewerpipe, terra cotta, decorating,



DELEGATES TO THE ANNUAL CONVENTION OF THE IOWA BRICK

say that my relations with the executive committee and officers have been extremely pleasant. I heartily thank them and all the members of the association for the courteous treatment I have received, and hope for my successor the same full measure of co-operation. I hope that when you return to your homes you can say that you have had a royal good time, and wish for all a successful and prosperous year. (Applause.)

The Secretary: The next number on our program is one that bears directly on part of our president's address, in regard to the Ceramic School at Ames, and it is to be hoped that every one present will consider all the points brought out in this paper and join in the discussion. We would like to have all these subjects thoroughly discussed if possible. We will now listen to a paper on "The Ceramic School, Its Value to the State and the Clayworking Trade," by Mr. H. R. Straight, who is a graduate of the mechanical engineering department of the State University of Illinois, and also of the ceramic school.

and floor tile, insulators, mineral paints, cements, etc. Positions of the greatest importance to manufacturers of many high class clay wares, such as experimental chemists, are held by many.

There is an abundance of clays in Iowa for all the factories mentioned above, but because of the lack of men fitly educated, such can not be developed in a scientific manner. The development in the past has been more or less by a cut-and-try method, instead of knowing before hand the exact result. Must we depend upon such states as Ohio, Illinois, New York, and New Jersey for such men. Their departments for this work are always busy educating men for their own use within the State. How can we expect to receive help from them?

Because of the great amount of tilled land we have little timber left suitable for lumber, and we must look largely in the future to other sources for building materials. At the present price of lumber shipped in, and, with a view to its lasting qualities, a wooden building is now almost out of the question. The solution of the problem is either burnt clay or a cement product. The manufacture of these goods must be carried on within the state because of the high freight rates. Should we not have an abundance of men who have the ability to push them?

Iowa's chief source of income must always be from her agricultural products. Her soils are rich and fertile because of the

gentle slopes they lie in. These gentle slopes require tile to bring them to their greatest fertility. It is for this reason that Iowa's fields at present are receiving twice as much tile each year as any other state in the Union. It is estimated that Iowa's average of tilled ground was increased six per cent. during the year of 1906 by the addition of over \$2,100,000 worth of tile. Should not the manufacture of these tile be carried on by men educated for the purpose. If a large saving in fuel might be affected by them, is it not worth while? If such wares can be made of a more lasting quality without additional cost, can we afford to be without them?

The manufacture of pottery, stoneware, and mineral paints has been carried on with rather indifferent success within our border. The principal reason for their limited manufacture being a lack of men who can solve and understand the complex problems which arise. The writer can find no record of the manufacture of insulators, terra cotta, or decorating and floor tile ever being thoroughly tried. Why should we not add such to the list of our industries and materially increase the state's income. We have the capital, but only a few capable men.

The clayworkers need a ceramic school for numerous reasons. The action of heat can not be determined with any degree of certainty with our limited knowledge from the physical characteristics or chemical constituents. The actual burning tests must be made. Since actual tests are required should not the clayworkers be allowed the same privileges as our engineers, i. e., the opinion of an unprejudiced expert, who has at his disposal a well-equipped

In short, the student is taught to study out for himself problems which a clayworker making fine or coarse wares must meet, so that he will be able to attack similar problems in a logical manner.

In conclusion, let me ask if anyone here can mention an industry producing one quarter the value of Iowa's clay products which is not represented in one of our state institutions, and supported by state appropriations. (Applause.)

General Discussion.

Prof. Marston: I am very sorry indeed that I did not get to hear this paper and consequently am not in a position to discuss it. I can only say for the college at Ames that we believe that such a school is of the utmost importance to the ceramic industries of the state, and, so far as I can pledge the authorities there, I can say that we are anxious to go ahead and make our school what it should be. This association secured the passage of a law by the state legislature establishing such a school at the college. I regret to say that we have not the equipment which we should have to make it as valuable as it should be, and I am obliged to appear in a somewhat apologetic attitude before you this afternoon on that account. We have a beginning in the



AND TILE ASSOCIATION, HELD AT DES MOINES, JANUARY 22 AND 23.

laboratory. It is not the purpose of the writer to belittle the observations passed by the test men of the various clayworking machinery companies. However, a firm selling machinery for a plant can not help but be inclined to smooth over matters of difficult molding, slow drying, small heat range in burning, etc. Had a few of these things been determined definitely for some of our clayworkers, many thousands of dollars now invested in worthless plants and apparatus would have been saved. Again, should not the clayworkers be given the same laboratory facilities as engineers, farmers, mine operators and others.

At present two distinct courses are given at our state institution at Ames. A two-year course for practical clayworkers and ceramists who have had a fair amount of experience along their chosen lines and who are not acquainted with the technical side of their problems. A three-year course is given to beginners of both the practical and theoretical work. Both courses give a large amount of general engineering, as they should, for the problems of the ceramic engineer generally partake a great deal of engineering of a mechanical, electrical and civil nature. A practical working knowledge of all tests made on clay wares is taught. Remedies of faults in clays in molding, drying and burning are determined. Construction of machines, dryers and kilns are reviewed and studied.

way of a very small number of students registered for the course—I think only a couple or three. We have marked out a regular course of study which I think would be of much value to any student taking it, and we would bespeak your co-operation in our efforts to do what we can with the resources which we have at hand at the present time, especially in the way of sending us students whom you think would be interested along this line. We will take them and do the best we can for them; and, while I am apologizing for the lack of equipment along this line, yet we have a strong equipment along engineering lines in general and can promise, I think, that the men will get the worth of their money. I really think that the best way for us to get a good start at the ceramic school is to get some students and get to work, and that the rest of it will be sure to come when you have a start in that way. It is a little hard to arouse enthusiasm to the point of spending very much money when

we can't absolutely show that the demand is there on the part of students applying for the work.

I am at a loss to say anything further and I think perhaps I had better stop at this point. I will do anything I can to help out this good cause.

Mr. Lewis: Mr. Beyer is just outside the door and we would like to hear from him on the subject of ceramics at the Iowa State College.

The President: I presume I had better appoint a committee to escort him in. Prof. Beyer, there are plenty of seats up here in the front row. Our secretary, I believe, wants to address a few remarks to you.

The Secretary: Mr. Beyer, I think it is hardly proper for me to address you. I suggested to our worthy president that he ask Prof. Marston before you came in what benefit he thought the ceramic school would be to the state, aside from educating young men to take charge of clayworking plants, and what he considered the best way to proceed, and what equipment he should have in establishing this school.

Prof. Beyer: Mr. Secretary, you have succeeded in putting some pretty hard questions. I have always considered that a school of that kind, educating young men to take charge of the ceramic industries, was only one side of it, and that in addition to this side of the question we have always considered ourselves a sort of testing laboratory for the industries in the state. I will have to confess that we



Secretary C. B. Platt, Van Meter, Iowa.

have been rather handicapped on account of lack of equipment. We have equipment so that we can do the chemical work; we have equipment enough to make some of the physical tests, but we are almost entirely lacking in the proper equipment to make actual burning tests or actual manufacturing tests anywhere along the line. It seems to me that the most important improvements that we could install at the present time are those that would permit us to make tests that would at least approximate actual working conditions. One of your members has agreed to help us out to a certain extent in the way of building a kiln by furnishing some of the materials that enter into it. We have a microscopic appropriation to carry on the completion of the kiln, that is, we have \$100. We have another microscopic appropriation to purchase equipment to manufacture clay wares, and we have put in a microscopic order for that equipment, but you must not expect too much of us right away, until more liberal appropriations are made.

Two years ago, as most of you know, a bill was passed establishing such a department at Ames; in other words, simply legalizing the work that we had already been trying to do for the last six or eight years. But, like a good many bills of that kind, it slipped through without providing any of the wherewithal. It was pretty well known at the time that the only way to get the bill through was to leave that clause out, and it was thought better to make an opening than to quit without anything at all to show for the work. It seems to me that we ought to get together now and

secure funds in some way. It occurs to me that it is a perfectly legitimate work for the state to take up—just as legitimate as the agricultural experiment station appropriations, and I can't see any good reason why the state should not provide these means to go on with the work and carry it on in the way it should be carried on.

The President: Mr. Straight in his paper was very emphatic that the state should provide or make appropriation for a school of this kind, the same as for mechanical and electrical engineering, etc. I don't believe that we should discuss these matters and go away from here and let that be the end of it. Let us keep after it all the year. Is there any further discussion?

Mr. Thompson: There is just one phase of this subject that I might suggest. When a business man has gone through the activities of life and is ready to drop his business onto younger shoulders, it is often the case that his son, to whom it would naturally fall, is interested in some other line of work. Farmers especially have found this out; they often complain. They have found that by giving the boys a little technical training along farming lines they become interested in that life and take it up. One of the good purposes to be accomplished by technical study in any line is to give the children or the sons an interest in the father's business, and make them care for it as they would for any other. I think that is one purpose that is to be subserved.

Mr. McHose: I can hardly allow this discussion to drop without saying a word. I don't believe that any more important subject can come before this convention than the question of establishing a ceramic school upon a square and fair basis at our agricultural college. The state is today spending many thousands of dollars to manufacture lawyers, doctors, and dentists, but she is not doing much to manufacture industrial enterprises, and I take it that the broad State of Iowa needs industrial enterprises as much as she needs anything on the footstool. The clay manufacturing industry of Iowa is the largest manufacturing interest that the state can boast. It represents more men and more money than any other manufacturing enterprise. In fact, it is second only to the railroads and the farming interest, and I believe it deserves more at the hands of the legislature and the colleges than it has yet received. The fact is that it is up to the clay men of Iowa what they will have. This association can have almost anything it wants if it will go after it. The trouble is that we have been passing resolutions in good shape and letting them drop. But I can assure you, gentlemen of the convention, that to get the ceramic school fairly on its feet, somebody and everybody has got to go to work in good faith and work until it is accomplished. You must apply yourselves individually and collectively, by committees and in general, to establish this ceramic school, if it is worth our effort at all. It is up to you to say whether it is worthy and is one of the things that we want. I don't think there is any need to discuss that question, in the light of what we have heard. It is more a question whether we will go after it and get it, as we can if we apply ourselves to do the work. Will we do it?

Judge Stevens: I wish to suggest a plan for securing action by the legislature. The state is politically divided into congressional districts. A member of the board of trustees of the different institutions is selected from each district. For the purpose of getting at practical work, I suggest that this organization select a committee of one from each congressional district in the state, to be a legislative committee for the purpose of promoting and aiding the establishment of a school of ceramics and of securing appropriations to support it in connection with the Iowa State Agricultural College. I make that in the form of a motion.

Motion seconded by J. B. McHose and duly carried.

Mr. DeJoannis: I would like to say something. I was a little bit slow, but it seems to me we ought to go even one step further than that. The school is established, but it is somewhat in the position of a foundling. The person who wants to dispose of a child places it on the doorstep of the institution where it is supposed to be taken care of, and knocks. If the door is opened, the child will be taken care of; if not, it will probably freeze to death. The school is in very much the same position. In this recent motion there

is no provision made for any specific sum. I think we should incorporate in that resolution some specific sum to go after. The larger it is, the more likely we are to get something.

Mr. Coutts. I was very much pleased with the paper. I think it hit the nail right on the head. But we have said that before, and we have sat down and done nothing. I don't know but what I might make a charge here that would hurt, and yet be absolutely in place. I will frankly say that I think this organization is considerably to blame because the appropriation that has been talked of failed. A year ago, at the annual convention of the cement workers of the state, I had the honor of being appointed chairman of the Legislative Committee of that body, to work in conjunction with the Legislative Committee of this body. We got together and thought we were going to fix things up. The school, as has been stated, has been established without any appropriation to do anything with, and I thought that we were pretty well organized to appear before the Appropriations Committee and present our case; but when I got to Des Moines I didn't find any clayworkers here. I went to the office of our honored president (who was to represent this committee by proxy, however,) and found that he had just been married, and no one in the office knew where he was. Then I tried to hunt up another of the brick men, and I don't know whether he had gone to get married or not, but I couldn't find him. So I went up to the State House alone, expecting I would find my co-workers there. But I didn't, and I had already made arrangements with our member of the legislature to bring the matter up, and he had secured a hearing for us that day and sent me word to be on hand with all of our forces. I was a little humiliated to find no one there but myself. I had a very respectful hearing, however, and presented the matter as best I could from the standpoint of the cement workers, and the clayworkers also, so far as I knew it.

There were one or two things that were working against the securing of this appropriation in which there was no virtue nor merit. One or two members of the legislature, and of that committee, whose homes were nearer some other cities than the city of Ames, got an idea in their heads that this was a move on the part of the Iowa State College to secure another appropriation. I did my level best to disabuse their minds of that impression, and to convince them that the State College had absolutely nothing to do with it, but that the clayworkers and the cement workers of the state thought it would be economy for the State of Iowa to establish the school there, inasmuch as there was already a great deal of equipment there and it would be cheaper to establish it there than anywhere else. The Iowa City phase of it did not enter into the question at all. I also tried to impress upon the minds of that committee that we were not asking the State of Iowa for any money as a gift; we were simply asking the State to make an investment that, in our opinion, would bring back into the state treasury five or ten times more than all it was paying out. We could not tell how much of an income the clay and cement industries of the state would bring in, but we knew it would be very much greater than we were asking them to expend. I called attention to the fact that the general government had made an appropriation of \$75,000 for the Geological Survey at St. Louis, and had installed a great deal of machinery and erected some buildings, which were simply worth what they would bring for junk. The experiment had been made for which they were arranged and the work was done. On the other hand, the State of Iowa was going to establish something that would be one of the assets of the state and would bring more benefits to the industrial interests of the state than anything else we could think of.

As I said, the committee gave a very respectful hearing to what I had to say, and a great many of the members pledged themselves to vote for the appropriation. As to why it failed I am unable to say, but I have some notion in my own mind. At any rate it failed, and, since this matter has come up again, I am sure that I can say positively for the cement workers of the state that they are willing to do everything in their power, and will do so, to co-operate with the clayworkers to make the very best showing possible; and it behooves every one of us, as men that

are interested in the industries of our state, to see that no stone is left unturned, but that this matter is presented in the strongest way possible to our next legislature, so that it may be brought to a successful issue.

Judge Stevens: I desire to explain a little more fully why I moved the appointment of a committee of one from each congressional district. I suppose there is not a congressional district in this state but has some member of our association in it, and he is more familiar with the men from that district who will be in the legislature than a member of the committee outside of that district, and can bring greater influence to bear upon them. For instance, Mr. Dennison or Mr. Stephenson in the Fourth Congressional District probably know every member of the legislature from their district. They can approach them and get time from them to explain this matter and fully inform them as to its importance. Mr. Holman, in the Eleventh, well known all over that district for years, would be a man of influence there to bring that about. And so I might go over the whole state. Take the Seventh Congressional District: Here in Des Moines we have several men of influence, well known all over the district, in our organization. They can bring to bear more influence upon the members of the legislature from this congressional district than upon those outside. Therefore, if a committee of eleven—one from each district—goes at this work systematically, working with the members of the



Judge J. L. Stevens, Boone, Iowa.

legislature from their respective districts, they can accomplish a great deal.

As to suggestions with regard to the amount that we should ask for, there is not a member of this convention who has given that any study. We haven't even asked our visiting members from the school yet, and we are in no shape to name the amount that is necessary to carry on that school. That is a matter for the legislature anyway, and when they determine to do it they will call in the president of the Board of Trustees of the school and consult him in regard to that. It has been explained by Prof. Marston and Prof. Beyer that a large part of the equipment necessary to carry on this school is already there. The state is paying the wages of the teachers in all those departments, but they haven't anything to conduct the practical experiments with; they haven't their laboratory so to speak. The chemist has his laboratory, the agricultural chemist has his, and the teacher in fine stock has his pavilion and his fine herds of different cattle to explain in the course in animal husbandry to the agricultural student; but the man in ceramics has no test kiln, or clay, or coal with which to burn it, or the proper supply of tools. When we inform the State of Iowa or its representatives what we want we will get it, and that is why I moved to appoint a committee so spread out and located as to bring about in the shortest time the best results.

Mr. Stoll: Mr. DeJoannis has suggested that there ought to be some amount set. I have had some experience in that.

We had the matter up, I think, at the meeting of the last legislature, and were assured by some that we were going to get an appropriation. When the legislature met there were a lot of fellows from away down in Egypt that never heard anything about a clay school or about this thing that we were trying to bring before them; and when we asked for some money they turned us down and said they were spending enough money up there. We heard of it in time, and I think a great many of the members of the association sat down and wrote personal letters to their representatives, calling attention to the fact that we ought to have this clay school, and showing what it did for the young people, and we said we wanted \$15,000. They did like lots of legislatures; cut it right straight through in the middle and gave us \$7,500.

You must ask for something and show these people that you have got to have it. You can't do all these things on wind; therefore, if you are going to start at it, don't ask for \$1,000, because they will cut it in two anyhow. You might just as well ask for \$10,000 a year, and then you will be apt to get half of it. But my suggestion is that every member of this association write a personal letter to the representative from his county. Don't think, "I will write it tomorrow," but do it right away, and make it as strong as possible. Tell them what you must have and what it is for, and then afterwards have your committee go around and see them. That is the way to get it.



President-Elect C. L. Smith, Mason City, Iowa.

Mr. Beer: I agree fully with Judge Stevens in the appointment of a committee from each district, and I believe with him that this committee should act in conjunction with the instructors and professors at Ames before any amount is asked for. I believe that they should make up estimates of what they require, and they can do it better in conference than we can here without any deliberation. In presenting their estimates it is better to itemize what they want than to ask for a lump sum, as Mr. Stoll has suggested. I would further suggest that this committee be a special committee, and that it act independently of the Legislative Committee, and that it does not include any of the members of the Legislative Committee which has been already appointed. I would make that as an amendment.

Mr. Gethmann: I am in favor of the gentleman's motion as it has been acted upon. If these brickmakers were to set the sum that is required in the school at Ames, or anybody outside of the professors, I think we would fare somewhat like the schoolma'am that gave a problem to one of her pupils. She said: "If a hen lays fifteen eggs in one day, how many will she lay in thirty?" If we were to set a sum for the legislature to act upon, we might get it just about as near right as that. I think the suggestion that Judge Stevens made of leaving that to the legislature and allowing them to invite the trustees of the school in is a good one. They would get that in proper shape, so that it would appear all right to the legislature.

Mr. Coutts: I would just say for the information of

these gentlemen that have been talking that this joint committee did have a meeting with parties that expected to put this work through, and we decided that the amount necessary was \$10,000 for the establishment of the school, and \$2,500 annually for maintenance. But, unfortunately, the day before we presented the matter to the legislature, that body had passed a resolution refusing to consider any appropriation after that date that reached the amount of \$10,000. So, in order to get a bill before the house we asked for \$9,000 for establishment and \$2,500 for maintenance. That is the way the matter stood last year.

Mr. DeJoannis: I don't think the members appreciated that I was not trying to upset the chronological sequence of the work. Judge Stevens' suggestion is excellent, and absolutely necessary in carrying out the work. It involves a co-operation which has been lacking, and in no other way than Judge Stevens suggested can we hope to have such leverage upon the people whom we directly desire to interest as by the method involved in the motion. But there is one thing certain, and that is, that if these eleven men are going to do their work right, they must know what they are going to talk about. To go around in a sort of a hazy way and suggest co-operation for the ceramic school or for the purpose of maintaining it doesn't give anybody very much backing.

I had probably as much to do in bringing about the ceramic school at the University of Illinois as any other people—at that particular time. Other people had worked four or five years before I started in. But after I did start I found out that if anything was hindering me it was a lack of knowledge as to what it was necessary for the school to have. It was one thing to talk up the advantages and another thing to know what was necessary to secure these advantages. Our special necessity right now is to have an understanding with our school friends—Prof. Beyer and these other men who have been of so much assistance to us—as to what they need, and then in our private talks we will be able to impart the knowledge that they have given us. For that reason I suggested naming the sum, and I still repeat that if we are going to act in any way which is to be effective we must not go around to these people with a fairy tale of the needs of the school.

Judge Stevens: Put your idea in the form of a motion and I will second it.

Mr. DeJoannis: I would like to allow Prof. Beyers to take his feet now and suggest to us what is necessary, and then if Judge Stevens will very kindly add this to his motion, I will gladly second it.

Prof. Beyer: In order to install the plant properly we have to have some means for housing it. We haven't rooms adapted for the purpose. Last year we figured on the minimum amounts that we could possibly do anything worth mentioning with. Those were not the amounts that we would have liked to have; they were what we thought we stood a reasonable chance of securing, and that would yet permit us to do the work. My opinion was that \$10,000 would be the minimum figure to provide the proper housing and machinery, and that we could get along with \$2,500 for maintenance, as we were not going to draw on the account for salaries. We didn't make any provision whatever for special instruction or assistance. That sum was for the actual materials that we would have to use or that would be charged to expense account. But it occurs to me that this is not what we ought to ask for maintenance, but that we ought to ask for \$5,000, so that we could have one man who would devote his entire time to this kind of work, besides one or two others that would devote part of their time. That would care for one salary and perhaps part of one or two others, in addition to the expense. I can't itemize that off hand, but I shall be glad to do it. It should be \$10,000 for installation and \$5,000 for the annual expense.

Judge Stevens: I move then that the committee be instructed to ask and work for the appropriation of \$10,000 for equipment and \$5,000 per annum for support and instruction.

Prof. Beyer: Judge, that is with the understanding that it is not going to be discounted.

Judge Stevens: I accept the amendment, without discount.

Mr. McHose: I appreciate the value of having the amount, but in the first place let us consider that the legislature does not meet this present year, and it will be a year hence. Our committees will probably be better instructed at that time than they are now, and I think they are amply able to fix the amounts at the time they want to commence work rather than at this time. Why not leave that to the committee, with all the advice and judgment that they will have? They must always consider the questions of discounts, as has been remarked, and that has also to enter into the computation.

Here is another question; it is a practical question before us. We have a legislative committee. I am not advised what the life of that committee is and I don't know when it's term expires or commences. Possibly I can be informed. I was not at the last annual meeting. But it is evident that the real work (although some of it must be prepared before hand) must commence about the first of January next, before this meeting will probably convene again. At the same time the work of the committee will be protracted through a year from this spring, and I assure this convention that if we get this bill through the legislature it must be by the work of the committee then and there, in addition to all the help we can get from the congressional districts.

Mr. Beer: Why would it not be well for the committee to ask for a minimum of \$10,000 for installation and \$5,000 for maintenance, and increase this amount if in their opinion it is necessary?

Mr. Platt: I would suggest as Iowa is the finest state in the Union, that this committee ascertain how much money the very best ceramic school in the United States needed, and then ask for that much for Iowa, and tell them that is what we must have.

The President: Do you move that as a substitute?

Mr. Platt: Yes.

Mr. DeJoannis: I am against the substitute. You can ask for a million dollars if you like, but I don't think you will interest the legislature very much when you talk about that. I believe we should be conservative. I think the work in Illinois took sixteen years on the part of Prof. Rolfe and one or two of his assistants in the university. It took twelve years to get the clayworkers worked up to a sufficient degree to even write letters, and, subsequently, it took four years' hard plodding to get the bill through. I agree with Mr. McHose that a year from today they will be better informed than they are today.

Judge Stevens: I understand from Dean Marston that the amount suggested here was ascertained last year with some care, and it was thought that it was a very fair one to ask for. I don't believe it is helping anything to discuss the amount. I don't know as it will help any to pass this motion, but we are not going to get any closer to what we need than the amount these gentlemen in the school have suggested.

Mr. Hansen: Why not get Mr. Marston, who is a pretty good hand at figures, to make an itemized statement of that cost and show it to the members of the committee? I have a superintendent of my tile works and when he comes to me with a request for money I want to know where it is going, and the next thing for him is to make out an account and show me how feasible it is. It is simply a business proposition, gentlemen, to show the legislature what you want.

Mr. Platt: I am perfectly willing to withdraw my amendment to the motion. In the first place I am entirely favorable to leaving it with the committee.

Mr. DeJoannis: I second Judge Stevens' motion.

The President: You understand the motion, I believe. Is there any further discussion?

Judge Stevens: I will withdraw my motion, with the consent of my second. I am satisfied that it is better to leave it as it was.

Mr. DeJoannis: I withdraw it under protest.

The President: In appointing this committee I will try to confine myself to gentlemen who have heard this discussion. I will do that tomorrow. If there is nothing further on that subject, we will pass to the next item on the pro-

gram: "Comparative Value of Large Tile Over the Smaller Sizes," by Prof. F. M. Okey, in charge of Engineering Experiment Station, Ames College.

COMPARATIVE VALUE OF LARGE TILE OVER THE SMALLER SIZES.

BY PROF. F. M. OKEY, AMES, IOWA.

Mr. President and Gentlemen of the Convention:

The time has come when every farmer and land owner should know every why and wherefore of underdrainage and tile drains, from the most rudimentary principles to the higher knowledge and practice. The old slipshod method of laying a line here, another there, and still another in another location to drain out some pond or marsh, irrespective of fall or size of tile required, is fast becoming obsolete, and the wideawake, progressive farmer of today is substituting therefor a systematic study of soil formation and the topography of the soil to be drained. Or better still, he employs a competent drainage engineer to make the necessary surveys and stake out the work, resting secure that in the assurance that if the system is put in as planned, all superfluous water will be taken care of, and that increase in crops and higher valuation of the land will result.

However, we may still find quite a number of "stand-patters" for some of the old methods. Just recently I talked with a man who urged that the water method of determining a grade line was the only sure one, holding that the grade line established by an engineer was only "approximate," and not to be relied upon. Applying this to one or two examples of drainage engineering that I have recently come across, it must be admitted that his argument on this one point at least is especially strong. But I believe that as a usual thing, the grade line established by an engineer is to be relied upon, not only to carry off the water, but to leave the bottom of the trench in good condition to give a firm bed and true alignment to the tile, which is considerably



Prof. S. W. Beyer, Ames, Iowa.

more than can be said of the old water method of grade determination.

But as regarding methods of tile manufacture, it would be decidedly presumptuous for me to assume that I could tell to men of your maturity and experience anything that would be new or interesting. It but remains for me, the engineer, to make a few mild suggestions as to what I would like to have in the way of size and length, and to arrange as best I may for the "covering up" of the defects in your output.

Relative to the length of drain tile there is little to be said except a relash of what has already been said on the subject. The length most commonly in use is twelve inches, at least for diameters of twelve inches and less, and any additional length would not be of very great advantage. Where the drain in question are trunk lines of large diameter, and run for considerable distances, tiles longer than twelve inches may be used with best results. The reason for this is easily apparent. Much of the water carried by the trunk lines is received from the lateral drains emptying into them. Trunk lines are usually put in more to carry off the water collected by the laterals than for actual drainage, and it is not necessary that there be many joints to receive additional water. And, if there were water to be removed along the line of the main, there would be sufficient openings to take care of it, owing to the increased length, even though the tile were two feet in length, and to the increase in actual area of opening at each joint, due to the increase in circumference of the large tile over that of the small tile in the laterals. So, for long drains, tiles longer than twelve inches are to be recommended, as they are somewhat more easily laid, and are not so likely to move their position in a long drain after having been laid. Otherwise, the long tiles have but little superiority over the short ones.

Taking up the discussion of the sizes of drain tile, and more specifically the advantages of large size drain tile, I seem to be entering a field of unknown area and possibilities. It took but a very superficial study of the question to convince me that I knew very little about it, and, after an exhaustive search through

books and papers on tile and tile drainage, I am of the opinion that no one else knows much more, or, if they do, they have not given the public the benefit of their knowledge.

At one time, a tile which had an inside diameter of one inch was considered sufficient, but today a tile is not considered of adequate bore unless it is at least three inches in diameter. The general consensus of opinion among drainage engineers seems to be leaning toward larger sizes, and this is so far affecting the situation that a few of the tile companies will not give quotations on a size less than four inches. The advantages of the larger sizes may be readily seen when we consider that in many soils and strata, there is more or less water coming all the time from underground springs which would fill the small tile nearly or quite to their capacity, but is nothing to be compared to the water around them after a heavy rain, or during spring thaws. The water runs off so slowly than it has time to thoroughly chill the ground. The result is wet ground for a considerable period of time, and delayed agricultural work, while if larger sizes are used, the surplus water is carried off easily and quickly before it has time to do any damage by puddling or chilling the ground. The size depends largely, of course, upon the area to be drained, and whether the line is a lateral or trunk line. A quick relief from surplus water is necessary to some soils, for, if allowed to become saturated, they become hard and cracked when heated, a condition to be avoided if possible.

Considering that a tile of three-inch internal diameter is the smallest size that should be used under any circumstances, and using it as a basis of comparisons, let me present a few of the apparent advantages of the larger sizes.

The cross-sectional area of a three-inch tile is seven and a small fraction square inches; that of a four-inch about twelve and a half square inches, that of a five nineteen square inches, and that of a six 28.27 square inches, or just four times that of a three-inch, though the diameter is only twice as great. In fact,



C. J. Holman, Sargents Bluff, Iowa.

this is true of all tile; double the diameter and the cross-sectional area is four times as great. Assume that enough dirt has entered through the joints and at the end of a three-inch tile to fill it, and thus completely destroy its efficiency. As just mentioned, the three-inch tile has a sectional area of a trifle over seven square inches, and the four-inch an area of practically twelve and one-half inches, or about eighty per cent. more. If this same amount of dirt entered a four-inch tile it would fill it only a little over half full, or to speak exactly, fifty-eight per cent. full. There might enter here the possibility that more dirt might enter the tile of larger size, owing to increased circumference and area. But, with due precautions taken, there is not much chance of this. However, if we allow that twenty-five per cent. more dirt gets in, which is a very high estimate, unless it be at points on a curve where the outside of the line has the joints open a trifle, and then four-inch tile would still be only a little over seventy per cent. choked, leaving an available waterway of thirty per cent. of its area. Not much, to be sure, but still a great deal better than a three-inch tile entirely choked up. But, assuming that enough water is to be provided for to fill a three-inch tile, this same amount in a four-inch tile would have a slightly increased velocity of flow, and have thus a greater tendency to wash the dirt out. Perhaps not near all of it, but certainly much more than would be washed from the three-inch.

Allow me to go further and compare the three-inch tile to that whose diameter is five inches. The five-inch tile has a sectional area of nineteen square inches, or 2.7 times that of the three-inch. Therefore, the dirt that would fill a three-inch tile full would fill a five-inch only thirty-seven per cent., or a little over one-third full. We might assume that an additional twenty-five per cent. of dirt enters. The five-inch tile is still four per cent. less than half full, and has an available waterway of 1.5 times that of a clean three-inch tile.

Comparisons may be made still further by comparing the three-inch tile with those of still larger diameter than those mentioned, the four-inch with the five-inch and six-inch, and so on, but we

are concerned chiefly with the smaller sizes in this part of the discussion, namely the three-inch, four-inch and five-inch.

Then the larger sizes have an economic value relative to cost. According to a table compiled from formulas recommended by Mr. C. G. Elliott, drainage engineer to the United States Agricultural Department, a three-inch tile laid at a twenty-five per cent. grade, or a fall of three-eighths inches per rod, is adequate to drain five acres. But a four-inch tile laid at the same grade will drain ten acres. In other words, it has twice the capacity of the three-inch tile. So if we found that there was a little too much water for the three-inch tile to carry away, we could be sure that a four-inch tile would have no trouble in taking care of all of it. The computations for making the above mentioned tables are based on the assumption that the tile removes one-fourth inch depth of water per twenty-four hours.

Assuming that a tile is effective one rod each side for each foot of depth in ground, and that the tile is in four feet, it will drain a strip eight rods wide. In the case of the three-inch tile, which drains five acres, the line will be 100 rods, or 1,650 feet long, and the line of four-inch, which drains ten acres, will be twice as long, or 3,300 feet. So, if we wish to drain ten acres with three-inch tile, it will be necessary to put in two rows of them eight rods apart, running 1,650 feet, the length to which we are limited. But when we come to the end of this length, it is necessary to either increase the size of the tile or to put in intercepting drains. If the former, it will not be possible to run them half their available distance until it will be again necessary to increase the size. If the latter, there will be the increased cost of the intercepting drain. Furthermore, if the smallest size is put in at the upper end of a system, it will never be possible to make any extensions in that territory without going to the greatly added expense of taking up the small tile and replacing them with the larger ones, very likely causing a revision of the entire system, which is decidedly more expensive than putting in the larger size in the first place, even at a greater cost. About how great this increase is, may be drawn from the following: Based on actual cost and compared as to the cost of unit area, using the area of a three-inch tile as the unit of comparison, there is an advantage in favor of the larger tile. The four-inch tile cost only twenty per cent. more than the three-inch, but has a sectional area eighty per cent. greater than the three-inch. The five-inch costs sixty per cent. more than the three-inch, and has a sectional area greater by 2.7 times that of three-inch. Also, the five-inch costs thirty-three and one-third cents more than the four-inch, but has a sectional area sixty per cent. greater than the four-inch. Superficially, a case of getting more for your money by buying the larger tile. But when it is considered that there is a less likelihood of the larger tile choking up, when they will remove the water more quickly, when they will drain a larger area per given length of tile, and when there is practically no difference in the cost of laying the smaller sizes from the six-inch down, the economy of the larger tile is easily apparent. There are, of course, places where it would be folly to place tile of small diameter, such as bogs, swamps, and marshes, or where there is considerable surface water likely to find entrance. In such cases there is continually such a large supply of water to be removed that it would take several lines of the small size laid close together to provide an ample waterway. Considering the added cost of extra ditching in such places as well as the added cost of the extra tile, the economy of the larger tile is at once observable. Quick relief from surplus water is what is wanted in every case and such relief will be obtained only by using the tile of large diameter. So, in view of all that I have said, let me urge that no tile be put in that has a diameter less than four-inch, or, if there is the least doubt about that size being adequate, put in a five-inch. I have confidence in this statement not only because of my own belief, but because some of the prominent drainage engineers are advocating this and requiring the use of sizes larger than three-inch, and by the fact that fewer three-inch tile are being used every year. So much for the advantages of large tile over small ones.

Turning our consideration now to another phase of the question, I would like to present a few points wherein a very large tile has the advantage over an open ditch. I will admit there are places where an open ditch is the only kind of a drain than can be used, and that the drainage of some sections of country would be out of the question if a drainage ditch could not be used. But, with the manufacture of the very large size tile, a diameter of thirty-eight inches being about the maximum, we are able to provide a means of discharge for an enormous amount of water. So, when we find a district too large for the largest size, nothing short of a small river will care for the surplus water.

Referring again to the table giving the area drained by the different sized tile, I find that a twenty-four-inch tile laid at a two per cent. grade will drain about 2,600 acres. The smallest ditch that will care for the drainage of such an area is four feet deep, has a grade of six per cent., has an average width of water of six feet, and is about two-tenths feet wide on top. This is based on the ditch running three-fourths full, or having in it three feet of water in depth. Take a tile thirty-six inches in diameter. This has an area a little over twice as great as the twenty-four inch and a discharge about 2.25 times as great, or will be effective in draining about 6,000 acres, providing that it is laid at the same grade. The smallest ditch that will drain this area is four feet deep and sixteen feet wide, and has an average width of water of eight feet, the grade being the same as in the first. The first cost of these ditches is low compared with the tile, but that is not all to be considered. A ditch sixteen feet wide on top takes a strip about four rods wide that is not available for farm land, which means an acre for every forty rods of length. Of course, this is not to be counted if the ditch is necessary to make the

land tillable along it, but if it be only an outlet, it is decidedly expensive. The open ditch requires constant care to keep it free from weeds and dirt caving from the sides, which greatly reduce its efficiency. There is also the added danger of an overflow, which may cause an inestimable amount of damage.

With the use of the tile all these disadvantages are eliminated. When the tile are once in the ground all expense ceases, for there is no maintenance required. They do not deprive the farmer of the use of several acres of valuable farm land, for the land may be cultivated immediately above the tile, and there is never danger of overflow, so I believe the greater weight of the argument is in favor of the tile, even though they may be more expensive when they are first put in.

In conclusion, I would like to mention the fact that some of the points which go to decide which is really the best size of drain tile to use, are as yet unsolved problems of engineering. Many items involved in working out some of our conclusions are merely reasonable assumptions and not established facts. I will mention those which appeal to me as bearing most strongly on the question.

It is not known definitely how far a tile is effective on either side, nor how deep it should be placed in the ground. Neither is it possible to say definitely today how much water in inches of depth we can reasonably expect a tile to remove during twenty-four hours, or whether or not the tile becomes more efficient after an extended period of time as claimed by some. So far as I am aware, there is practically no data upon any of these points.

In order that some light may be thrown on these things, the engineering experiment station of the Iowa State College is carrying on a series of experiments on two drainage systems, from which we expect to determine by a system of pipes for determining the fluctuations in the elevation of the ground water, and wires to measure the actual quantity of run off, whether or not the assumptions mentioned above are as reasonable as they seem, and, if they are not, just where the fallacy lies. This experiment has not been in progress for any extended period of time, and we have no definite results to offer as yet. However, it is hoped that by this time next year, enough data will have been collected to justify a report on the subject. I am sure that the experiment will be of great interest to every one concerned in drainage work, either directly or indirectly, and that the report of the results will be awaited with considerable anticipation. (Applause.)

General Discussion.

The President: I will ask Mr. Denison, of Mason City, to lead in the discussion of this paper.

Mr. Denison: Mr. Chairman, it seems to me that Mr. Okey has pretty thoroughly and fully covered the question; I don't know that I can add any information or suggestion. I might say though, that we have cut out all under three-inch tile. We discovered that the sale of smaller sizes was a damage to our business, because it invariably failed to do satisfactory work. We discovered, as have all of you who make tile, that the man who drains his land starts out with the very smallest tile he can buy, regardless of whether it will do effective work or not. If he could get a two-inch tile he would use it, because he has no practical knowledge of the results. We have systematically endeavored to increase the size of the tile being laid. We have endeavored to educate our customers as far as possible along the line of using a larger tile than the engineer would dictate. The engineer as a rule goes by some data furnished him in a pamphlet, like that put out by the Agricultural College at Ames. The tables prepared by the professors there are based upon running off one-quarter inch of rainfall in each twenty-four hours. Of course, the engineer assumes that those tables are correct. Undoubtedly they are, but the practical result is that when you get an inch and a half or two inches of rainfall and run off half an inch in forty-eight hours, the crop is spoiled before the water runs off. The only remedy is a larger tile or a steeper grade. The grade is not always available, but is fixed by the natural conditions. I think the idea should be put forward by this association as largely as possible, and that we should encourage the professors at Ames to enlarge the sizes of drain tile—I mean to inculcate that idea; as ultimately the man who uses it is benefited, although temporarily he may think he is paying more than he ought to. I think it is the observation of almost every man in the room that the drain tile are almost invariably too small.

Mr. Hansen: I would like to hear from those engineers at Ames as to how much a drain tile helps the land aside from drawing out the water. My theory is that the tile draw a certain amount of air to the subsoil and makes it that much better. If that is the case, we have overlooked this point, and I would like to have it investigated closer.

Prof. Marston: On this matter of the size of the drain tile I am going to make a very frank confession, and that is that we do not know just how large those drain tiles should be, for the reason that no one has ever gone to work and put in some method that measures the amount of water that runs off from a system of tile. The only measurements that I know of were made by Col. Waring before he became famous, when he was interested in tile drains in the east. The actual practice in laying out of drain tiles at the present time is largely a matter of judgment with the different engineers and tile ditchers through the state and other states. You might say that it is a matter of experience, because these drain tile so drain the land, and that is all that you can say for it. You can only say that two men will have the utmost divergent ideas about the size of those tile.

I was interested in what Mr. Dennison said, and his experience coincides somewhat with my own observation. On the other hand, we sent out a series of circular letters to drainage engineers through the state, inquiring, among other questions, about drainage, what they thought about the drain tables. Part of them responded that they were using them and thought they were about right, and others responded that the sizes were altogether larger than needed, ranging up to three times as large as they should be. We are starting the work to find out how large they should be. Down near the college and in another place in the northern part of the state we have set to work on the matter, and we are going to keep track of the results. We have been doing



O. T. Denison, Mason City, Iowa.

that for a year in a preliminary way, as I mentioned to the convention a year ago that we had planned to do. Also, we are taking up this question which this gentleman referred to, that is, we have set at different points, extending out from the tile drains, a series of three-fourths in pipes, perforated, so that we can measure down twenty-four hours after a rain and forty-eight hours after, or at such times as we wish and find how deep the water is standing in these pipes; that is, how far the water has been drawn down by the tile. We have been doing that also in a preliminary way for the last year, and expect to get some information from those two particular places showing just how far the water is drawn out of the soil.

Further, in regard to this question which was asked, I would say that this breathing of air through the pores of the soil, is, as I understand it, one of the most important things in connection with the successful growth of crops. The air in the ground is not in a state of rest, as most of us think of it. It ought to be regarded almost as a pair of lungs. The air passes into it and out of it, and that interchange of air between the soil and the air above it is one of the things necessary to successful plant growth. I believe that the tile promote that, both by removing water which otherwise fills the soil, just as a person's lungs get filled up by certain diseases, and in another way by actually providing channels in which the air can circulate underground.

But on these points we plead more or less ignorance, and

we also say that we realize that it is the first step toward finding out something better.

Mr. Gethmann: I would also like to ask if there is any great difference between porous tile, that will permit the water to run through the tile, and the vitrified tile of the same size, and if it is not the case that a vitrified tile, which will not permit any water to run through the tile itself except at the joint, could be very nearly choked up in sticky clays, where the clay would have a tendency to close up the joints so tight as to permit very little water to run through?

Prof. Okey: As far as I am concerned in this matter, we don't consider that any water is expected to enter through the tile itself, but entirely through the joints. In respect to getting entirely clogged up in sticky clay, I am not prepared to give any information on that subject, but I am very firm in my stand that no man who is selling tile could sell any to me that were porous enough to allow water to run through. I read an article a short time ago in which some man had asked a division superintendent of a railway something about the use of tile. He said that he took a number of tile and put them in a basin of water, and the one that soaked up the most water he thought was the best one to use! I am of the opposite opinion. I would prefer a tile that is thoroughly vitrified, because I believe that no matter how close we try to lay the tile, there are enough projections, and it doesn't take very long until the cumulative area is a great deal more than the tile itself.



Treasurer F. A. Stephenson, Mason City, Iowa.

Mr. Hansen: I commenced tiling in 1871, and have kept a kind of tab on it ever since. I used to live over in Illinois, but sold out and came over here. Once in a while I go back there and look over the old fields that in 1870 we considered entirely worn out. They wouldn't raise but fifteen bushels of corn to the acre. Now, I find that they raise nearer fifty. What has brought that about? They hadn't used any fertilizer to amount to anything. Nothing else but tile draining. When you study the substance of rainwater you find that you have in it more fertilizer than you would begin to put down, and therefore the ground should be drained. We should not let the rainwater stand on the ground, but flow through it. Those tile drains were put into hard clay soil—the Irishman said it was as hard as the hammers of hell—and they keep getting better every year. I think our tile hardly ever run over three months of the year, and the balance of the time the air is working. To what extent that is beneficial we want the professors at Ames to look up for us.

President Brecht read a communication from Milo Ward, Secretary of the Commercial Club, inviting the members of the association to take a ride over the interurban line to the Flint Brick Company's plant at any time on Thursday if convenient.

Upon motion of Mr. DeJoannis the invitation was accepted and Thursday morning at 8 o'clock named as the hour for making the trip.

The Secretary: I wish to state to the members of the convention that there is an association in Los Angeles that has taken up, as you have probably noticed in the clay journals, the effect of the earthquake and fire in San Francisco on different constructions. They have gotten up an elaborate book which they are suggesting to the different associations that the individual members thereof take hold of and draw the attention of the building public to. We have a copy of that book which will be on the secretary's table in the headquarters room and will be a very interesting thing to look over, and perhaps it would be well to look into it carefully.

The convention thereupon adjourned to 10:30 o'clock Thursday.

The Banquet.

Wednesday evening at 8 o'clock the delegates sat down to a most enjoyable banquet, served in the large dining room of the Savary Hotel. The tables were beautifully decorated with carnations and ferns, and the hearts of the banqueters were thrilled with the sweet music of an orchestra, playing on a stage in the rear of the hall. Judge J. L. Stevens, of Boone, Iowa, acted as toastmaster.

The toast list included speeches by L. Aulman, Des Moines; Paul Beer, Des Moines; Harry DeJoannis, Chicago, and F. A. White, Versailles, Mo. Mr. J. W. Campbell, of Des Moines rendered a number of solos, which were easily the hit of the evening. After the regular toast list a number of prominent members were called on for impromptu speeches.

Second Session—Thursday Morning, 10 o'clock.

A number of the delegates accepted the kind invitation extended by the Commercial Club and boarded a special interurban car early Thursday morning for an inspection of the Flint Brick Company's plant, returning in time for the opening of the second session.

President Brecht called the convention to order at 10:45 a. m.

The President: Mr. W. S. Gemmer, whose name appears on the program, has written that he has been detained in the east and is unable to present his paper. He has, however, forwarded a copy, and I will ask the secretary to read it.

Mr. Gemmer's paper handled in an admirable way the subject of "Transportation by Aerial Wire Rope Tramway." This paper will be published in full in a subsequent issue. Following the discussion on this paper, the president introduced Mr. G. E. Luce, of the Luce Engineering Company, of St. Louis, who read the following paper:

IDEAS ON THE ECONOMICAL ARRANGEMENT OF MEDIUM CAPACITY BRICK AND TILE PLANTS.

BY G. E. LUCE, ST. LOUIS, MO.

Mr. Chairman and Gentlemen of the Convention:

I don't know just how to start on my subject except by telling a little experience that happened to me last night. I was in my room somewhat late and in going up stairs I met a gentleman at the bottom and saw he had a button on; and I walked up and shook hands with him. He said: "Who are you?" I said, "I am an engineer." "What kind of an engine would you prefer to run, a slide-valve or a Corliss?" I didn't answer.

I have not had the privilege of your former conventions, nor the pleasure of traveling to any great extent in your state. Therefore, I can not be as conversant with your local conditions as I would wish to be, but presume they are about the same here as in the other adjoining states.

Some time ago, when in our St. Louis office, our Mr. Gibson handed me a letter from your association, asking some one of us to prepare a paper for this convention, and I answered that letter saying we would—little expecting I would have this to do, but recently our office notified me that I was expected to do this, as the others had tasks for other conventions.

The subject on which I am to prepare this paper is a surprise to me, and the subject reads, "Ideas on Economical Arrangement of Medium Capacity Brick and Tile Plants."

As you are all aware, this is an important subject, and, first of all, just what does this subject mean?

Does it mean "Ideas on Economy" in the building of a new plant, or does it mean "Ideas on Economy" in the operating of plants after they are built, or does it mean "Economy in Relation to Capacity," or does it mean "Ideas Regarding Brick and Tile Plants?"

It seems to me it means all combined and I assure you it is quite a problem for the writer, for he feels his inability to answer

this question or questions just as he would wish, to the perfect satisfaction of even himself.

If it means economy in building the plant then we have so many things to consider, and let us see, where are we going to build this plant?

Is it on the level ground, and how can we get drainage?

Is the plant to be on the wash side of a hill? If so, how much drainage goes that way?

Have we tested up the land to know just what kind and how much material we have?

What kind of a test have we made, and have we dug some five or six holes on one hundred and sixty acres of land, five or six feet deep, and pronounced it O. K., or have we drilled a hole over seventy-five feet each way and tested the material from each hole?

If so, then we know just what we have in clays. Have we surveyed our siding, and has the railroad engineer done this after showing him about where we wanted it, regardless of many conditions that should be considered. Namely, the relation of kilns and dryer with relation to prevailing winds; the harvesting of our clays with relation to their levels and best deposits.

But, assuming these matters have all been fully gone into, and have been found fully satisfactory, how shall we build the plant? What system? Let us not discuss any of the systems but stiff mud, and presume that the kind of a plant that is best adapted to our conditions.

Economy in Building.

In this kind of a plant conditions vary so much, how shall we answer your question? We find plants costing \$200,000 producing 350,000 to 375,000 brick per day. These, of course, are machine yards of large capacity. But we find other yards costing \$200,000 producing 100,000 brick per day, and these, of course, are machine yards. We find investments of from \$65,000 to \$100,000 producing from 50,000 to 65,000 brick. Of course, these references are all regarding building and paving brick plants using common clays and shale. In this regard I wish to quote one of the most prominent brickmakers in the world: "Why make building brick from anything but common clay, or try to make paving brick from anything but shale?" In view of this wide variance, what kind of a plant are we to build?

It seems to me we should know more things about our special clay and conditions before building our plant, in order that we may build the largest capacity for the least possible money. So it seems to me that the entire proposition is not "Economy in Building," except in regard to operation. In other words, the first cost of building the plant only relates the cost per thousand capacity.

Economy in Operating.

I might suggest how and show you the drawings of plants, if this is to be a new plant, where the least amount of steam piping is required to connect boilers to the engines; the most economical way to get the coal into the boiler room; the best system of trackage into dryer kilns; the best system of railroad switches; the best dryer kilns, building, and they would all be economy in operation.

I say the best and am sure that I am correct, because it's matters of figures as to condensation, distances of travel, and various other deductions and data. But this is not what you want of me, I am sure, as I see by the other papers many of these things are to be discussed, and by abler men than I, so this is not the question you wish me to try and answer.

You say we have our plants already built. We have gone through all the experimenting, our clays were fully and thoroughly tested, we know just what can be done and just what can't be done. We also know just what the same man who did the testing told us we could make out of this business, and we further know just what we have made.

If our testing and information acquired at the time were weighed in the same balance with dividends, we would see more plainly, in many cases, where things might have been different, if not better.

But how can I apply economy to my already built plant? That is, what would be the easiest line of resistance to apply economy. In trying to answer this question, I wish to embody the question, "Economy in Relation to Capacity," and, furthermore, to condense the question and finish my paper along the line of my first impression. Let us call it "Ideas of Economy."

Why should there be such a difference in the cost of constructing a plant and relations shown in different sections of the country? Is there a difference in the plan on which these plants are built, and can I not adapt the same plan?

In many cases, "Yes." Is there a difference in the clays—"Yes." But in many cases they are the same or can be worked to the same advantage. Is there a difference in the machinery employed? Some, I might say, but in this regard many of us do not know what we are now using, nor what our neighbor uses, except the name of the maker or of the machine. Is it because the other manufacturer knows his clay better than I do? In some cases, "Yes," and in others the adaption of the machine, and other conditions bring about the results without the manufacturer actually knowing why.

The great thought of economy and the point to which I want to call your attention, is the machinery itself. How does it build the column and what shape does it deliver the same to the off-bearing bolt? Does it deliver it so it can be dried in twenty-four hours, and so it can be burned without cracking, and possibly without watersmoking? If it does not, it or something is wrong—thus the greatest difference in construction; thus the difference in

cost of production; thus the difference in cost of operation; thus the difference between debt and dividends.

Does your machine deliver the column the densest in the center, or is it the densest on top, compared to the bottom. Is it the densest on one side, considering that you are running side cut, but that makes little difference.

You say that you have not noticed this and can not believe it to be any different than uniform. Let me ask you, how does the machine form the column? It can do it by no other operation than creating enough pressure against the inside of the case to overcome the pressure around the shaft of the screw.

When this pressure is overcome, the clay is held by the outer pressure, and the screw turning backwards, moves the clay in a straight line—less the difference occasioned by relief of pressure due to difference in amount of clays in the back of the machine at different times.

Then, why should this create different densities? Because of the different areas, namely, the shaft through screw is about ten inches in diameter, or thirty inches in circumference.

The difference in areas would mean as thirty inches is to seventy-five inches, so would be the difference in pressure, or, for example, five pounds pressure around shaft of screw would be overcome by two and one-half pounds of pressure in inside of case.

By these calculations you can see the difference in pressure on the column, and, in many cases, a corresponding difference in weight can be found in the center one-half of the brick and the outer one-half.

We do not stop to consider these things many times, so let me give you some few figures taken from some of the standard machines. I am dealing now entirely with the front of the machine, from the straight part of the barrel to the end of die.

In one machine we find the opening in large end of nozzle twenty-six inches, small end fourteen inches, difference, twelve inches. In another, twenty-six inches on large and twenty inches on small end, difference six inches. These conditions can be found on adjacent yards. Now, surely both are not correct, for there would be a vast difference in compression, provided there was no back pressure.

Then in the augers used, how are they; some use one and one-half, others two and one-half turned screws, and how about their pitchers? One leads off on big end with five inch pitch, the very next thread is six inches, or, in other words, the clay is released from pressure in second turn of screw, for it passes into a larger space. On other screws we find this reversed. Which is right? Surely both are not. Again, in one machine we find the auger 16 inches from end of auger to end of die, in another eight inches.

Surely there must be a difference in this resulting from friction, in the difference in distance through which the clay is forced. Then what kind of a die have we? There are many kinds. They have all good strong features, fitting our several machines and ideas. Some we find by measurement, at opening nearest machine, to be three-fourths of an inch larger than our brick size, others six inches larger. Some, and I might say the majority, use steam for a lubricant. That is steam on top and part way down sides, and water on the bottom. Is this correct? Is there such a difference between the result of screw and case, that it overcomes the difference in lubrication between steam and hot water? Or, really, is here not some of the trouble we are paying for each day. Then, one man's idea is to grind his material to a certain fineness, but few actually know just how fine. They can give you the screen they use, but that really represents nothing. What per cent. would pass through a certain mesh, etc. Does this make any difference? Surely it does. In fact, we should know just how coarse we can make our material, for it not only means capacity of our grinding machinery, but horse power and density of our column.

One man has two pug mills and wishes for another; another has only one little mill; both work the same clay. Another man has a very large heavy machine closed in, and he starts to making the product in the end by closing the gates. Who is right, and why do these fellows all, apparently, get good results from different ideas? Have they got different machines (not makes) but different constructions, and have they different ideas? The only thing they have is the same market, less the difference between political, social and financial pulls.

But I can say this question is "Ideas of Economy," and how does the density of the brick affect economy? In many ways:

In drying we often condense the dryer and this has been done so much that in all dryer contracts we have this clause: "If the clay will stand the heat and circulation."

The clay has little to do with it. Isn't it the shape the clay is in? In some cases we have a band of clay on the outside made with one-half the pressure the inside is. How can we dry it? In many cases this is so pronounced it can not be dried by any process. In burning we find many spending more time water-smoking than in burning, why? The brick won't stand quick shrinkage—is dense in the center.

These same fellows could often burn their brick without water-smoking if the brick were so formed that they could shrink without breaking, and many tons of coal could be saved by using the gases formed by combinations of water and heat. This is all thrown away when we watersmoke, and our time is spent, and oftentimes we find them carrying tons of clay and ashes and other material on top of kiln to stop leakage of heat. Why not use the steam of water smoke as a blanket, getting the result of its gases as well as its retaining power toward the heat.

Then would we have to build the expensive clamp wall, wasting our money and restricting our output to our kiln capacity? What

else does it affect? Why the amount of clay to be used. We have a good enough face on our brick. We just want to take out three or four ounces from the center of the brick, then we reduce the horsepower needed to manufacture the brick. These, from this point of view, must be vital points in "Ideas of Economy."

But you ask, how can this be accomplished? Can it really be accomplished. "Yes." It has and is being accomplished, and, in these days of rapid building industry, must be in order that the brickmaker may maintain, in the building world, his position against the cement block business, or rather the cement block machinery business and other patent medicines on the market, and we must push forth every effort to not only produce the best article, but the cheapest and especially enough that we may have brick when they are wanted in the spring.

What are essential to accomplishing the results? Grind or prepare the material to proper consistency, that is, the coarsest possible to get a good face on the brick, feed it into the pug mill uniform, and arrange the feed of the knives in the pug mill so there will be a uniform feed—not one point full and under pressure and the other point empty.

Feed the machine regular and have the knives set so as to keep the back as near clear as possible, and have the clay in the machine travel at uniform increase of speed. Especially run the machine so that the augur will empty itself each revolution. Don't let the augur turn on the clay many times before it strikes the die. If the augur does not do this, have one made that will. Have the compression in the case made just as small as is consistent with a good face on the brick. And, last, but not least, have the augur near the case, in fact, only clearance and make the most compression in the die. Why there is no chance there for lamination, and all the weight of clay, augur and everything is behind the clay, at this point use the die that can be lubricated all around with steam; or, if with any other lubricant, have it uniform.

I have not said much about the tile plants, and should, but feel I have taken up enough time already, and should give others a chance. I want to thank you all for your indulgence and hope, if I have not done anything more, that it will arouse with some, the thought of betterment of our condition and that it will make us think, investigate and improve.

Let's not sit down and say we are satisfied with ourselves. Again thanking you and wishing you a prosperous year. (Applause.)

Following this paper there was a short discussion, after which Mr. O. C. Pixley, of Des Moines, Iowa, read a paper on the subject of "Residences of Brick and Hollow Block—A Present Day Economy." This was a very able paper. Through lack of space we are unable to publish it in this issue, but it will appear in full in a later issue. After a resolution was passed authorizing the president to appoint a committee of five to study the matter of the establishment of a general publicity bureau, the convention adjourned for dinner.

Third Session—Thursday Afternoon, 2 o'clock.

During the afternoon session three interesting papers were read. The session opened with the introduction of Prof. M. P. Cleghorn, of Ames, Iowa, who read his paper on "Producer Gas for Power." Following the discussion of this paper, Mr. J. A. Seville, of the Western Electric Company, of Chicago, Ill., read a paper on the subject of "Electric Power, Its Generation and Use in Clay Plants as a Means of Economy." These papers will be published in subsequent issues.

The last paper on the program was perhaps the most interesting of the convention. This was a stereopticon lecture on "The Life of Portland Cement," by G. G. Wheat, of Emmetsburg, Iowa.

Mr. Wheat's paper appeared in full, with illustrations, in our February issue. This is a very valuable contribution to our ceramic literature, and if any of our readers have not read it we urge them to give this their serious consideration, as it bears directly on the interests of the clay industries in competition with those of the cement manufacturers.

Mr. Wheat's paper was followed by the election of officers for the ensuing year. Below are the officers elected:

President—C. J. Smith, Mason City, Iowa.
Vice President—George Schnurr, Kalo, Iowa.
Secretary—C. B. Platt, Van Meter, Iowa.
Treasurer—F. A. Stephenson, Mason City, Iowa.

J. B. McHose, Chairman of the Committee on Resolutions, read the following report:

That this association again urge upon our legislature the importance, to the great industrial interests of the state, of properly equipping the Iowa State College for the investigation and instruction in the various ceramic questions arising in the clay and cement industries, and to furnish the technical instruction required in these lines, to the end

that our state may be abreast with the schools of our sister states. That we will individually urge upon our representatives a liberal appropriation therefor.

That we are glad to express our appreciation for the royal treatment we have received while in the city at the hands of the mayor, local clayworkers and machinery men; and for the elegant entertainment furnished by their generosity.

That a vote of thanks be extended to the Commercial Club for the trolley ride to the various plants and shale beds north of the city; also, to Messrs. Cummings, Belding, and Botsford, of the Interurban Railway Company, for the entertainment afforded during the trip.

That this convention extend a vote of thanks to the retiring officials for the very able manner in which the affairs of the association have been administered, and the progress made by the association during the past year, which has made possible the most successful and instructive convention in the history of the association, as is witnessed by the 140 members present.

J. B. McHose,
F. W. Stuart,
R. G. Courts.

Mr. O. T. Denison, of Mason City, Iowa, extended, in behalf of that city, an invitation to the association to hold its next meeting there. This invitation was accepted. The secretary then made his yearly report, in which he stated that the association had grown from a membership of 75 to 138 in the last four years. He read the report of the treasurer, which showed a gratifying balance of \$494.40.

The motion was made, seconded and carried, that the secretary be instructed to print in pamphlet form, with paper binding, the proceedings of the meeting.

Upon motion of Mr. Denison, the convention thereupon adjourned sine die.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICK YARDS.

A NEW YARD has started in operation at Eleventh and Sedgley streets. This yard was constructed by Harry Melcher, a practical brickyard man, and is owned by Mr. Zepp. They term it an "Improved Brick Factory." It occupies a small piece of ground—one-half acre—and is run on the flue system. They make 700,000 to 800,000 brick with one gang, and turn out 3,500 brick per day.

The yard is under cover, so that they can run over 300 working days in the year. The brick are burned with one handling from the floor to the kiln; there are no wash brick. The system is economical in fuel, and if the space permitted they could make brick at a less cost than that of any machine yard. The shed surface is 60x36 feet, and their system is an improvement over any flue shed ever constructed. The heat can be thrown to any part of the shed, and still held. They are, at present, stacking the brick in a temporary kiln, awaiting the completion of the kiln proper, the capacity of which will be 130,000, and stacked thirty-four high.

They have been making brick for some weeks, but, owing to the small quarters, were obliged to cease temporarily while the brick were transferred to the improvised kiln. Both Mr. Zepp and Mr. Melcher are enthusiastic, and we trust all may prosper with them.

The Cyrus Borgner Company report things tranquil, many inquiries, but no special work. No large contracts at present; people are ordering only what is absolutely needed. There are many contemplated improvements, but they think there will be no boom until after the presidential election. However, they all looked cheerfully enough at conditions, and seem to think they may as well smile while awaiting the improved conditions.

The Carnell Estate, manufacturers of brick machinery, report one good order—five machines to make, and a prospect of more orders next week. This is not bad, considering the pressure of hard times.

We were told that there was only about one brick manufacturer who had sufficient work to tide him over the summer, and that was J. Byrne & Brother. They have a contract

to supply brick for 100 two-story houses at Twenty-second and Lehigh avenue, for Mr. Zane, the builder; also 100 two-story houses at Twenty-eighth and Allegheny avenue, for James Stevenson, builder.

M. E. L.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



THE CHICAGO OPTIMISTS among the building material fraternity are apparently being vindicated in the optimism they expressed during the darkest hours that clouded the horizon at the end of the year, and the early days of January. The philosophers did some shrewd and lofty reasoning in arriving at their conclusions. Then they had to get busy and do some tall proselyting among the pessimists who were rather in the majority and who were convinced that the end of all business activity for many months had come, and that the only wise course was to recoup and save what might be saved from the impending wreck. But today the optimists are smiling quietly and the pessimists are saying: "I told you so," of course.

Bonner & Marshall Company report a better month for February than for the same month last year, and the other firms gave similar testimony as a rule. The outlook, too, is bright in all lines. The Purington Paving Brick Company has its plant at Galesburg going actively in anticipation of practically the same sort of a season they had last year, and that was a good one.

The one element of stringency which still remains in the situation is found in the difficulty in getting loans from the real estate and mortgage brokers for carrying on larger structural enterprises. It is practically no trouble to secure a loan up to \$10,000, say, but the negotiations of loans larger than that requires influence and finesse, and it is not always susceptible of accomplishment even then. Some of the brokers are handling the larger loans—those upwards of \$10,000, on a bonding basis. The scheme was originated here by a man named Jennings. He subsequently gave it up and went west, after establishing an all night bank, but the proposition is apparently recognized as a perfectly good mode of procedure in raising money. The bonds as a rule run in small denominations, which are taken up either by men having little money to invest, or who do not care to put in a large amount in real estate at this time. The reason for this disinclination to buy good mortgages outright, and, so to speak, by the whole piece, is thought to be due to the fact that a good many have not yet got over their fright of November and December, and, also, to the fact that stocks are pretty low just now and that a good many people are putting their money into stocks with speculative designs. Money is gradually getting easier, however, and a drop in the price of structural steel and perhaps of labor is looked for next.

There is already to be noted what amounts in effect to a decided drop in the cost of labor. Many local contractors in figuring in the labor for jobs to be taken on and finished at once, estimate the labor item at about ten per cent. less than they did a few months ago. The men are more keenly anxious to hang on to their jobs when they get them now, and therefore the contractors are able to get a good deal more work out of the average man, and a good deal better work at that. The sight of men, many of them good workmen, and skilled artisans, too, roaming the streets looking for work, is a constant incentive to the man "on the job" to hold onto his job, even to the extent of putting in a few extra touches and a good deal faster work. Inasmuch in recent years there has been no more lordly or independent mortal than the average bricklayer or tilesetter, this is an important saving in cost of construction. It may not last the season through, but it is in evidence now. Only the other day a contractor going the rounds of a job noted that the course of brick one of his men had just finished was carelessly laid.

"Here, here," he called. "That isn't according to your

orders. You'll have to take those out and lay them over again."

"Those brick are all right," growled the bricklayer, "and if you want 'em done any different, you can do 'em yourself."

"You come right down off that scaffold and get your time," shouted the contractor. "I won't have any of that kind of work or that kind of talk around here."

The man came down in a hurry, much surprised, and within five minutes another man, who, with kit, overalls and jumper, had been waiting for a chance to earn a little money, was at his place on the wall. The rest of the men took in the whole situation silently, and the object lesson was not lost. They all worked like beavers after it, and their work was laid right.

The only contract of any tremendous proportions that has been let thus far this month is that for the new LaSalle Hotel, the skyscraper which is shortly to be erected at the corner of Madison and LaSalle streets, with four stories below the ground and twenty-one above. The brick and most of the material contracts have not been let as yet, and the dealers are looking eagerly for the plans, which, after all, on jobs of this character, are chiefly valuable as advertisements.

Another proposed skyscraper for which plans are being prepared, is to be put up by the Adams Building Company, at Wabash avenue and Adams street.

Construction work has just been commenced on the new armory for the Seventh Regiment, I. N. G., in the blocks bounded by Wentworth avenue and LaSalle street, Thirty-second and Thirty-fifth streets. The total cost of the building is to be \$300,000, and the new structure when used as a convention hall will seat 10,000.

The S. S. Kimbell Company are furnishing the Purington Purple Continentals to the number of 100,000 for the building of which C. A. Eckstorm is the architect, at the southeast corner of Market and Madison streets. They have also furnished a like number of brick for the new power house of the Presbyterian hospital on the West Side. The 100,000 grey brick which match the terra cotta so well on the north side of the new University Club's new building, are furnished by the same company.

One of the most artistic jobs in the city will probably be the new Partridge residence, for which Marshall & Fox are the architects. It is to stand in Fullerton avenue, east of North Clark street, and is to be another example of the high degree of artistic merit which can be obtained in the use of brick by expert hands and minds. One of the special features is that it will have instead of the usual stone course, two courses of upright brick, a course of stretchers, and then a header course. The brick for this job, too, are furnished by the S. S. Kimbell Company, from their assortment of Purington Continentals. The architects demonstrated their ability to plan and carry out this kind of work in the exclusive apartment building at 23 Lake Shore Drive.

Sprague, Warner & Co., are building an addition to their establishment on the north branch of the Chicago River, just south of Chicago avenue, and this, coming so rapidly on their construction of the present huge building which stands there, is taken as indicative of a healthy trend in the general situation. The outlook is further cheered by the fact that the city is planning the erection of a considerable number of police and fire stations.

There is a likelihood of a strong building market developing later for small apartments containing four and five rooms, to let at lesser rentals than the landlords have been building for and exacting in the past eighteen months. They will be as well built with less "gingerbread" and fixin's." No one has been living any farther beyond his means than the "little fellow" in the period of flambouyance through which we passed with the advent of the stringency period last fall, and he paid anything that was asked of him. Most of those who had large families and had to be careful, moved out to neighborhoods a trifle less desirable, where they rented seven and eight room apartments for the price of four rooms in the more aristocratic districts. Now the general trend is toward conservatism in expenditure, and no man is quicker to see it than the building contractor.

The fact that there is a lot of small building going on, and "on the fire," is a most encouraging symptom, for, in the long run, it is in the small jobs that the real money of the contractor and the dealer is made—especially the dealer. For the big jobs the competition is so keen that there is generally little profit left, except what comes out of a certain amount of free advertising. That, of course, counts, however, for a good deal.

SCRIP.

Written for THE CLAY-WORKER.

THE NATIONAL PAVING BRICK MANUFACTURERS
ESTABLISH HEADQUARTERS IN INDIANAPOLIS.



OFFICERS OF THE National Paving Brick Manufacturers' Association are wise men, though they are not all from the east. They have displayed their wisdom in many ways, but in none more so than in deciding to make Indianapolis their general business headquarters. The Hoosier capital is an ideal location for such purposes, and consequently is the home of a large number of national organizations of one character and another. Its location, being but twelve miles from the actual center of population of the

lent, that their two or three days' stay proved so enjoyable that they departed with regret. It is a sure thing that they will all, without exception, be on hand when the roll is called at the next meeting.

The headquarters were moved from Terre Haute, March 9th, at which time Mr. W. P. Blair, the corresponding secretary, and his entire office force and paraphernalia established themselves in Rooms 522 and 523 in the new Board of Trade building, on the corner of Meridian and Ohio streets. From the office window one may look out on the great Soldiers' Monument, the finest and most beautiful in the world, connoisseurs say, while across the street on one side is the City Library, and on the other the new Federal Court House and Postoffice, which, in point of beauty, rivals the finest public buildings of the national capital. Mr. Blair and his assist-



The Visitors, Brick Plant in Background.



The Locomotive that Hauls the Clay Cars.



The Steam Shovel in Operation.



Drawing Heat from Cooling Kiln.

nation, and its unsurpassed railroad accommodations, which carries mail to the extreme portions of the country in the shortest possible time; through sleepers which land the traveler here in a comfortable frame of mind, no matter from what direction he may come, nor what distance he may travel, make Indianapolis a most desirable point for business organizations. So say the National Board of the N. P. B. M. A. unanimously, now that they have held their first regular quarterly meeting here, and experienced the ease with which they are able to reach headquarters from any and all directions.

They not only arrived in a pleasant frame of mind, but found the new offices so comfortable, the atmosphere of the city so wholesome, the streets so clean, the hotels so excel-

lents were wise and fortunate in securing such desirable offices, so admirably located.

The object of the National Paving Brick Manufacturers' Association is to disseminate knowledge on the merits and advantages of brick pavements among municipal officials, and preach the doctrine of economy in street paving, and afford proof of the superiority of brick as a paving material when same are of standard excellence and put down in accordance with the specifications adopted by the national board, which, when followed, insures a sanitary pavement of unequalled excellence. That the association is spreading the gospel of clean streets, permanent pavements, and economy in road building is clearly shown in the constantly growing demand for paving brick in every city and town the

country over. Verily, Mr. Blair, the pioneer in this movement, is a benefactor and himself deserves a monument for the good he has done and is doing in honestly promoting an honest paving material. A large majority of the paving brick manufacturers of the United States are now members of the National Paving Brick Manufacturers' Association, and those who are not members certainly do not understand the aims and purposes of the organization, and are not fully advised as to the great work it has already accomplished.

Those present at the first meeting in the new headquarters were: M. E. Gregory, Corning, N. Y.; W. S. Purington, Galesburg, Ill.; C. C. Barr, Streator, Ill.; A. A. Reilly, Toledo, Ohio; C. M. Crook, Youngstown, Ohio; R. D. Culver, Veedersburg, Ind.; W. W. Winslow, Indianapolis; Spencer M. Duty, Cleveland, Ohio; Eb. Rodgers, Alton, Ill.; J. W. Robb, Clinton, Ind.; W. P. Blair, Indianapolis; F. L. Manning, Portsmouth, Ohio, and J. M. Hoskins, Terre Haute, Ind.

A Trip to the Plant of the Wabash Clay Company, Veedersburg, Ind.

After two days of steady strenuous work in the office, the visiting members of the board very gladly accepted an invitation extended by Mr. R. D. Culver, president and general manager of the Wabash Clay Company, to visit the plant of that company, at Veedersburg. This Hoosier hamlet lies some sixty miles west of Indianapolis, and was reached after a two hours' ride on the Big Four Railroad, that seems brief and pleasant, for time never hangs heavy when good fellows get together. There were just seven besides our guide and host, and not a few brickyard problems and some questions of state were discussed and elucidated before the train man called "Veedersburg." Carriages were waiting at the station, and it was observed that most of the drive of a mile or

by gravity to belt conveyors and by them carried to the dry pans, whence it goes to the screens, pug mill, brick machine and represses.

It is not our purpose to describe the plant in detail at this time, but will do so in a later issue. Suffice it to say, now, that we saw a line of men kept very busy taking each hour some six thousand green Culver blocks, weighing ten pounds each, from the represses and starting them on their way to the dryer. The accompanying views tell the story of the yard sufficiently to give the reader an idea of the immensity and character of the plant, the daily capacity of which is 60,000 blocks, $9\frac{1}{4} \times 3\frac{1}{4} \times 4$ inches. One thing that impressed every visitor was the ultra neatness, system and order manifested in every part of the factory and grounds. There was no refuse or piles of bats or other debris to be seen anywhere. On the contrary, it seemed as if such things were not known. They certainly are not tolerated. We also discovered that not only is tidiness in materials and surroundings required, but also cleanliness of habits and speech as well. Neither profanity nor unclean conversation is allowed in any of the departments. Smoking is also prohibited in the buildings,



A Feat of Strength—C. C. Barr Raises the Largest Paving Brick Manufacturer in Illinois.

and this applies to visitors as well as to workmen. It is a remarkable condition, and after contemplating it seriously and noting the high-grade product and the self-respecting bearing of the workmen, one is compelled to admire the qualities of head and heart of the master mind that directs and governs so ably and so cleanly. We know we express the sentiments of every visitor when we say "Hats off to Mr. Culver for demonstrating that a brick plant can be kept clean outside and in."

The Veedersburg Pottery.

The inspection of the pottery department was especially interesting to the visitors. This is a comparatively new venture, having been started some three years ago. They began the making of jugs and jars in a small way, and now have a well-equipped pottery, with a daily capacity of some 2,000 gallons. The foreman of the pottery is Lawrence F. Culver, the only son of the president and general manager of the company. The position was thrust upon him suddenly some six months ago, when the former foreman resigned on a day's notice. With only a few weeks' experience in the pottery, "Larry" tackled the job, and, although he naturally had much to learn, his proud daddy says he "made good" from the first day, his former work as bricklayer, carpenter and blacksmith's helper standing him in good stead.

Culver, Jr., is a "chip off the old block;" painstaking and industrious to an extreme, he is achieving a success that is gratifying to all with whom he is associated. His "den," where he and the chemist work out the glaze mixtures and other problems incident to the manufacture of such ware, was raided by the visitors, who, each and every one, carried



Lawrence A. Culver, Jr., at the Entrance to the Pottery.

so was over a smooth, clean roadway, paved with Culver blocks.

Arriving at the plant, we were first introduced to L. A. Culver, Jr., secretary-treasurer, and Bert Harper, the six-foot, two-inch superintendent; then we were ushered into the president's private office, and permitted to admire for a few minutes the decorations, which consist chiefly of an immense and varied collection of steins and mugs made at the Veedersburg pottery, which is a part, though a separate department, of the Wabash Clay Company. Soon "all aboard" was heard, and the party made its way to and climbed upon the locomotive that hauls the clay from the shale bank a mile distant from the plant. Here we found an immense steam shovel eating its way into a thirty-five-foot vein of hard blue shale, and depositing great mouthfuls—some two yards to a bite—into extra large gable dump cars that are the embodiment of strength. These are hauled in trains of four to six cars, and run over a thirty-inch gauge railway into the second story of a large clay shed, falling into great bins holding hundreds of tons of raw material, which is fed

away a tiny jug, to be kept as a souvenir of the trip. They were empty, but had they been filled with any liquid, from Kentucky dew to nectar, they would have been emptied quickly to the health, long life and prosperity of the Culvers, Senior and Junior, and all who work with them.

At noon, sandwiches and coffee were served in the office, and in the chat that accompanied lunch, it developed that, for several years past, it has been the custom to serve hot coffee to all workmen from 10 a. m. to midnight. It is not served at any particular interval, but is taken as wanted, the workmen helping themselves from a steam heated urn as their individual fancy dictates. The coffee is furnished gratis by the company, and is made by the yard foreman. No other drink but water is permitted about the premises. From the start to finish the trip was most enjoyable.

Written for THE CLAY-WORKER.

WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS.

THE BRICK manufacturing business, which for several months past has been practically at a standstill, is, with the coming spring, beginning to show general returning activity, and it is generally thought throughout the entire Pittsburgh district that it will be but a question of a few weeks until practically all of the plants are running almost to their capacity.

The financial troubles of the past several months, with the great falling off in demand on account of the lack of building and paving operations, caused a large number of plants to close down entirely, while many others curtailed the production until they were in most cases running out only a small percentage of the usual winter capacity.

Building operations are now opening up, and, from the present indications, it appears as though it would be a fairly active business season in this line throughout the entire Pittsburgh district. Already, a number of the large building contractors have placed orders with local manufacturers for brick, to be used in the early spring in the construction of blocks of residences in the suburbs of this city.

The manufacturers of paving and vitrified brick report that they are receiving a considerable volume of inquiries concerning brick for paving in the many small towns in this part of the state, and the indications are that the country towns will do even more of this class of improvement work this year than they did during 1907.

The sewerpipe business also shows signs of again assuming normal proportions, and the indications are that the coming season will be as prosperous as was the season last year. The improvements in this line that are contemplated throughout this entire end of the state, and also through eastern Ohio and West Virginia this year, are even greater in size and number than they were last year, although the scarcity of money and the difficulty in floating bond issues at the present time may have the effect of temporarily holding up some of this class of work for a year.

Local manufacturers of fireproofing report practically no business from this immediate district, although the business being received from other parts of the country is keeping the plants running as steadily as could be expected under the conditions as they exist at this time.

The plant of the United States Enameled Brick Company, at Garfield, Indiana County, Pa., which has been closed down for some time on account of financial troubles, has been sold by the sheriff of the county to E. M. Lockard, who will make some needed repairs and place the plant in operation as soon as possible. There is a good demand for this class of brick through this part of the country, and it is thought that with the proper care and management, it will be possible to conduct the business at a profit.

The Kanawha Brick and Tile Company, Charleston, W. Va., has decided to erect a large plant in that city for the manufacture of fine face brick, ornamental tile, and fire

brick. It will be equipped throughout with the most modern machinery, and all buildings will be the substantial that can be erected. The plans for the plant are being prepared by A. E. Wood, chief engineer of the company, of which J. W. Jenkins is president and general manager.

At the annual meeting of the stockholders of the Harbison-Walker Refractories Company, Farmers' Bank building, Pittsburgh, the following board of directors was elected for service during the present year: H. W. Croft, Hamilton Stewart, O. M. Reif, L. C. Turley, W. B. Wigton, George W. Reese, H. F. Bigler, J. E. Lewis, T. Hart Given, Ralph W. Harbison, William Walker, T. L. Chadbourne, Jr., Hay Walker, Hay Walker, Jr., and N. McQuillen. H. W. Croft was elected president, to succeed the late S. C. Walker, who died last November.

The Kenilworth Brick Company, operating a large plant a short distance below Newell, W. Va., has started the plant, which has been idle for several weeks, and will work steadily for some time at least on an order for approximately 4,000,000 brick received from several Pittsburgh building contractors. The company also anticipates landing several other fine orders from this vicinity, and looks for a busy season this year.

The name of Reed Brick Company has been changed to the Clearfield Brick Manufacturing Company, Clearfield, Pa., and a contract for the construction of two additional kilns has been awarded at the plant at Krebs Station, Pa. There will also be a number of improvements made to the plant proper, which will materially add to the capacity. The officers of the company will remain the same. Albert D. Bigler has been engaged as superintendent of the plant, and also as general manager of the company. The plant has been closed down for some time, and will be started in full as soon as the above additions and improvements are completed.

At the annual meeting of the stockholders of the Johnstown Pressed Brick Company, Johnstown, Pa., all of the old directors and officers were again re-elected for service during the coming year. The financial report of the company shows that the past year was a very prosperous one, and that there is still a large volume of business on hand for this year. The indications are that the plant will be kept running full all summer.

The annual meeting of the stockholders of the Douglass-Whistler Brick Company, of Eastville, Pa., was held last month at Beaver Falls, Pa., and the following board of directors was elected for the coming year: Alexander Dempster, W. H. R. Glass, Gilbert A. Zirchel and Edward Davidson, all of Pittsburgh, Pa., W. C. Simpson, of New Brighton, Pa., and J. H. Brooks, of Eastville, Pa. The company reports having had a very successful year during 1907, considering the financial troubles during the closing months, and, although the plant has not been running for some time, it is the intention to start it in full in time for the rush of the spring building business, which will be heavy in that district.

A new company, which will engage in the manufacture of red brick, and which will be known as the Watsonstown Brick and Clay Products Company, has just been formed at Lock Haven, Pa., where the general offices will be located. H. F. Aglert, Watsonstown, Pa., is president of the new company; John B. Myers, Lock Haven, is vice president and general counsel; Charles E. Ball, Lock Haven, secretary and chief engineer; William A. Nicely, Watsonstown, treasurer, and Samuel G. Davis, formerly superintendent of the Mill Hall Brick Company's plant, general superintendent.

The company has acquired a tract of shale land just east of Watsonstown, which it is claimed is one of the largest bodies of shale suitable for the manufacture of brick that has ever been discovered. This tract lies parallel with and adjoins the Pennsylvania Railroad, and is 3,000 feet in length, 1,000 feet in width, and over 200 feet in height. The plant will be erected on a level with the railroad and adjoining the shale hill. For many years, on account of the natural advantages afforded, it will be unnecessary to build a track road or to use cars in hauling the shale, and a belt conveyor system will be installed to carry the clay to the grinding department of the plant.

A. SMOKER.

Pittsburgh, Pa., March 9, 1908.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Has Read the Clay-Worker for Twenty-four Years.

Editor THE CLAY-WORKER:

Enclosed you will find check for amount due on subscription. You will notice that I have taken THE CLAY-WORKER continuously from its first issue, and have followed its improvement right down to date. Wishing you continued success, I remain,

Lynnhaven, Va., February 3d, 1908. Yours very truly,

D. E. PIDGEON.

New 50,000 Daily Capacity Brick Plant.

Editor THE CLAY-WORKER:

Enclosed find postoffice order to pay for subscription to CLAY-WORKER. We have just finished our new plant. Have installed American Machinery Company's machinery throughout and expect to have a capacity of at least 50,000 per day, but the weather has been so unfavorable that we have not been able to give the new plant a trial as yet.

Yours respectfully,

BUILDERS' BRICK COMPANY,

Seattle, Wash., February 12, 1908.

Wants Agency for Pressed and Front Brick.

T. A. Randall & Co.:

Dear Sirs—We are the largest manufacturers and manufacturers' supply house in building material in the State of Florida. We have two men on the road constantly, covering the entire State of Florida and the West Indies, selling our product and the product which we handle. We manufacture only common burned brick in the brick line, and are in need of wholesale quotations and samples of pressed brick, and all kinds of front and facing brick, stone trimmings, etc., to be used in connection with the contracts and buildings we supply the building material and brick for. We cater to over 300 contractors. You can notify your brickmaking friends of this fact, which will mean several thousand dollars annually to the firm or firms whose pressed brick and front trimmings we handle. Such concerns must quote prices f. o. b. Tampa for their goods. We are,

Yours very respectfully,

DE LAMORTON MACHINERY AND BUILDING SUPPLY COMPANY.

Tampa, Fla., March 3, 1908.

A Familiar Voice From a Strange Land.

My Dear Randall:

Am now the second day out on the trip up the Nile, and have gotten settled for the three weeks' trip. The shores are green with onions and things. There are groves of date palms, looking very stately and old. There are mud hut villages. Up and down the river are hundreds of the peculiar slant sails whichever way we turn, and they always look picturesque, fading away into the misty distance during much of the day, and standing out distinct against the blood red sunset at sundown. Each side of the narrow ribbon of green along the Nile begins the yellow desert, hot, dry and pitiless.

The Nile is not a deep river—now, anyway. Our boat draws three feet, two inches, and it doesn't seem to be so much the three feet that bothers as it does the odd two inches. Every once in a while we have to drag that two inches across a sand bar, and once in a while we have to back off and go round.

Yesterday, our first day out from Cairo, was a strenuous

one. We started at 10 a. m., had an early lunch, and about 12 noon pulled up to shore, mounted donkeys and pattered off to the site of ancient Memphis. I drew a very diminutive donkey named "Moses," and proceeded to get acquainted with him, in fact, became very much attached to him and they nearly had to pry me off, I was so stiff at the end of the sixteen mile trip. How the little beast could carry so much Yankee so far, and over such roads, and on such little legs, I can not understand. Much of our way was through the hot sand of the desert, too.

I also drew a small Soudanese donkey boy named "Mohamet;" somehow, they all seem to be named Mohamet. He was a very good donkey boy, and followed me closely, and conscientiously licked the donkey sixteen miles, took my cigar stubs, and I left him yelling for more "back-sheesh." Really, I can say for "Mohamet" that I don't think he lied to me at all. Of course, it is just possible that the fact that he was entirely ignorant of the English language may have had a little to do with it. He was a little bigger than a pint of cider, and when I asked him if he was married he looked thoughtful.

Am particularly well placed at the table, and have nothing to do but eat. The people on my left understand only French, and the people on my right nothing but German, and I think the people opposite are deaf and dumb.

Yesterday, when in the thick of ancient Memphis, right beside the colossal polished granite statue of Rameses III, where he has lain on his back and gazed calmly at the sky for thousands of years, I ran across a native brickyard, where they were making mud brick, just as they were when Rameses was doing an active business. I snapped my camera and hope I have it for you. Have enjoyed every minute, and hung about the pyramids and made some awful sketches of them. Drove into the old Arab quarters, with Ananias, my guide, went out over the desert to a village fair, where they brought wild camels, donkeys, goats, clay water bottles, dirt, sore eyes and rags, etc., and I am generally having the time of my life. It is now 3.00 p. m., and I picture you just getting up for your breakfast (7:00 a. m.) for the first day of your convention. With kindest regards to all, GATES.

Going south on the Nile, Feb. 5th, 1908.

OBITUARY.

Wm. Finnegan.

Wm. Finnegan, Sr., a prominent brick manufacturer of Wisconsin, died at his home in Green Bay, Wis., February 23, from cancer of the throat, from which trouble he had been suffering for nearly a year. Mr. Finnegan settled in Wisconsin in 1873 and started a small hand yard, and had steadily increased the business until he was one of the best known brick manufacturers in that state.

Alexander Graff.

Alexander Graff, one of the best known citizens of Kittanning, Pa., and for many years heavily interested in the brick and clayworking industries in that vicinity, died at his home in Kittanning on February 24, following an attack of apoplexy, with which he was stricken on February 18. He was born in Pittsburg in 1858, and had been a resident of Kittanning for about twenty-six years. He is survived by his widow, one son and one daughter.

Charles T. Burnham.

Charles T. Burnham, one of the pioneer brick manufacturers of Milwaukee, Wis., died at his home in that city February 27th, as a result of heart trouble, from which he had suffered for a number of years. Mr. Burnham was sixty years old and had been engaged in the brick business ever since a young man, and, at the time of his death was president of the Standard Brick Company, and also interested in the Milwaukee Building Supply Company. He is survived by his wife, one daughter and two sons, George E. and Charles L. Burnham.

Written for THE CLAY-WORKER.

BRICK NEWS OF NEW YORK AND VICINITY.



NOT MUCH CAN be said of the conditions in this immediate vicinity that will encourage brick men. The panic, or depression, or whatever one may choose to call it, seems to have hit New York and adjacent territory harder than it has almost anywhere else. It is difficult to obtain capital here to do business with and the man who can obtain it is envied indeed. The political manipulation connected with the various failures and suspensions has combined to create a distrust which it is difficult to overcome.

The principal point of contact with the brick industry has been in building operations. It is impossible to estimate the reduction in these operations. The number of big buildings contracted for is relatively small in New York and vicinity. True, a few are now in process of erection, and a few more may be built later, but nothing like the development which has occurred during the past few years is anticipated.

It doesn't follow, however, that all difficulty to which brick men have fallen heir is any particular fault of theirs. Most of them have been conservative and are now in position to either lie still or take advantage of such opportunities as may occur at any moment. It is worth something to be in an independent position, and that is exactly where the prosperity of the past few years has put manufacturers.

The Hudson River is opened at Haverstraw as this is written, and it would be possible to bring down schooners and barges now, if there were any call. It appears from this that the price of brick will not go above normal this spring, excepting under some stress of conditions which can not be foretold. It will be possible to get brick down the river then to satisfy any requirement at any time. The market will be well supplied with brick from the yards whenever they are required. The fabulously high prices which have sometimes obtained will scarcely be repeated this season. On the contrary, nothing more than normal figures for spring business are likely, with the Hudson open to navigation whenever manufacturers wish to send their vessels down.

Speaking of the open river, this has indeed been a remarkable winter here. But few days of snapping cold have occurred, and they have passed away so soon that they left only a brief memory. It has been possible to continue building operations unchecked by the severity of the weather. Winter and its rigors have passed by this section of the country this season. This accounts for the lack of demand for brick for building operations early in the spring, as has prevailed for some years. The operations have been continued ever since so-called winter began. The buildings will be ready earlier and everyone will be well satisfied with the result of my endeavors.

The John B. Rose Company is planning some important improvements at Roseton. For one thing, they are going to have a boarding house opened for the bosses, which will be a good home for them. A well known woman, whose husband has been a brickmaker for many years, has been appealed to, to take charge of it. This request has developed a curious reason for the establishment of this boarding house. Many of the men who work in the yards are either single or away from their families. It is necessary for them to have something which will approach their homes. For this reason the firm is attempting to locate a good establishment for their help who want for such a home.

The numerous protests made through the winter have demonstrated more than once the utter failure of prepared wood paving as a covering of a business street. The horses can not stand on it, and people themselves have a good deal of difficulty in maintaining a foothold.

It has been tried fruitlessly to obtain some sort of restraining order preventing the laying of any more. But that has failed, and the development of streets with this poor

substitute for paving goes on unchecked. It will take years to educate the people without a horror. But it will come in time and wood pavement with its danger to life and limb will eventually disappear.

BURTON.

Written for THE CLAY-WORKER.

BALTIMORE GOOD ROADS MOVEMENT.

WHILE REPORTS from Baltimore and the State of Maryland are not as good as those of last year, still, even with the financial stress through which the country is passing, the general reports are slightly encouraging. Further south the prospects are much better. The brick manufacturers of Baltimore are sanguine regarding the spring opening of business, and firmly believe that at the termination of the year 1908 will have held its own in the progress of the building field. The suburban districts of Baltimore will control an immense amount of the building boom, and if but half of the contemplated operations go through, the builders' supplies market will be kept active.

At any rate, one real move is in progress, that of "road improvement." The great drawback in the past, to the progress of rural development, has been the bad roads. The fact become a recognized one and in nearly every state in the Union there has been manifested an inclination and desire to remedy the evil—by state appropriations for establishment of public highways.

The ruralites heretofore have opposed the idea of state-issued bonds to raise money for this purpose, reasoning by their conception of economy that better roads meant an increase of taxes.

However, a practical demonstration of the advantages of good roads by saving of time, wear and tear on horses, vehicles, etc., has turned doubt and fear into real enthusiasm. The proof of the experiment of good roads is in the development and prosperity and value of surrounding property.

Baltimore's realization of the necessity for good roads is commensurate with its awakening to its lack of manufacturing facilities. Industries which have been established in that city have met with success, but still the industrial wave does not sweep in that direction with any force. Much of the capital invested in industrial enterprises is foreign. Occasionally there is a rumor of some big manufacturing concern's locating there, but usually stops at that rumor stage. Either the land selected was held too high, or the taxes too great. Other cities make liberal concessions and offer inducements. Baltimore is today a manufacturing center of some importance, but the industries are small in comparison to her needs and population. After the devastation of fire four years ago, there was a tremendous demand for structural material. Baltimore herself supplied but a small amount, and the result was that millions of dollars were expended in other markets.

The same condition of affairs obtains today. Orders for commodities are being placed in other markets. With a population nearing 700,000, a rich territory in resources and demands, with conditions for cheap production unexcelled elsewhere, with splendid transportation facilities, Baltimore might be the great manufacturing center of the Atlantic seaboard. Where are the capitalists and promoters?

M. E. LOCKINGTON.

The American Sewerpipe Company, Pittsburg, Pa., reports that the capacity of the power plant at the East Liverpool (Ohio) plant has been increased, which will provide additional power for the installation of additional equipment that has been purchased for this plant, and which will be installed this summer. The plant has been practically closed down for some time past, and, during that time, many repairs and improvements have been made. It is now in partial operation, and will be placed in full operation on or before the first of April.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

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MARCH, 1908

No. 3.

CURRENT COMMENT.

When is waste heat not a waste? When you can make it work.

* * *

Promises are things that should be judiciously made and religiously kept.

* * *

No man has too many words at his command, but some use the words they have too much.

* * *

The world may owe you a living, but your banker won't accept that debt as collateral for a loan.

* * *

A feeling of self-importance is something of a stimulant to greatness, but it develops painful swelling in the head and chest.

* * *

The cock that does the loudest crowing may not do the most scratching, but he is the one that wakes people up, and that is worth something.

* * *

The man of many parts generally has a weak part somewhere in his makeup—and somebody is always finding out where it is, and making use of it.

* * *

The clothes do not make the man, but to be decently clothed frequently helps a business man get the attention and respect he deserves—and a rascal to get some that he don't deserve.

* * *

The most striking feature of our foreign trade during the fiscal year, recently ended, is said to be in the increase of imports, which was over two hundred million above the previous year, while exports only increased one hundred and

thirty-seven million. It's no wonder we ran a little short of money last spring.

* * *

Modesty is as great a jewel as consistency, but it is not noticed nor appreciated half as much.

* * *

Some industries would thrive better if the superintendents were given more authority and less instructions.

* * *

A jokesmith asks if the paving brick isn't quite a hard proposition. Well, that's one of the things it's made for—its hardness.

* * *

Many a man's educational reputation is in the hands of his stenographer, and, not infrequently, that is about the safest place he could leave it.

* * *

The discussion of different power agents for the plant serves to at least remind us that there is lots of power being used up by transmission every day.

* * *

You needn't stick too close to the truth with those vacation fish stories, for you will naturally be expected to stretch the blanket a little, so if you merely tell the truth you will hardly get justice in the minds of your hearers.

* * *

Portland cement is a mortar substance with which to lay brick is a mighty good thing, but when you find a man advocating its use to displace the brick and other clay products, for which it is useful and needful in setting, get him to read, or read to him, that paper on "The Life of Cement," by Wheat, and he'll have another think coming.

THE LESSON FROM CLEVELAND.

The daily press has been teeming with reports of, and editorial comments on the recent great calamity at Cleveland, in the destruction of a schoolhouse by fire and the horrible price paid in the loss of youthful human life as a result. Other fires are recalled, which were made horrible by the loss of life, and as one daily editorially puts it: "We stand aghast at such horror for nine days or so, and then—with the exception of bereaved parents and citizens of the place in which the horror occurred—too often forget it in the course of events, and trust to luck that the lightning won't strike us."

The lesson is too evident and too striking to be ignored, and the answer is as plain as the handwriting on the wall at the Feast of Belshazzar and should burn itself into the mind of every man who has anything to do with the shaping of the work of school building, and see that it is nothing else than fireproof construction. There might be meager excuses for other people and other kinds of structures turning to other than fireproof material, but for a public school building of any magnitude, built with public money, which is abundantly bestowed for educational purposes in this country, to be made in anything else but fireproof in these days should be classed as criminal negligence. The fire and its dire results in this case has served to keenly awaken the people in every city in the country for the time being to look better after their school buildings, to give more attention to fire escapes and means of exit in case of panic.

This serves a good purpose and it is to be hoped that this interest will not die out after the usual nine-day period. But why not go further? Go to the fountain head of the trouble, so far as fire in such buildings is concerned, and make them fireproof. Dispense not only with the wooden stairways, but also with the wooden floors, and make the buildings such that destruction by fire will be practically

impossible. This is the real lesson to get out of the Cleveland disaster. Will we get it, or will the other cities throughout the country simply burnish up their fire escapes a little and oil the hinges on the emergency exit doors, and let it go at that?

WHAT THE HOME GUARD MISSES.

The home guard, the man that stays at home when there is a convention, can, of course, read about it, when the reports are published and get the formal speeches and discussions thereon, and thus without going to the meetings derive quite a lot of direct benefit from the association. But for all that, there is something he misses, something that is worth while, too, which was voiced last month by a writer, who says: "I always imagined that by reading the proceedings I would practically secure the same benefit as by attending the convention. My visit to Columbus has changed my mind completely. It is the buttonhole talks, the personal contact, the exchange of ideas, which are the real benefits of the convention. I came back with a better understanding of the relation of my work to the clayworking industry, with the foundation laid for many new business relations, and a kinder feeling for many of my competitors."

Here, in a few words, is the substance of things the home guard misses when he stays away from the association meetings, and this part that is missed is well worth the time and money spent in attending the meetings, and, in addition to the benefits derived from this personal contact, it gives one a much better understanding and appreciation of the business meetings, the talks and discussions thereon.

COMPARATIVE COST OF CONCRETE AND STEEL CONSTRUCTION.

Out in California, where the architects are quite active studying the relative merits of different methods of construction, there is a tendency to take the wind out of some of the claims of the cheapness of concrete construction, as compared to the modern steel building properly fireproofed with terra cotta. Some claims have been made that reinforced concrete buildings can be made for thirty per cent. less than the modern steel structure, but Architect John Parkison, of Los Angeles, produced some actual figures on buildings, which he had been connected with, to show that the difference is really only about eight per cent. This is particularly interesting not only because it reduces the difference to a small margin, but also by virtue of the fact that this small margin exists in a territory where everything should be favorable to concrete. Los Angeles has an unlimited supply of keen, sharp sand, right at hand, which is obtainable practically free of charge, except for hauling. There being no union among concrete workers, they are paid about \$2.00 a day, where, at other places in the United States, the same work cost from \$3.00 to \$4.00 a day. Now, taking these facts and this little eight per cent. margin of difference and changing the conditions to places where sand is an expensive item, it shouldn't take a very sharp pencil nor an elaborate amount of figuring to produce abundant evidence that concrete really has no claim to cheapness in the matter of cost of erection.

OUR EXPORT BUSINESS IN MANUFACTURED GOODS.

Exports of what is termed manufactures from the United States during 1907 averaged about \$2,000,000 a day, that is, counting Sundays and all. The approximate total value is given as \$770,000,000, against \$311,000,000 ten years ago, and \$149,000,000 twenty years ago. The manufactured products of the United States amounted to forty-one and seven-tenths per cent. of the total exports. Against this we imported in

manufactured articles \$650,000,000 worth during the year, which showed a balance in our favor of manufacturing trade of \$120,000,000. A gain over 1906 of approximately \$50,000,000 in the value of goods exported. The increase is pretty well scattered through the different lines, probably the greatest increase being in copper and in lumber, each of which showed \$8,000,000 increase. The only manufactures showing a reduction during the year was cotton cloth, and the bulk of the trade lost in this was the trade of China, which is said to be due largely to the fact that an extra supply of this was sent there in 1905 and the early part of 1906. It was, taken altogether, the biggest year on record in exports, and is a pretty healthy looking business to contemplate.

WHAT IS A CLAY JOURNAL?

Maybe we are radically wrong in our conception of what really constitutes a trade paper. It has long been our idea that a good clay paper is one which conscientiously devotes its pages to the upbuilding of the clay industries, rather than the promotion of competing materials of questionable character, and we have wondered how long the clayworking trades would meekly submit to the impositions practiced upon them. Possibly there is to be an awakening in this connection. We judge so from the remarks of the gentleman from Missouri, who evidently appreciates the fact that clayworkers have been receiving packages of lemons marked oranges. We refer to the honest and frank expression in the able paper read before the Wisconsin convention of clayworkers by Prof. E. R. Buckley, which is given in full in this issue. Prof. Buckley is a keen observer and has read *THE CLAY-WORKER* and our alleged contemporaries with discerning eye. He says:

"This association should have a publicity committee, whose duty it should be to urge the extended use of clay products in buildings and other constructions. The first duty of this committee should be to consider with the publishers of the clayworking journals the advisability of devoting their pages to the industry which they are supposed to represent. It is a little inconsistent to have a journal pose as a clayworker's friend on the outside of the sheet, while the pages within are devoted, in part, at least, to encouraging the extended use of sand-lime and concrete products. It might be well for each member to hereafter select as his journal of reference, the one that devotes its pages to the industry which the cover page stands for."

We have wondered oftentimes how long it would take clayworkers to awaken to the real situation so aptly cited by Prof. Buckley. It has seemed to us that our contemporaries have deserved to be indicted for obtaining money under false pretenses, so flagrant have they been in advocating competing materials while professing to be devoted to the clay industries. In the name of consistency, they should change their titles, or add thereto the words: "Sand-Lime, Brick and Cement Block Advocate." Then, and not until then, can they with any degree of fairness claim the support of clayworkers. In the meantime, those who do support them are either careless or belong to that large class, who, according to the lamented Barnum, "love to be humbugged."

TRADE LITERATURE.

WE RECEIVED in one of the recent mails a neat leaflet from the American Process Company, advertising their direct heat rotary blast dryers. It sets forth the claims of this type of dryer compared with other methods of drying, being automatic, continuous in action, economical in fuel consumption and possessing simplicity of construction, with low first cost to the buyer. This firm is well known for its good quality of dryers; continuous screen presses, cookers and digesters.

"THE BOOK OF SMILES, to be Taken Monthly for the Sake of the Liver," is a cleverly compiled twenty-page pocket booklet, being mailed to the trade by the Standard Dry Kiln Company, Indianapolis, Ind. On the cover is an attractive

adage by Benjamin Franklin: "One good husband is worth two good wives; for, the scarcer things are, the more they are valued." The twelve pages are brimful of attractive catchy verses, stories and jokes, and the little rhyme

It won't be but a few weeks more,
Ere we'll be asking, 'What's the score?'"

shows that this firm is certainly up-to-date and knows what pleases the average man. Write to them for a copy of this mirthful "Book of Smiles." It will be worth your while.

THE CHICAGO BRICK MACHINERY COMPANY is mailing their red-covered catalogue No. 8, entitled "Supplies." This is an interesting compilation of sixty-four pages, giving illustrations and net prices on nearly everything a clay manufacturer would need around a plant from a press down to a jack screw, making it a convenient book to have for handy references.

"CLAYWORKING MACHINERY CATALOGUE No. 27," is a prettily bound ninety-page catalogue, published by the Taplin-Rice-Clerkin Company, of Akron, Ohio. It is bound in a pleasing mode shade colored paper, printed in blue and gold. The catalogue includes many illustrations of their dry pans, wet pans, bucket elevators, storage feeders, steam dummy engines, sewerpipe presses, cars, trucks, dies, screens, pottery machinery, etc. The descriptive matter is very complete and interesting. This firm is doing a large business in the making of machinery for manufacturers of sewerpipe, tile, brick, and other clay products.

"NE PLUS ULTRA," is the title of a beautifully gotten up catalogue by the National Brick Machinery Company, of Chicago, Ill. This firm manufactures a line of brickmaking machinery, complete dry press brick outfits, sand-lime brick plant machinery, and the National brick press. The catalogue gives a treatise on dry press brickmaking and descriptions of the National brick press, the latter being illustrated with a well-printed cut of their six-mold press. The catalogue also contains literature setting forth the merits of their iron frame dry pans and cage pulverizer, showing illustrations of each. The last page of the book is devoted to views of different ornamental brick made from Simpson dies and molds. This is an interesting catalogue. Write to the National Brick Machinery Company, of Chicago, and they will do the rest.

THE JEFFREY MANUFACTURING COMPANY, of Columbus, Ohio, mailed us recently the late catalogue on their "Century" rubber belt conveying machinery. This is a fifty-page catalogue, with illustrations and descriptions showing the application of rubber belt conveyors for handling materials of various kinds. This firm has a world-wide reputation for its conveying machinery, sending their product to many different parts of the globe. In this catalogue they show nearly seventy illustrations, several of which show the conveyors in operation in the South African gold mines, where the heavy ore is handled with ease. Their machinery is installed in almost every type of industry where raw or finished material must be carried from one part of the plant to another. If you are thinking of investigating this side of your business, write the Jeffrey Company, Columbus, Ohio, for information.

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ESTABLISHED COMPANIES, as well as beginners, find our services profitable. We correct faults of manufacture and keep plants up-to-date. Engagements for special service, or by the year.

THE RICHARDSON-LOVEJOY
ENGINEERING CO.

[See page 496.]

WANTED, FOR SALE, ETC.

FOR LEASE OR SALE—Brick plant near Indianapolis, fine clay or shale. Property on railroad. 20,000 per day. Address D. B. W. 31 p
Care Clay-Worker.

FOR SALE—One brick and tile machine; 18,000 pallets and racks; three dump carts and harness and other articles. Address FRED H. WISE, 31 p
Mansfield, Ohio.

WANTED—A good foreman that understands the dry press brick business, also able to keep moulds in order. State experience and salary wanted. Plant near Washington, D. C. Address 31 d
M. J. Care Clay-Worker.

FOR SALE.

One Bensing Automatic End-Cut Brick Table, with belt delivery, gearing and shafting for driving same, for sale cheap, and not badly worn. For particulars address DALLAS COUNTY BRICK & TILE WORKS, 31 d
Adel, Iowa.

WANTED, FOR SALE, ETC.

MANAGER will contract to operate paving brick or sewer pipe works on salary plus percentage basis. Former failure of factory to make good not considered an objection if proposition is fundamentally a good one. 311
MANAGER, Care Clay-Worker.

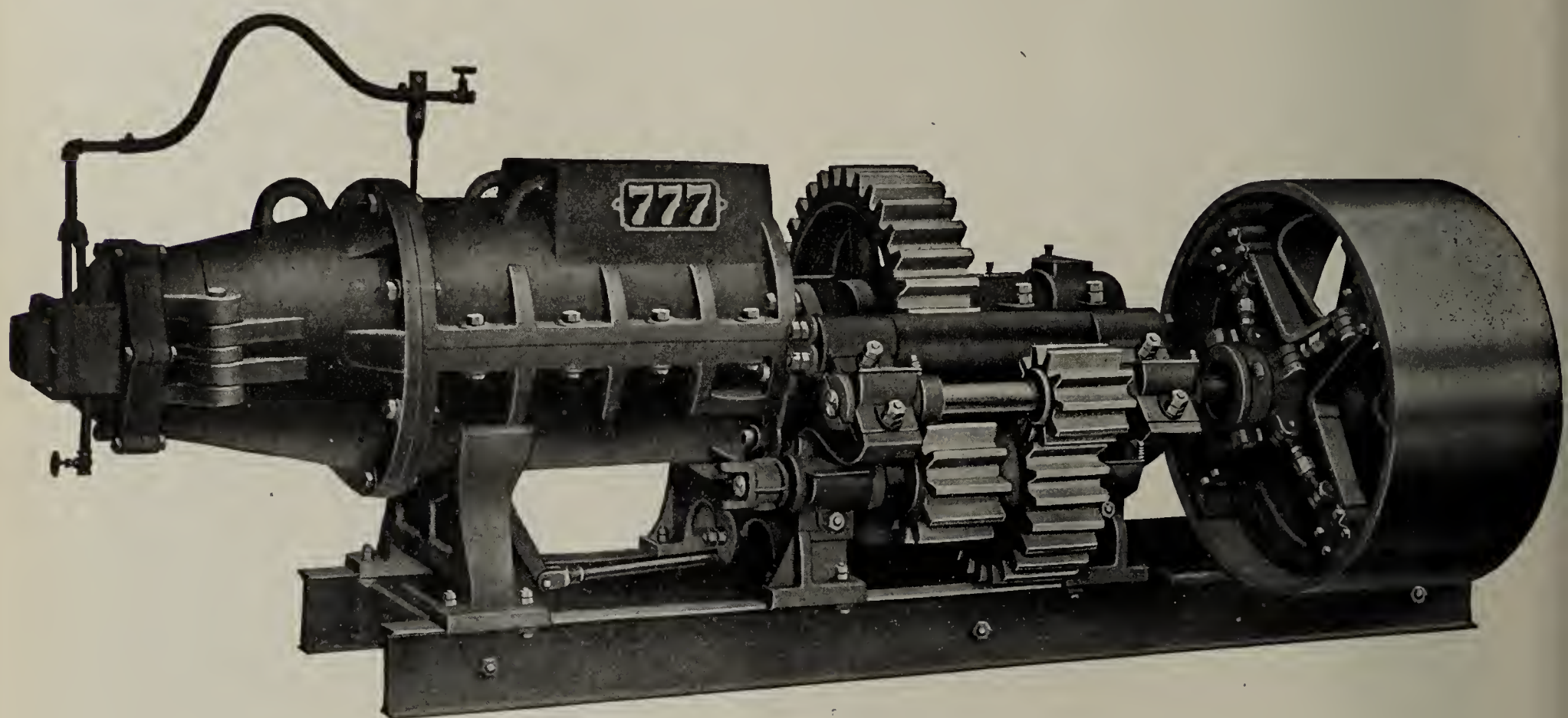
SUPERINTENDENT, experienced in manufacture of Sewer Pipe and Paving Brick, successful in correcting manufacturing difficulties, wants full charge of factory or factories, exclusive of selling end of business. Familiar with cost and record keeping systems and general accounting. Good references. 311
SYSTEM, Care Clay-Worker.

WANTED—Position as superintendent or foreman of either dry press or stiff mud brick plant. Am thoroughly conversant with brick machinery and am also a machinist. Can burn with wood, coal or oil. Strictly temperate and can give the best of references. Address "EASTERN," 21 d
Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on Pages 481, 482 and 483.

YOUR OWN GOOD JUDGMENT

Should tell you that the best made is the cheapest to use. That the "Raymond 777" Brick Machine is the cheapest to use is amply shown by the long life it has maintained under every condition in which it has operated.



And Now This—All of the "Raymond" Brick Machines (as well as their entire manufacture) are consistently designed for the strenuous life, and time and performance have proven that they know no superior.

The C. W. Raymond Co.,

The Largest Exclusive Builders
of Clayworking Machinery in the World.

Dayton, Ohio, U. S. A.

200%

More Radiating Surface Than Any "Hot Air" Dryer Made.

Ask for Exhibit 2077.

The C. W. Raymond Co.,
Dayton, Ohio, U. S. A.



THE RAYMOND RADIATED HEAT DRYER.

**We issue the following publications which may be
obtained upon application to our
Publicity Department:**

GENERAL CATALOG

CATALOG OF DRAWINGS AND SPECIFICATIONS

Exhibits

- 40. Heavy Duty Dry Pan.
- 41. Standard Dry Pan.
- 42. No. 2 Rotary Automatic Cutting Table.
- 43. Eight-ft. Wet Pan.
- 44. "999" Brick Machine.
- 45. Perfection Hand Represses.
- 46. Conveyors.
- 47. Four Roll Combination Crusher.
- 49. Niagara Hollow Ware Machine.
- 50. Combination Brick Machine.
- 52. Victor Repress.
- 53. Bevel Geared Pug Mills and Clay Granulators.
- 55. Clay Elevators.
- 56. Portable Track.
- 60. Roofing Tile Designs.
- 61. Dry Press Machinery.
- 63. Raymond System of Open Air Drying.

Exhibits

- 69. Peerless Smooth Roll Crusher.
- 70. No. 3 Daytonian Brick Machine.
- 71. Standard Pug Mills.
- 73. Single Geared Pug Mills.
- 2077. Radiated Heat Drier.
- 2078. Soft Mud Machines.
- 2079. Belt Cup Elevator.
- 2080. "555" Brick Machine.
- 2081. Automatic Wet Pan Emptier.
- 2082. Piano Wire Screen. (New design.)
- 2083. No. 1 Rotary Automatic Cutter.
- 2084. Dryer Cars.
- 2085. Hand Dry Press.
- 2086. End Cutting Table.
- 2087. "777" Brick Machine.
- 2088. Hoisting Apparatus.

THE C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.

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"LONG LIFE"

Pans, Screens, Presses, Dies, Wheelbarrows,
Sewer Castings, Paving Castings
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"SIMPSON BROS."

Brick Dies, Molds and Piano Wire Screens are Positively

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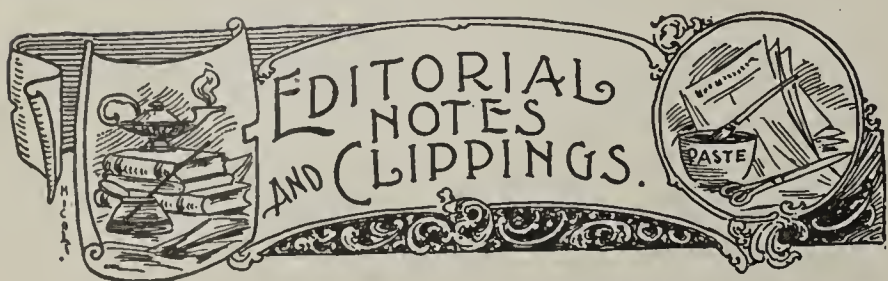
and therefore are the most economical.

THE PORTSMOUTH MACHINE & CASTING CO.,

LET US FIGURE WITH YOU.

PORTSMOUTH, OHIO.

Mention The Clay-Worker.



J. Van Coil contemplates starting a small brickyard at Terry, Mont.

Robert N. Weber, of Mt. Vernon, Ill., has in view the establishment of a 20,000 daily capacity brick plant at Victoria, Texas.

A. Mutz, Thomas Todd, and E. R. Wriggleworth are promoting a \$50,000 company to establish a brickmaking plant at Fernie, B. C.

W. S. Holt is interested in a movement to establish a brick and tile plant at Sharon, N. D. The clay at that point is of an exceptional quality.

John W. Hall and Wm. H. Perkins, Jr., have been appointed receiver for the Baltimore Vitrified Clay Company, Baltimore, Md. The plant was destroyed by fire last December, but is now being rebuilt.

The brickmaking season opens up favorably for The McAvoy Vitrified Paving Brick Company, of Philadelphia, Pa. They now have sufficient orders booked to keep their immense plant at Perkiomen Junction running full handed until August.

Ex-Mayor D. B. Provost has purchased the brickyard plant of L. J. Brannon, at Ashland, Ore., located near the State Normal. Mr. Provost proposes to double the capacity of the plant and engage in the manufacture of brick, tile and sewerpipe on an extensive scale.

The brick and tile plant of the American Supply Company, at Oskaloosa, Iowa, is now under way, and the work of completing it will be pushed to completion as rapidly as possible. The plant will be equipped throughout with modern machinery and appliances, and have a capacity of 75,000 brick daily.

The firm name of the Owensboro Brick and Sewer Pipe Company, Owensboro, Ky., has been changed to the Owensboro Sewer Pipe Company, and the capital stock increased to \$125,000. They have just completed a large addition to the plant to enable them to meet the increasing demand for sewerpipe.

The Bradley Brick Company has filed an application for a charter, with a capitalization of \$40,000. The incorporators are: S. T. H. Bradley, H. H. Hanagriff, I. C. Carter, W. M. Hanagriff, and B. J. Cobb. Mr. Bradley is president, H. H. Hanagriff, vice president, Mr. Carter, secretary, and W. M. Hanagriff, treasurer.

The immense new tile factory of the Mason City Drain Tile Company, at Mason City, Iowa, has been completed and is now being operated, with a daily capacity of 100,000 drain tile. The factory is the largest drain tile plant in Iowa, and Messrs. Denison and Stephenson may well be proud of this latest addition to their clayworking interests.

Anyone looking for a good bargain in the way of an established plant will do well to correspond with W. L. Jones, of Williamsburg, Va., who is the owner of one of the best brickyards in that part of Virginia. Owing to other interests, he wants to dispose of his brickyard property. Read Mr. Jones's ad in the FOR SALE columns, and then write him for particulars.

Mr. Wm. F. Stimmel, of Kutztown, Pa., who recently installed the Martin patented rack pipe steam brick dryer system on his plant of 18,000 daily capacity, has now placed his order with the Henry Martin Brick Machine Manufacturing Company, of Lancaster, Pa., for the materials to increase the daily capacity to 33,000 brick, the work of installation having already been started.

The Beaumont Brick Company, Beaumont, Texas, belonging to the Gulf States Brick Company, resumed operations recently, after being closed down since last October because of the money stringency and the lack of demand for the product. This company operates a large plant at Loeb on the Santa Fe, as well as the Beaumont plant, and when the financial depression struck the country the Beaumont plant was shut down entirely and the Loeb plant operated on a limited scale. The outlook is sufficiently encouraging to induce the

company to resume operations, with the expectation of disposing of the product without difficulty.

Jesse B. Hart has purchased the plant of the Peerless Brick Company, at Macon, Ga., which has a daily capacity of 35,000 brick.

A brick plant is to be established at Del Rio, Texas, with a capacity of 20,000 brick per day. S. W. Wormwood is at the head of the enterprise.

N. H. Strickland is organizing a company to purchase the brick plant of Beam & Tidwell, at Beebe, Ark. A number of improvements will be made in the plant.

The Manitowoc (Wis.) Clay Product Company has won a verdict of \$19,800 damages against the Northwestern road, as a result of the building of the Green Bay extension through the land of the clay company.

The Beaverville Brick and Tile Company, Beaverville, Ill., has been incorporated by Hilarie Lambert, Louis H. Lambert and Henry Nourie, with \$15,000 capital stock. This is an old firm, which has been reorganized.

J. B. Zartman, of Indianapolis, Ind., is at the head of a movement to establish a brick and tile plant at Jasonville, Ind., of 40,000 daily capacity. R. P. Irwin, J. A. Poe, Wm. Wakefield, and others of Jasonville, are interested in the enterprise.

One man was killed instantly and four others fatally injured by the collapse of the walls of a brick kiln which they were just beginning to fill at the plant of the Blackwell Brick and Tile Company, Blackwell, Okla. Heavy rains had undermined the foundations and the walls fell without a moment's notice.

J. A. Dunning is at the head of two different brick companies that have been incorporated to manufacture brick at Aulander, N. C. Associated with Mr. Dunning in the Dunning Brick Company are W. S. Dunning and B. G. Williams, while C. B. Walton and H. W. Webb are interested with him in the Walton Brick Company.

The brick plant of W. W. Phifer, at Stout, N. C., is to be enlarged to about twice its present capacity. Mr. Phifer will have his brother, E. W. Phifer, associated with him in the future, and they will make a number of improvements in the plant, installing the Martin patented rack pipe steam brick dryer system of 20,000 daily capacity.

The William Grace Company, of Chicago, Ill., have placed with the Henry Martin Brick Machine Manufacturing Company, of Lancaster, Pa., contracts covering the Martin modern outfit of soft mud brick machinery and Martin patented system of rack pipe steam brick dryers, to be installed at their Montreal plant, this equipment to turn out 50,000 brick daily.

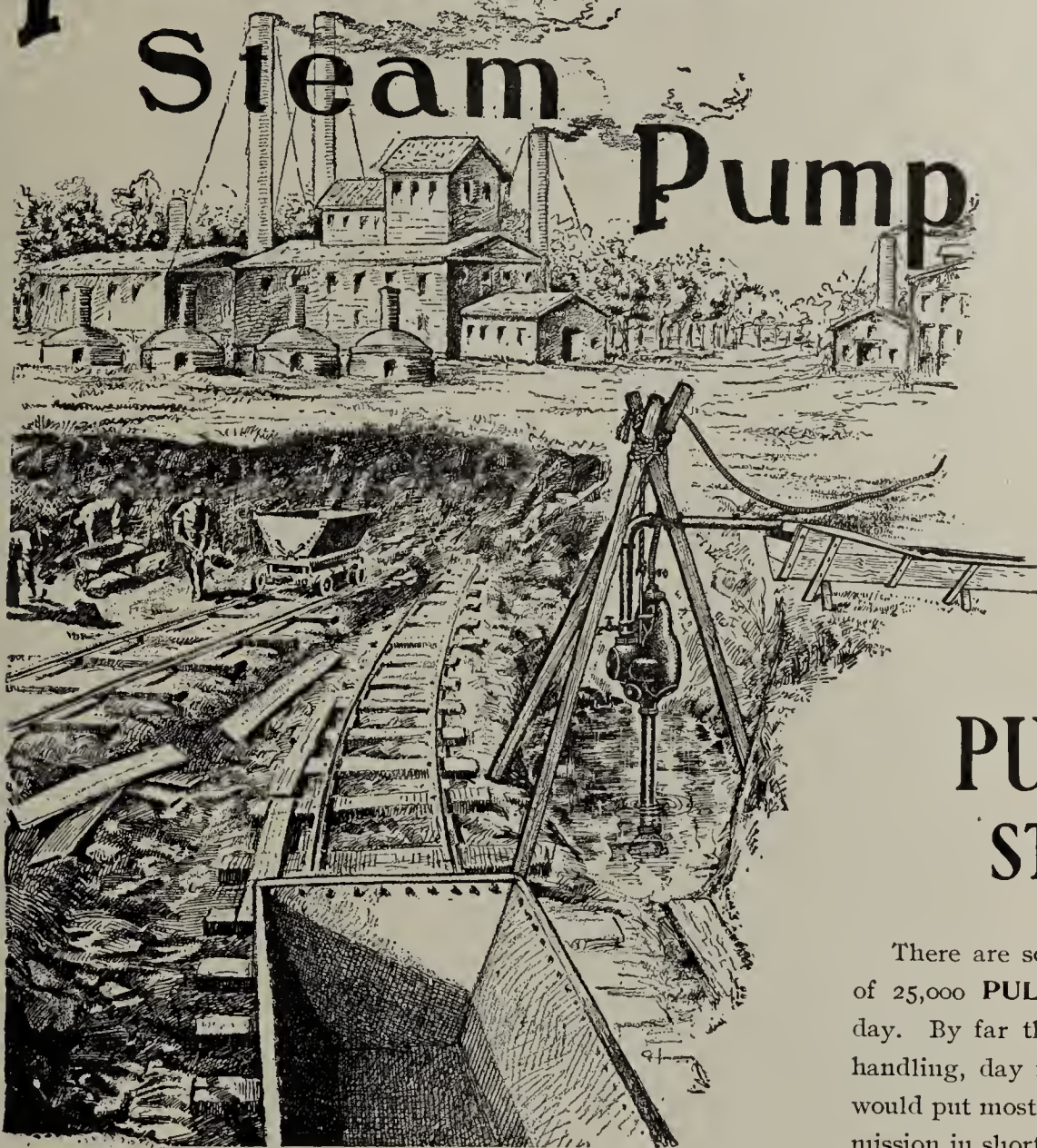
The Standard Fire Brick Company, of Pueblo, Colo., recently landed an order for 500 cars of fire brick for the construction of coke ovens in central Mexico. The company will deliver the product at the rate of 150 cars a month. The plant has a capacity of 300,000 fire brick a day. Mr. F. L. Capers, president of the company, says from present indications the coming season will be the best they have had in ten years.

The plant of the Louisville Brick and Tile Company, located three miles north of Louisville, Ky., was completely destroyed by fire early in the morning of February 21st. The fire broke out in the oil room and spread so rapidly that it could not be controlled. The loss, which is partly covered by insurance, is estimated at \$25,000. The plant will, in all probability, be rebuilt.

A special meeting of the stockholders of the Queen's Run Fire Brick Company will be held this month at the general offices of the company, at Lock Haven, Pa., this meeting to authorize the issue of \$125,000 additional capital stock for the purpose of building a new fire brick plant at Queen's Run, Clinton County, Pa. The company also owns and operates a large plant at that place, which is but two miles from Lock Haven, and the new plant will be erected on land that the company already owns. A fine tract of clay is owned in the immediate vicinity, from which the present works are supplied with silica and fire clay. The new plant will greatly increase the output of the company, as it will have a daily capacity of about 100,000 high-grade brick. A full complement of buildings, as well as suitable houses for the employees will be erected. The construction of the plant will be started as soon as the weather will permit,

(Continued on page 472.)

Pulsometer Steam Pump



ALWAYS READY.

A pump that has no easily deranged inside or outside mechanism, no rods to score, no projecting or breakable parts to be injured by rough usage, one that is not likely to become choked or clogged by the *Mud, Grit* and *Sediment* encountered in draining *Clay Pits*; in fact,

A PULSOMETER STEAM PUMP.

There are somewhere in the neighborhood of 25,000 **PULSOMETER** Pumps in use to-day. By far the larger majority of them are handling, day in and day out, materials that would put most other types of pump out of commission in short time.

PROFITS.

Every man jack in your line, Mr. Clayworker, is reaching out after profits about as hard as he knows how; the one who gets there is the one who adds to his reach by right means, methods and machinery.

A **PULSOMETER** Steam Pump is considered part of the necessary equipment by most of the money-making clayworkers. It will drain a clay-pit about as easily as telling about it; handles the grittiest, muddiest liquids with absolutely no injury to itself or its working parts. It will work as well when hung or suspended from a beam, derrick-boom or tripod as on the firmest foundation. No engine, belting, oiling or packing required, just a steam pipe from boiler—that's all.

Write for illustrated, descriptive catalogue telling all about them.

PULSOMETER STEAM PUMP CO.,

14 Battery Place, New York,

HENION & HUBBELL, Chicago.

Mention The Clay-Worker.

EDITORIAL NOTES AND CLIPPINGS—Continued.

and it is hoped to have it in at least partial operation by the middle of the present summer.

The plant of the Troy (N. Y.) Brick Company was badly damaged by fire last month which resulted from an overheated kiln.

The Newbern (N. C.) Brick and Tile Company has been granted a charter. The incorporators are: W. E. Moore, W. B. Blades, and J. V. Blades.

W. H. Barnes and others are interested in a movement to establish a brickmaking plant at Tekoa, Wash., where they have located a deposit of fine clay.

The Hoffman Brick Company's plant, at Medicine Hat, Ontario, Can., was damaged to the extent of \$5,000 by fire recently. The plant was insured for \$3,000.

Mr. C. E. Close, of Matawan, N. J., has just installed a complete outfit of Martin machinery on his plant, and which was furnished by the Henry Martin Brick Machinery Manufacturing Company, of Lancaster, Pa.

Among recent orders received by the Massachusetts Fan Company, Watertown, Mass., for equipment for schoolhouse ventilation, consisting of fans or complete heating apparatus, are: Public School No. 129, New York City, Lawn School and Delason Avenue School, Cleveland, Ohio.

The Jefferson Brick Supply Company, of Birmingham, Ala., has been granted articles of incorporation, for the purpose of manufacturing and dealing in brick and other building materials. The incorporators are: Edward Hiller, B. A. Inglis, T. H. Simons, Sidney Hiller and Edmund H. Dryer.

D. C. Morton, of Kansas City and I. H. Chapman, of Goshen, Ind., will establish a brickmaking plant at Quinlan, Okla., where they have located a fine deposit of red burning clay. Both Mr. Morton and Mr. Chapman are experienced brick men, and are well pleased with the outlook for the new plant.

The Massachusetts Fan Company, Watertown, Mass., is furnishing equipment in the way of fans and heaters for the Eastern Maine Insane Asylum, Bangor Me., Office, Bank and Library Company, Boston, Mass., the Memorial building, Dayton, Ohio, and the Norwich Hospital for Insane, Norwich, Conn.

The Speeceville Brick Manufacturing Company, Speeceville, Pa., are installing an equipment of Martin machinery, together with the Martin patented rack pipe steam brick dryer system, of over 33,000 daily capacity, installed by the Henry Martin Brick Machine Manufacturing Company, of Lancaster, Pa.

J. J. Martin, of Wellsville, Ohio, receiver for the Ceramic Brick Company, of East Liverpool, Ohio, has completed a number of improvements and additions at the plant, and will start it as soon as possible. When the company became embarrassed, there was a large stock of finished product on hand, which has now been practically disposed of.

The Massachusetts Fan Company, of Watertown, Mass., are furnishing for the Clarendon Clay and Mining Company, North Clarendon, Vt., a complete hot blast outfit for drying kaolin. The apparatus consists of a steam heater and one of the Massachusetts ball-bearing fans. The adaptability of the type of fan is shown by the fact that when the balls are once packed in vaseline no further attention is required for at least six months.

W. F. Soisson, the well known brick manufacturer of Connellsville, Pa., has been appointed trustee in bankruptcy for the Reese-Hammond Fire Brick Company, which formerly operated large plants at Bolivar and Garfield, Pa. The general offices of the company were in the Park building, Pittsburgh, and the company was one of the leading manufacturers of refractory materials in the Pittsburgh district, having had a large business in coke oven and blast furnace brick.

The plant of the Fort Wayne (Ind.) Pressed Brick Company, which has been in the hands of a receiver for some time, was almost wholly destroyed by fire March 8th. The fire was caused by high water, which flooded the plant, and, reaching a carload of lime, started the trouble. The fire had smoldered in the carload of lime all day, and finally, when the fire department was called, they found the interior of the plant in a blaze, which was extinguished only after hours of hard work on the part of the firemen, who had to fight the fire from boats, the water being about fifteen feet deep

around the building. The company carried \$5,000 insurance. Mr. Dan Beers is the receiver.

John Morrison, an experienced brick man of Little Rock, Ark., contemplates going into the brick business at Elgin, Texas.

R. A. Stanforth, of Gainesville, Texas, is organizing a company to establish a brickmaking plant at Wichita Falls, Texas.

The Cronley Brick Company has been incorporated at Wilmington, Del., with \$25,000 capital stock. The incorporators are: G. T. and W. J. Flynn and J. L. Hooper.

The Dresden Sewer Pipe Company, Dresden, Ohio, has been organized with \$55,000 capital stock by C. D. Moore, S. F. Spencer, H. R. Geyer, S. A. Baldwin and H. D. Moorehead.

The Star Brick Company, McQueeney, Texas, in sending in their subscription, state that they have purchased the plant of the Blumberg Brick Company at that place, and want to start right in the business.

Mr. W. F. Hardin, of Goldendale, Wash., is installing a Henry Martin horse power brick machinery equipment on his plant, furnished by the Henry Martin Brick Machine Manufacturing Company, of Lancaster, Pa.

The Adams Brick Company's plant, at Alexandria, La., which has been shut down for two months, while repairs and improvements were being made, has resumed operations, with enough orders on its books to insure a steady output for some time to come.

The Blue Ridge Granite Brick Company has been organized at Pearson's Ridge, Buncombe County, N. C. They will manufacture both building brick and block and tile. Those interested are: F. C. Cox, Louis M. Bourne, and Buren Bostwick, of Asheville, N. C.

The firm of Didier-March Company, which purchased the brickmaking plant of Adam Weber & Son, at Perth Amboy, N. J., has converted the plant into a pottery, and will at once begin the operation of one of the largest potteries in the country. The plant will start with 1,000 employees.

William Drake, for thirty years a well-known business man in Milwaukee, Wis., head of the Cream City Brick Company, died at McKinley, N. D., recently, aged seventy-nine years. Mr. Drake retired some months ago. He is survived by a widow, Mrs. Lavina Drake, a son, E. W. Drake, and a daughter.

The plant of the Coffeyville Brick Company, Independence, Kans., was destroyed by fire early in the morning of February 29th. This plant is one of the oldest in the Kansas gas belt, and turned out a fine grade of paving brick as well as pressed brick. The origin of the fire is a mystery. The plant will be rebuilt at once.

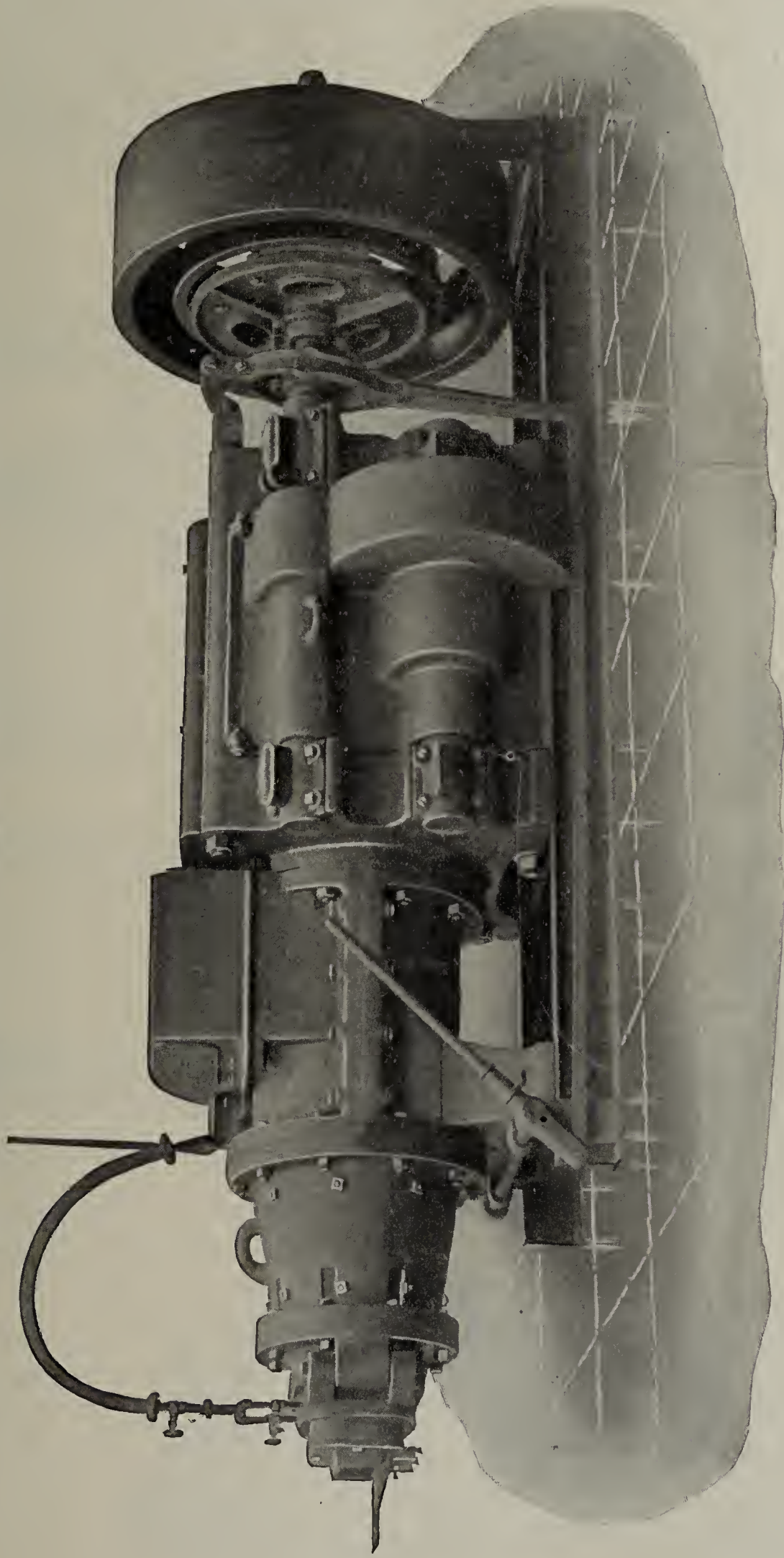
At the recent annual meeting of the stockholders of the Massachusetts Fan Company, Watertown, Mass., Horace Chenery was elected president, and D. K. Bartlett, treasurer. Mr. Bartlett will have general charge of sales and manufacture. The business of this company is now in a flourishing condition, having been nearly trebled in the past three years.

After an idleness of over two months, the plant of the Eureka Fire Brick Company, at Mt. Braddock, Pa., was started up on full time, and it is thought that it will have a steady run for the remainder of the spring and summer. The company has received several large orders that will keep the plant working to full capacity for several months at least.

The Fertile Clay and Peat Company, of Mason City, Iowa, who have been manufacturing peat briquettes for fuel for some years past, have their plant for the manufacture of pressed brick about ready for operation. They are installing a triple pressure brick machine from the shop of the Ross-Keller Brick Machine Company, St. Louis, Mo., of 60,000 daily capacity. The brick turned out will be of a high-grade chocolate colored front brick.

Messrs. J. C. Steele & Sons, manufacturers of the New South brickmaking machinery and labor-saving appliances, at Statesville, N. C., report they are again running full time, having received many orders during the last few weeks. They have shipped and have orders for outfits for the following points: A No. 1 out for Oglethorpe, Ga., Concord, N. C., Durham, N. C.; No. 3 outfits for Cerro Gordo, N. C., Roanoke, Va., Asheville, N. C., Newberne, N. C., Wadesboro, N. C., and Washington, Ga. Orders for No. 2 outfits for Moltonville, N. C., Peachland, N. C., and Pineville, N. C.

Modern Stiff Mud Brick Machinery.



We've been building Brick Machinery a good many years and have naturally been brought into contact with a variety of clays and conditions and have been able to produce machinery more and more nearly adapted to the requirements of our customers. Our motto in this work has been "Prove all things and hold fast to that which is good." Consequently the features in our products which have not been found good have been discarded and improvements from time to time have been substituted.

Let us get acquainted with your troubles or your wants, and if we cannot do you good we will tell you so. We build Brick Machines in many sizes and patterns.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

(See ads on pages 518 and 519.)

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



MARKET FOR BUILDING brick is very dull at this time, and, in fact, has been dull for some time. None of the plants are making brick now, and it is probable that the majority of them will not begin operations before the first of June. A number of fair contracts for buildings have been awarded recently, but dealers are far from optimistic as to the future. Stocks on hand are unusually large, and the brick men are disposed to wait until they are reduced before opening the yards for more brick, for which there is but a slow market. Prices have declined somewhat, and it is said some building brick are now being sold at an actual loss in order to get rid of them. Current quotations are around \$6.25 per thousand.

While the building brick people are inclined to be pessimistic as to the future, the paving brick concerns see nothing but unparalleled prosperity ahead. Last year was an exceptionally good year in this line, but the coming season promises to be a pacemaker. The so-called financial stringency instead of acting as a deadener upon this line of material, has, in fact, proven a stimulant. Many cities in Ohio will let paving contracts this season for the express purpose of furnishing work for the unemployed, and a measure pending in the present legislature, with a fair prospect of passage, is designed to increase the borrowing capacity of municipalities, so that this work can be carried on to a greater extent than it could under existing limitations. Toledo and many of the larger cities of the state have reached about the limit of indebtedness, but, with the needed legislation, they will be enabled to carry on larger street paving contracts. It is estimated by competent persons that Toledo will lay from 150,000 yards to 200,000 yards of street paving this season, the major part of which will be of brick. The stocks are much smaller than they were at this time last year, owing to an active market all winter. The large Logan brick plant, at Logan, has been in active operation all winter, with the exception of about two weeks. Paving brick are now selling at from \$13.50 to \$15.00 at the factory, depending upon the size.

Stephen J. Pickett, of Toledo, has entered the list of paving brick contractors.

John Pieck was awarded the general contract for an eight-room addition to the Fulton street school, in Toledo, recently. The structure will be of brick, and the contract price is \$31,172. There were twelve bids, Pieck's being \$7,700 lower than the lowest.

A. J. Lesperance and J. G. Marke were recently arrested in Toledo upon a charge of stealing a lot of grates from the plant of the Collingwood Brick Company. Upon a hearing, Lesperance was sentenced to thirty days in jail and a fine of \$200, but was given the privilege of shaking the dust from his feet within twenty-four hours. He accepted the latter alternative.

The Board of Public Service of Toledo recently awarded S. J. Pickett the contract of paving Scott street, from Canton to North Twelfth streets. The work will cost \$2,993.40.

An interesting injunction suit has been filed at Lima, Ohio, by the Western Ohio Railway Company, which secured a franchise through the village of Bluffton, agreeing to pay for the paving eighteen inches on either side of the rail and between the tracks. Immediately the village paved the entire street a distance of two miles, and the railway has enjoined the collection of the paving assessments, claiming they are exorbitant. The amount runs to many thousands of dollars.

J. O. Shoup & Co., of Dayton, was the low bidder on brick paving for Yankee road, Middletown. Their bid on Logan block was \$14,179.20. It is probable the contract will be awarded in the near future.

The Devonshire Brick and Terra Cotta Company has started operations in every department at its large plant at Roseville. The plant has been idle for some time, owing

to the winter season. It is said orders are already on hand for four months' output of the plant, which manufactures a high-grade quality of brick.

The city of Toledo will purchase a brick testing machine to determine the quality of vitrified paving blocks. The machine will be one of the rattler testing machines, and will be installed in the city yards on Smith street. T. O. D.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE SOUTHLAND.

BRICK WORK IN THE South is certain to be on a large scale this year, despite presidential politics and the fine record made in most of the cities and towns last year. Plans in architects' offices now indicate that there will be a large amount of work calling for brick specifications in the early spring. It was demonstrated in 1907 that brick residences were relatively cheaper than frame ones. To say nothing of durability. The financial bottom has not dropped out of lumber prices to such an extent as to make this different in 1908, and brickmakers over the south and west are making a good deal off the argument.

The Fulcher Brick Company, of Nashville, Tenn., has just been awarded the contract for the brick work on a twenty-four room apartment house, to be built by Alex Weinbaum, in a fashionable residential district.

The General Supply and Construction Company, at Dallas, Texas, has been awarded a contract on competitive bidding for paving South Akard street with brick.

The Memphis Asphalt and Paving Company, with general offices in the Tennessee Trust building, Memphis, said to your correspondent that the season was rather quiet at this time on brick paving and other paving work, but they looked for an active business a little later. The last brick paving work done by the firm was for the municipal government at Paducah, Ky.

The Okmulgee Brick Company, of Okmulgee, Okla., is engaged in the construction of an immense dry press brick plant. The main building is 100x150 feet. Four large dry press brick machines will be in use.

St. Joseph, Mo., capital is interested in a new brickyard being established this month at How Kim, in the northern part of Oklahoma. It is estimated that 50,000 brick can be turned out daily. A very fine shale is accessible. Among those identified with the interest are: H. Kimber, of St. Joseph, Mo.; Chas. E. Thornton, of St. Joseph, Mo., and N. B. Howard, of Cottonwood Falls, Kans.

The Mount Carmel Vitrified Brick and Sewer Tile Company, of Mount Carmel, Ill., has been incorporated with a capital stock of \$50,000 by W. A. Stansfield, J. G. Stansfield and J. E. Wills.

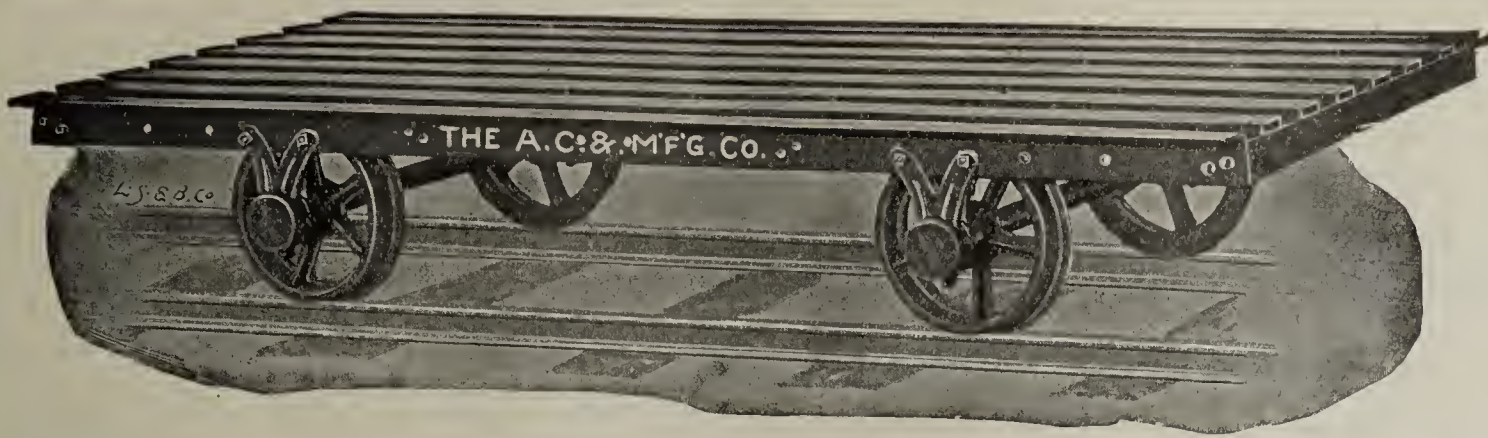
The Weller Brick Company, of Atlanta, Ga., report good prospects for the spring of 1908 in the Empire State of the south.

The South River Brick Company, of 24 Walton street, Atlanta, also reports a good trade outlook. They are manufacturers of Chattahoochee River plain and repress brick.

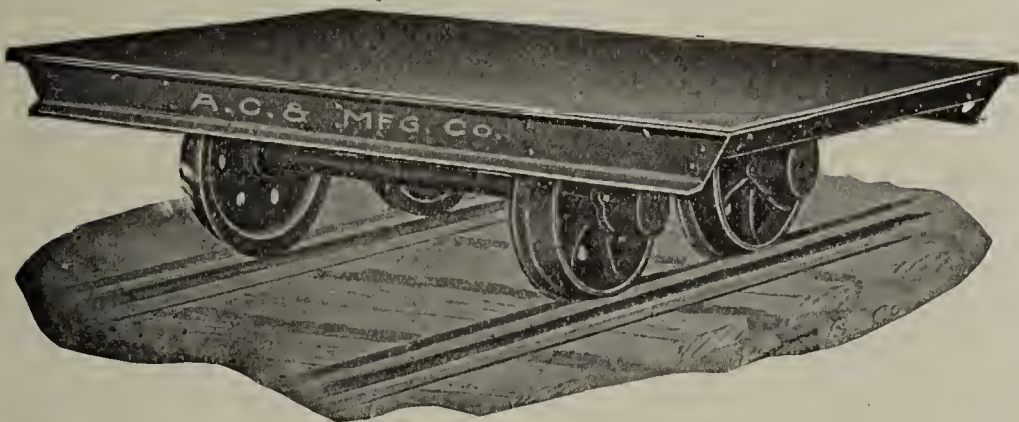
Costen, Moore & Co., of McKenzie, Tenn., have been very, very busy manufacturing and doing contracting work the last few months. They have erected a large number of business, residence and public structures at McKenzie, Henry and Dresden, Tenn., during the last few months.

The Louisiana Brickmakers' Association held its annual convention early in January at the St. Charles Hotel, New Orleans. About 100 members were in attendance, and a good and interesting time was had. Thos. Downer read a paper on "Cost of Manufacture." Fritz Salmon spoke on the "Manufacture of Brick." President C. N. Adams spoke on "Our Organization." Officers were elected as follows: R. A. Kent, of Fluker, La., president; Thos. Downer, of Baton Rouge, first vice president; J. R. Abels, of Ponchatoula, second vice president; Frank Bethune, of New Orleans, secretary and treasurer. The retiring officers are: C. N. Adams, of Alexandria, president; C. D. Gondran, of Belle Helene, first vice president; R. A. Kent, of Fluker, second vice president; Ernest M. Loeb, of New Orleans, chairman of the executive committee.

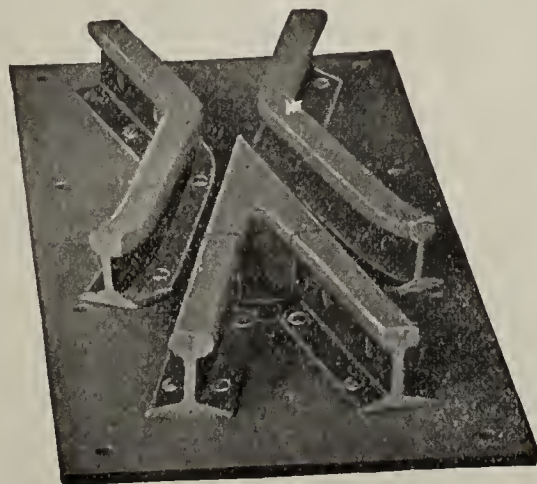
TRAVELER.



No. 108. Stiff Mud Flat Car. Steel Deck.



No. 114. Sand Lime Brick Car. Channel Frame.



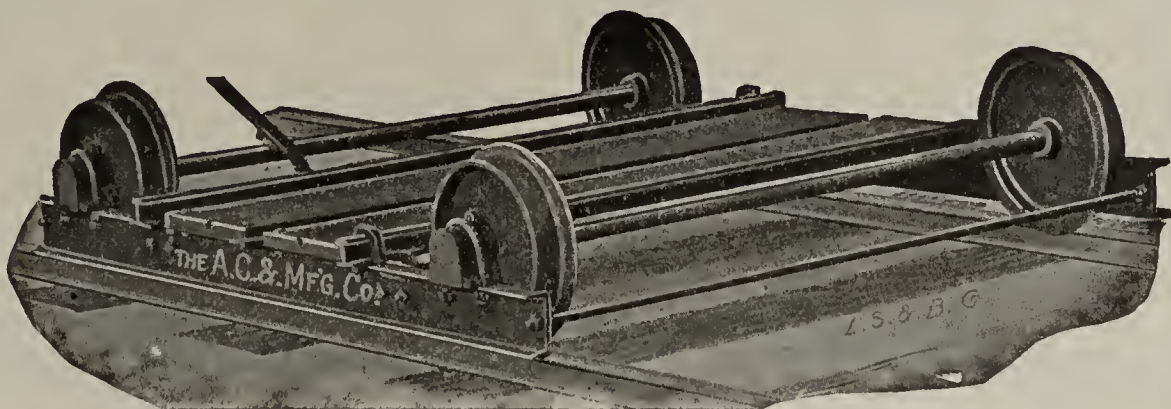
No. 1025. Steel Frog.

The Atlas Car & Mfg. Co., CLEVELAND, OHIO.

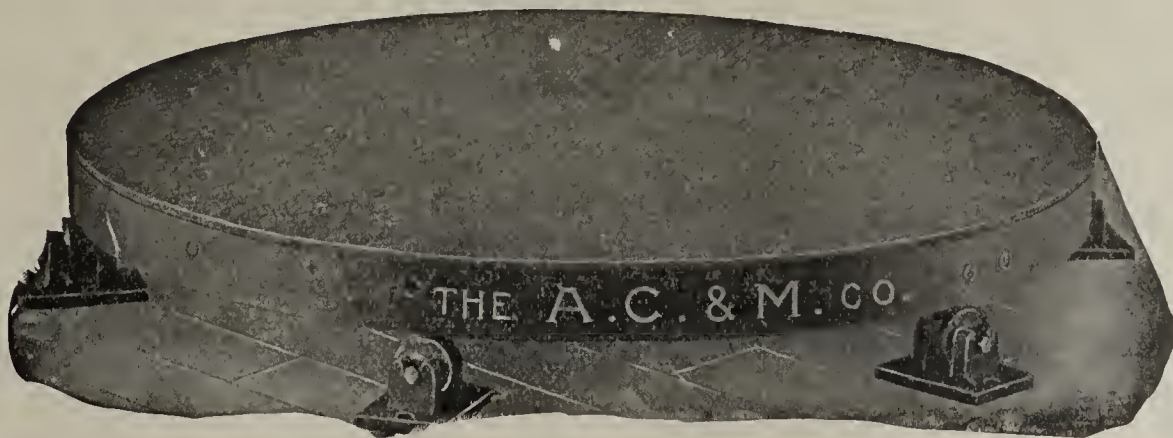
Manufacturers of Steel Dryer Cars of all Descriptions and Equipments for Hot Air Dryers, including Rail, Frogs, Switches, Steel Ties, Portable Track, Etc.
Also Transfer Cars, Turntables, Clay and Dump Cars.



No. A. Flanged Pallet.



No. 142. Transfer Car.



No. 147. Checkered Steel Top Turntable.

SEE AD ON PAGE 396.

Written for THE CLAY-WORKER.

BRICK NEWS OF THE KENTUCKY METROPOLIS.



THE INDICATIONS FOR a very fair building year in this city are such as to make the brick manufacturers hopeful of doing a very nice business. Already plans are under way for a number of structures that are larger than the ordinary building, and there are other improvements contemplated that will call for a great many brick.

Among these are the erection of a new city hospital, a new city hall, a seven-story hotel, and a large number of vitrified brick streets. Contracts for some of this work will be let early in the year, and other jobs will likely be forthcoming before the spring has fairly gotten under way.

This city is loyal to clay brick construction, and the increasing demand for other clay products has been very satisfactory for some time. Conditions among the manufacturers at this time are not very flattering, but, before the arrival of April, there promises to be enough to keep everybody actively engaged.

The Southern Brick and Tile Company has just resumed operations at their large plant, after a close down of some weeks. They are looking forward to a very active season when business does materialize, and they see no reason why this should not be forthcoming in the very near future. They are in a position to handle considerable business, and have no fear about the demand.

The Louisville Brick Company has been fairly busy the last month or so, and have noted an increase in the past few weeks. They expect to be very busy after the beginning of next month, as the prospects are such as to make them hopeful. They see no reason for other than a very active year, and believe that there will be plenty to keep them busy for some months.

The P. Bannen Sewer Pipe Company are getting things in condition for a very nice business during the spring months, and are anticipating an active year in their special lines of clay goods. They have been having a very nice demand in the past, and, while this has not been as large as they would have liked, still it has been all that could be expected under the circumstances, that have been existing throughout the country.

The Hillenbrand Brick Company find conditions with them to be very favorable for the future, and say that they are looking forward to a very active year in the clay brick industry. They are busy at their plant at this time, and believe that the indications point to a very encouraging season for the clay industry. They now have on hand some nice orders, and have no fears about the future.

The Louisville Fire Brick Works report the demand for their special lines to be improving some, and find the general aspect to be more encouraging than it has been in the past few months. They are not operating quite full force as yet, but as the demand increases they will increase their force until the full capacity is in operation. Business generally has been such as to make them hopeful as to the outcome, and they are very well pleased over the prospects for the future.

The Kentucky Vitrified Brick Company is noting an improvement in the demand for brick at this time, and see no reason why there should not be an ample amount of orders for all during the present year. They are fully satisfied that there will be a very fair year, and will get at least as much as they can take care of, and they have nothing to complain about on this score.

The Louisville Pottery Company find the demand for their commodities to be very fair, though they are not as busy as they might be at this time of the year. They say that the demand has been somewhat irregular, and that the indications for the future are as yet a little uncertain as to what the industry will offer during the coming months.

The Burrell & Walker Sewer Pipe Co. find the demand with them to be a little slow at this time, though they are satisfied that there will be a nice business later in the season.

They have not been as busy as they could have wished in the past, but they are not complaining, because they feel that the future will compensate for all the other losses.

The Hydraulic Brick Company say that they are not as yet operating their plant on full time, and the demand is not as great as they would desire it at present. They are anticipating a very fair demand later in the year, however, and see no reason why it should not materialize. The indications are favorable enough, and there should be nothing to offset this idea.

WARFIELD.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

P ERHAPS NOT even New York itself is so pleased with the opening of the tunnel under the North River as is New Jersey, or that portion of it which will be most benefited by this improvement in transportation facilities. All the northern portion, comprising Hudson County, Bergen County, Passaic County, Essex County, and, to some extent, Sussex County, will feel the influence of this change and, will show it in the building development which is surely coming. Already inquiries for factory sites, and sites for tenements and apartment houses have begun, and there is no indication of any reduction in the year to come.

Jersey City and Hoboken, with their outlying suburbs, are nearest, and in some ways will be most benefited. Factories and tenements are likely to fall to their share more than residences. The brick man will see prosperity in this for him, since no wood buildings are permitted within the fire limits of these cities. Three-story tenements are popular, housing six families, and the state building department has approved them so that builders can develop them unhampered.

The state building department has presented its report to the Governor. It shows that about 10,000 buildings, valued at over \$6,000,000 were erected last year, about one-third of which were of brick. A considerable proportion of these were tenements, most of which were constructed for four to ten families. The principal development was in Newark, and there everything was of brick. No wood buildings can now be erected within the city limits.

The work of the building department has increased very rapidly in three years. According to comparative tables the number of buildings erected or remodeled in New Jersey in 1907 was substantially three times what it was in 1905. And it is significant that this increase is practically all near the border, or in other words, in the suburbs of New York and Philadelphia.

Development of New Jersey's important and increasing clay industry during 1908 will depend upon a number of factors which are not yet clearly manifested. Along the Hackensack makers will have to wait for indications from New York before they can undertake important developments. The same observation applies to Perth Amboy and other manufacturing centers in that vicinity. In Camden County Philadelphia will govern. In Essex County and adjacent territory the growth of Newark will determine the development of the brick business. It may be said in this connection that there is no question about demand for brick in the localities adjacent to the big cities. Makers will be able to sell all they make.

Trenton potteries are enjoying quite as much prosperity as usual at this season. The first of the year is a quiet time with most clay industries, but operations are going on as liberally as usual in January, and there is nothing to so much as indicate any important reduction in either working force or hours. The panic did not seriously interfere with the business, and development has continued as usual.

Building propositions in Newark are increasing and during the past few weeks have gone ahead of any previous number of weeks for some months. Apparently the effects of the business depression have passed and builders are once more in position to take up the work again. While none of the propositions filed since the opening of the year are large ones, the increase in the number of small ones is gratifying and indicates what may be expected in the future.

A. L. B.

Ever Go Fishin'?

and after you get perched upon a log, pole in hand, in full view of the stream, did you ever find to your utter amazement that you had come away from home without any bait?

Did you ever get rigged up for the brick business with a fine material bed, a fair market, good switching facilities and a plant ready to run---then find that you couldn't produce brick nearly as good or as cheap as you

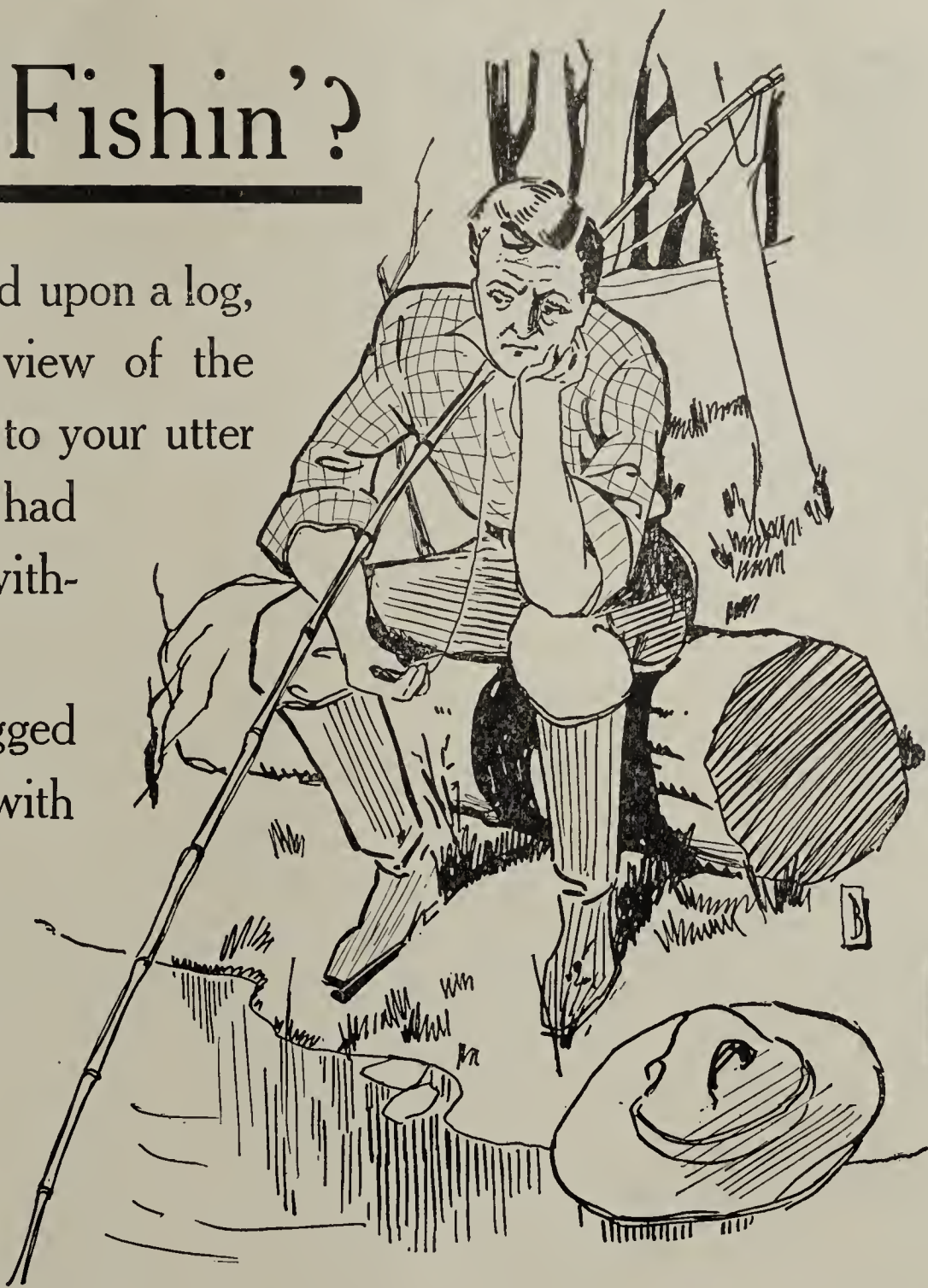
had originally contemplated. There you are, minus the bait again. Everything on hand but the *product*.

GO BACK HOME, MAN, AND GET YOUR BAIT

If you don't know the short cut across the fields, ask us---maybe we can tell you.

Luce Engineering Company

COMMONWEALTH TRUST BUILDING
SAINT LOUIS, MISSOURI



Written for THE CLAY-WORKER

BUFFALO BRICK AND BUILDING NEWS.



STATISTICS HAVE just been issued by Henry Rumrill, deputy building commissioner of Buffalo, giving information about the number of structures erected in this city last year. The figures for 1907 show a gain of thirteen over 1906 in the number of permits issued. There is, however, a falling off of \$233,600 in the value of the buildings. Last year there was a greater number of buildings erected in Buffalo than in any year since the Pan-American Exposition here. On account of the present warm weather, it is estimated there are more than 1,000 new homes now under construction in the city. The number of building permits issued in 1907 is shown in the following table:

Month.	No.	Valuation.
January	153	\$418,000
February	132	381,700
March	246	850,000
April	351	1,086,700
May	367	742,000
June	316	676,000
July	273	957,000
August	211	661,000
September	297	688,000
October	270	631,000
November	264	826,000
December	150	435,000
Total for 1907.....	2,880	\$8,452,400
Total for 1906.....	2,867	\$8,686,000

Engineers are making preliminary plans for a new passenger station which will be built in Rochester, N. Y., by the New York Central Railroad at a cost of \$1,500,000.

The new Hotel Statler, located at South Division and Swan streets, Buffalo, is practically completed and is attracting much favorable attention. The structure is twelve stories high and the exterior from sidewalk to roof is of mat-glazed terra cotta in three colors, and is one of the largest and finest examples of the use of polychrome in the country.

It is the work of the Atlantic Terra Cotta Company, New York City, through its Buffalo sales agent, John H. Black, Builders' Exchange Building. In the grand court of the new hotel is a fountain erected by the same company; the design, a dolphin, is by Mr. Johnson of Esenwein & Johnson, of Buffalo, architects for the building. The Terra Cotta Company's outlay on the building was about \$30,000. It also has a contract of \$20,000 for the new Providence Retreat building in course of erection here, and did work on the new Chamber of Commerce, of Buffalo, to the extent of \$12,000.

Messrs C. V. and W. H. Boughton, of the Manufacturers' Agency, with office in the Mutual Life Building, Buffalo, did the wainscoting of the walls in the Statler Hotel buffet. The wainscoting, 6x6, is of seal brown tile in natural glaze, the effect being most pleasing. The Messrs. Boughton represent the Rookwood Pottery Company, of Cincinnati, Ohio, and through their efforts, supplemented by the handsome display of decorative work which their office contains of examples in Rookwood pottery, Buffalo is learning the ethics of "The Home Beautiful." Out-of-town people are also coming under the beauty spell, and one of Messrs. Boughton's latest pieces of work was at the residence of Architect C Paxton, of Erie, Pa., where they placed two mantels. One was built in the library, the facing being a gorgeous hollyhock design in several colors; the second was a delicate Iris design.

The Manufacturers' Agency has also supplied brick during the past few months for the following buildings: Mt. St. Joseph's Academy, A. A. Post, architect, and John Lannen, contractor, 150,000 red shale Bradford brick; E. C. Cotter, real estate dealer, two residences of red shale Bradford brick; Depew High School, Depew, N. Y., T. W. Harris, architect, Walker light brick; Mizpah Temple, Buffalo, T. W. Harris, architect, Kuskegua wire-cut brick; Title Guarantee Insurance Company Building, H. Osgood Holland, architect, Devonshire brick.

The Ellicott Brick Company has recently purchased a 20x48

Allis-Chalmers Reynolds Corliss engine and for which it built a commodious new brick engine house. The company manufactures shale brick. Its works are near Jewettville, N. Y. on the B. R. & P. R. R., with offices in the Ellicott Square, Buffalo. During the regular season a force of thirty-five men are employed. The company furnished 1,000,000 shale brick for the building of the new International street car barns in Broadway, this city, and has quite a market in Canada, despite the duty tax. Henry B. Loveland is president and manager, and the office of secretary and treasurer is filled by one of Buffalo's best known and popular citizens, Edmund P. Cottle. Mr. Cottle is a member of the Buffalo Bar Association and a prominent officer of the 74th Regiment.

The Queen City Brick Company, Builders' Exchange, has contracted to furnish 3,000,000 brick for the erection of three public school buildings, Nos. 41, 44 and 58. This company, of which William H. Brush is president and Lyman B. Walrath manager, is the middleman for eight brickyards.

The Lyth Tile Company, for many years located in West Eagle street, has moved its office into larger and more convenient quarters, No. 666 Ellicott Square. The company's factory is at Angola, N. Y., where for eighteen years it has been making flue linings, drain tile, building blocks, fire-proofing material and hollow brick. "Can't complain," said the genial manager and secretary, A. H. Stowell, in answer to the oft-repeated question as to how the obstreperous money market is affecting the brick trade. "Have just come from closing a fair-sized order."

It is the same encouraging story with the Buffalo Brick Association, whose factory is in Lancaster on the Erie Railroad. Business was good up to the usual slack winter season. Its output is from six to eight million annually and employs almost 100 men. C. H. McCutcheon is president and George W. Schmidt secretary and treasurer.

One phase of the brick trade is helping the western New York manufacturers to tide over "the bad half hour." It is, that while prices on other building materials had gone on soaring almost beyond reach, that of brick was less last year than it was in 1903. Now the abnormal must return to the normal, and all things being equal, the brickmaker may come into his own again.

Mayor Adam, of Buffalo, believes that there should be some reform made in street paving in this city. In his recent annual message he said in part: "Why should Buffalo, with its millions of taxpayers' money invested in street paving, pay toll to paving contractors for repairs. A properly operated plant owned by the city, with no middlemen's profits or contractors' margins, should save the people money." Continuing on the question of pavements, some of which have been neglected, Mayor Adam said: "For years the city's streets were not properly cared for. Repairs were stinted in extent and unsatisfactory in execution. In 1903-4 only \$70,000 was in the budget for street repairs. In 1905-6 only \$85,500. In 1905-6 the facts have already been set forth in this message. In 1906-7 the budget shows \$175,000 for street pavements, entirely apart from other sums, or \$20,000 more than in the two years of 1904-5. For the present fiscal year, 1907-8, the budget shows \$195,000 for street repairs, with an addition of such estimated amount as over \$15,000 for vehicle moneys. The subject of street repairs is indeed demanding your attention." Brickmen and others are interested in the Mayor's recommendation that a considerable amount be spent in improving the streets.

Official figures indicating the building activity in Rochester, N. Y., last year, show that for 1907 there was an increase of \$577,216 over 1906. Comparative figures showing the construction work in Rochester are as follows:

	1906.	1907.
January	\$135,992	\$187,085
February	240,740	185,500
March	903,983	1,189,840
April	657,046	786,045
May	615,306	623,805
June	651,858	538,920
July	590,630	952,925
August	480,659	904,130
September	348,525	476,525
October	585,950	420,435
November	393,290	344,260
December	571,520	143,145

January

KNICKERBOCKER JR.

BOOKS FOR CLAYWORKERS.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryer, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors now in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Price \$1.00.

A review of present practice in the manufacture, testing and uses of Vitrified Paving Brick.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Burning Brick in Down Draft Kilns, by W. D. Richardson. Price \$1.00.

A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.00.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvements.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE CLAY INDUSTRY of the Puget Sound is gradually picking up, and the brick business will be all right this summer. Several new projects have been mentioned, and on several large buildings the actual work has been started. The protection of home industries has not been fully developed in this section. As an evidence of this is the order for 80,000 vitrified pressed brick placed with the Hydraulic Press Brick Company, of Brazil, Ind., for the Ferry-Leary office building, to be erected in Seattle.

The Denny-Renton Clay and Coal Company have started up all their plants with full forces, and are making stock ahead of the summer trade.

The Little Falls Fire Clay Company has more orders on hand at present than a year ago for vitrified sewerpipe, and are also running full force.

The Abrahamson Brick Company is repairing their plant, which was damaged by a landslide. They, however, will only put in a temporary plant at present, and build a modern, up-to-date plant in the fall.

The Northern Clay Company, of Auburn, has secured some very large contracts for terra cotta in Portland, Spokane and Seattle, and have all the work they can take care of for the present.

There is considerable talk about starting a dry pressed brick plant in Arlington. E. G. Kay and some Everett parties are interested. The property is located near Big Lake. There is a large body of clay, which was tested by a St. Louis brick company, and pronounced to make excellent brick. The contemplated plant will have a capacity of 20,000 dry pressed brick per day, and will also make in addition, drain tile and common brick.

The Columbia River Clay Company, of Kennewick, will erect one of the largest brickyards in the northwest. The company will build the plant on the banks of the Columbia River, about one mile below town, and work will start at once. The company will manufacture mostly common brick, and ultimately try dry pressed brick. Tests have been made which resulted in burning 8,000 brick of a high quality. The plant will have a capacity of 25,000 brick per day.

The brick situation in Yakima Valley is very far from assuring at present. Just what the towns will do for fireproof building material for the next four or five months is a question asked by many contractors and would-be builders. The unusual demand this winter for brick has completely exhausted the supply, and the concrete cement block people have no surplus material on hand. The new brick plant will not be in operation for two months, and, if the weather condition remains favorable, the cement block factory will start shortly. There were more than fifty new houses completed in Toppenish this winter, calling for an investment of \$100,000.

The Sumas Fire Brick Company, of Sumas, has let the contract for the grading of the right of way of the spur which they will build to connect with the Northern Pacific Railroad. The spur will be a half-mile long, and connect half a mile east of Lamberton on the main line. After the track is laid, a start will be made with the erection of the buildings and kilns.

Mr. L. Cate, who recently arrived in Spirit Lake, Idaho, from the east, is looking over the situation with a view of establishing a brickyard here. He has found a large deposit of brick and fire clay, and will start the erection of a plant as soon as tests which are now being made prove to be satisfactory.

The building trade in the four principal cities of the northwest showed quite a material gain in 1907 over that of 1906. In the city of Seattle there were issued, according to the statement of the building inspector, 10,368 permits, with a total value of \$13,573,270. In Spokane there were issued 1,867 permits, with a total value of \$5,778,876. Spokane occupies the position as the distributing center of the inland empire. It is the great division point of a large number of steam and

electric roads. There were erected last year larger and costlier buildings than ever before.

Tacoma, another large city in the Puget Sound country, has issued 2,309 permits for building improvements, valued at \$10,351,230. Of this number of permits 1,199 were for dwellings, which emphasizes the fact that Tacoma is the city of homes.

Portland also has held its own. There were more and better buildings erected in Portland in 1907 than in any year in the city's history. The total permits issued were valued at \$9,410,137. Many new skyscrapers were erected, which are a credit to the city. Large warehouses and freight sheds were erected, and, in all, the buildings are of the better class. For the three first classes the total permits aggregated nearly \$3,500,000.

The largest paving contract ever secured in the northwest was made by the Denny-Renton Clay and Coal Co., of Seattle. Mr. C. W. Mitchell, their paving brick expert, put this deal through in opposition with the Barber Asphalt Company, which was trying to have asphalt specified as paving. The contract was secured for North Yakima. The estimates on the paving are 9,600 square yards, and will require approximately six million brick, and cost \$300,000. The city's proportion will be 1,800 square yards, at a cost of \$60,000, that of the property owners 7,700 square yards, costing about \$237,000, and the balance being taxed against the street railway company.

Another large contract which this same company has secured is for terra cotta to be used at the university buildings, which will temporarily be used for exposition purposes.

Garrett Brothers, of Granger, have secured a five-acre tract in Toppenish, just outside the city limits, and will move their plant from Prosser down here in the near future. So far, all the brick used in Toppenish have been shipped from Granger. The capacity of the new plant is about 40,000. The clay has been tested thoroughly, the Garrett Brothers believing that they can make better brick than in Prosser.

At Bellingham, the shortage of brick is felt, and the contractors on the State Normal School have been compelled to use the Alger brick, as the Miller yard was unable to supply the necessary quantity.

Mr. Walter A. Hull has severed his connection with the Denny-Renton Company, and has returned east.

The new brickyard just completed by the Builders' Brick Company made a test run last week, and everything worked very satisfactory.

A formidable landslide occurred several days ago at the brickyard of A. Abrahamson, at West Seattle. The hillside, being thoroughly soaked by the continuous rains of the last few weeks, suddenly gave way, and moved enough earth to keep the yard going for several years. The country road was covered to a height of twenty feet. The plant and machinery are a total wreck. The dry sheds were moved against the kiln. The company will rebuild at once.

The Northern Clay Products Company, of Auburn, has secured a large contract for terra cotta, to be used at the Fergus County court house, in Montana.

Mr. C. G. Barlow, operating under the Tacoma Trading Company, of Tacoma, will operate again this year the brickyard which they own on Veshion Island. They have purchased new dryers, and will be in shape to handle a large output.

The new plant of the Goss Brick Company, in Tacoma, is nearly ready for operations. The whole arrangement of the plant is up-to-date in every respect. The plant operated by G. Barlow on Vashion Island is making alterations, and will put in a dry tunnel this spring.

SIWASH.

CLEARFIELD BRICK MANUFACTURING CO.,
CLEARFIELD, PA.

Works at Krebs, Clearfield Co., Pa.

FIRE CLAY PAVING BRICK.



The Brick concerns, who have investigated, say that we make the best belt for transmitting power or conveying material under the severe conditions of the trade.

"We find it gives better service and lasts from two to three times longer than the other belts we have been using; these were rubber, leather and cotton duck."

"We recommend your Leviathan belt, especially for brick plants where there is much dust to contend with."

A folder containing many more convincing expressions has just been prepared. Write for it.

MAIN BELTING COMPANY,

1224 Carpenter Street, Philadelphia.
59 Market Street, Chicago.

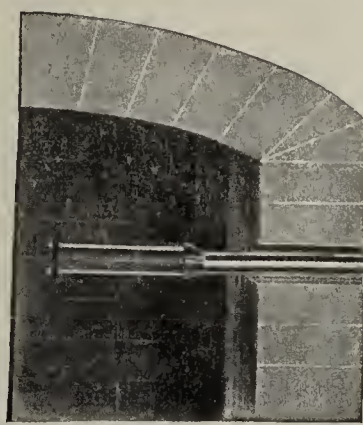
Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

Pittsburgh Kiln Construction Co.,
West Elizabeth, Pa.

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

EDWARD BROWN & SON,
311
Walnut St.,
Philadelphia, Pa.

FOR SALE, WANTED, ETC.

FOR SALE—Brick plant, well equipped, good market and prices; very profitable business. Will require \$20,000 to handle. Address BOX 475, Portland, Ore.
3 2 d

WANTED—Position as foreman in shale brick plant, by a man thoroughly familiar with all details of brick manufacture. A first-class burner, best of references given. Address H. H. R., Care Clay-Worker.
3 1 cm

FOR SALE—One Hercules Senior brick machine in first-class condition. 7,500 10x32 inch steel pallets in fair condition. Would trade for good stiff mud machine. Address LUCK, Care Clay-Worker.
3 11 p

BRICK PLANT FOR SALE—Capacity 30,000 per day, fitted up with steam dryer, in first-class running order. For particulars apply FIRST NATIONAL BANK, Lumberton, Miss.
3 3 c

FOR SALE—Brick and tile plant at a very reasonable price. Machinery in good condition. In use only one year. Address HENRY SIMON, 420 Chicago st., Toledo, Ohio.
3 1 cm

INTEREST WANTED.
Capable party wishes to buy interest in and take management of brick plant making building or fire brick. Give as many particulars as possible regarding business. Address A. E. L., Care Clay-Worker.
3 1 d

WANTED.
To find a market for a large deposit of kaolin. We have other valuable clay for queensware, pottery, terra cotta, and high-class brick. Address CHAMBER OF COMMERCE, Room 1176, Astoria, Ore.
3 2 dm

WANTED—Position as superintendent. Front brick, all colors. Dry press or stiff mud. Results guaranteed. References the best. Address SEGER, Care Clay-Worker.
3 1 p

WANTED—Second-hand granulator or feeder for 20,000 capacity brick machine. Also successful oil pump for stiff mud die, and burned brick elevator or conveyor. Address R. A. P., Care Clay-Worker.
3 1 p

WANTED—Position as manager, with company producing fire or face building brick, by man capable of decreasing cost of production to minimum and building up business. Address L. E. A., Care Clay-Worker.
3 1 d

WANTED—Responsible parties to locate paying brick plant on my land. Railroad switch, cheapest coal, best shale in country. One other plant in town. Investigate. Address PENTREATH, Clinton, Ind.
3 1 p

FOR SALE—Owing to the ill health of the proprietor, we desire to dispose of our soft mud brick plant, having a daily capacity of 15,000 building brick. Potts machine, mold sander, 60-h.-p. boiler, and 40-h.-p. Houston-Stanwood engine, and the usual yard supplies, including 30,000 pallets, all in good condition. Will sell equipment and lease clay property. Good local market at \$7.50 per thousand. Address MATHIAS SCHOELCH, Shelbyville, Ind.
3 1 d

WANTED.
Clayworkers who are having troubles of any sort in the operating features of their plant, whether in the making, drying or burning, to know that my experience of twenty-five years enables me to give valuable practical advice that will prevent further loss and trouble, if skill and knowledge as a practical worker and chemist can accomplish that purpose. Terms reasonable and contracts made contingent upon success. Address J. J. KOCH, 3325 Caroline st., St. Louis, Mo.
5 ff L

WANTED—Position as superintendent, setter, or burner, with a soft mud or dry press yard. Ten years' experience. Reference furnished. "G," Care Clay-Worker.
3 1 c

BUSINESS CHANCE.
On account of death of president and manager, young man thoroughly posted in the manufacture of sand-line brick can get into business with little or no capital. Address E. W. F., 265 Pleasant, St. Paul, Minn.
3 2 d

FOR SALE.
Two single transfer cars, almost new. Racks, trucks and turntables for 75,000 brick, Mock system. One Nolan & Madden endless carrier cutting table. Cuts from 6 to 10 inch tile. One Adrian cutter, cuts from 3 to 8 inch tile; one Adrian hand brick cutter; two pulleys, 12-inch face, 62-inch diameter, 2 15-16 bore; one pulley, 10-inch face, 62-inch diameter, 2 15-16 bore; one pulley, 12-inch face, sixty-two-inch diameter, iron hub and spokes, with iron rim. Address A. FRIES & SONS, Connersville, Ind.
1 3 cm

DO YOU NEED MODELS or MOULDS?

We can furnish you with them for any line of clay products, ornamental or plain. Plaster-blocks and cases made to order. First class work guaranteed.

IRONTON CLAY SPECIALTY CO.,
Ironton, Ohio.

Continued on page 482.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED.

A traveling representative to sell fire and face brick. Address CITY, 3 1 d Care Clay-Worker.

WANTED—Position as manager or superintendent of brick plant. Experienced in stiff or soft mud, up or down-draft kilns. All references. Address, P. Q., 3 1 c Care Clay-Worker.

FOR SALE.

Brick machine, 15,000 per day capacity. 4,000 pallets and one hand repress. 25 brick molds. Will sell separate. Reason for selling, wish to retire. 2 3 cm WM. MAERZ, Fulton, Mo.

FOR SALE—A splendid opportunity to purchase at a bargain an interest in or the entire business of a brick plant and lumber yard. Address ROBERT E. WOODS, Postmaster, 1 3 cm Louisville, Ky.

FOR SALE.

One Potts Mold Sander, in good working order, also dry racks (Mock System) for 70,000 brick. The above can be had very cheap. A. FRIES & SONS, 2 3 d Connorsville, Ind.

FOR SALE—One 2-mold Simpson dry press. One eight-foot iron frame dry pan. One No. 6 Brewer brick and tile machine, with all necessary dies and cutters. One tile elevator, one clay elevator, one clay disintegrator. O. W. DUNLAP, 2 3 L Bloomington, Ill.

WANTED.

A position as superintendent by a responsible man, who is thoroughly familiar with all the details of a brick plant, and capable of handling all kinds of help. Can give the best of references as to ability, etc. Address "N. H." 2 tf d Care Clay-Worker.

FOR SALE—Brick and tile plant at Carthage, Ill. Hercules soft mud machine. 5B Madden & Co. machine, for making drain tile and stiff mud brick machinery. Sheds and kilns in good repair: 35 h. p. engine and 50 h. p. boiler. Address W. E. LYON & CO., 1 3 cm Carthage, Ill.

DRY PRESSES FOR SALE.

One 2-mold U. S. brick press. One 2-mold Boyd brick press. One 4-mold brick press of standard make. One 3-mold Andrus brick press. Dry pan, pulverizer, screen and transmission. One set of plates for 7-foot wet pan. 250 horse power Corliss engine and boilers. B-K BRICK CO., 9-tf d Denver, Colo.

FOR SALE.

Brick and tile plant, located on the line of new railroad, 80 rods from new depot. Three acres of best clay. Down-draft kilns and sheds. New horse power machinery, dies, trucks, wheelbarrows, and a very good demand for product. Satisfactory reasons for selling. Address GENOA BRICK AND TILE CO., 1 3 cm Genoa, N. Y.

WANTED.

One wet pan man, \$2.75 per day; 1 face brick setter, \$3.00 per day; 2 shaders, \$2.75 per day; 3 graders, \$2.25 per day. Extra good wet pan man, setters, and shaders will get 50 cents per day more than the above. Extra good graders will get 25 cents per day more than the above. Want 25 other first class face brick factory men. All men must be married, sober, and less than 45 years of age. Address PACIFIC FACE BRICK CO., 3 1 c Portland, Ore.

FOR SALE—Geared, iron Quaker brick machine, only used a short time. A bargain. Also 18-h.-p. Olds gasoline engine. Address BOX 195, 3 1 c Prescott, Iowa.

FOR SALE OR LEASE—The Waterloo and Cedar Falls Brick Company. Must be practical brick man. Address H. JACOB PFEIFFER, 3 1 c Cedar Falls, Iowa.

FOR SALE.

One 9-foot dry pan, iron frame. One revolving screen. THE T. B. TOWNSEND BRICK AND CONTRACTING CO., 5 tf d Zanesville, Ohio.

FOR SALE—Two large iron Potts soft mud brick machines; two Potts brick mold sanders; 26,000 pallets for rack cars, size 10x34 inches. All in good condition. For prices, etc. Address SHERIDAN BRICK WORKS, 2 tf d Indianapolis, Ind.

FOR SALE—A complete soft mud brick outfit. One Potts all iron machine, mold sander, disintegrator, trucks, shafting, pulleys, belting, 20,000 pallets, racks and other articles. Machinery good as new. Address J. H. MCGREGOR BRICK CO., 1 3 c Bloomington, Ill.

WANTED—Position with a building brick plant. Am thoroughly experienced in the work from burning to management. Have also had experience in installing brick machinery, and building to plans and specifications. Can burn with wood, coal or gas. Address PITTS, 1 3 dm Care Clay-Worker.

FOR SALE—One Hercules brick machine, Horton make, capacity, 40,000 per day. Also mold sander for same and 50 good molds. Machine has only made two million brick. Brick sheds, racks, and pallets to hold 105,000 brick; five good brick trucks. Good reason for selling. Address 10 L., 1 3 cm Care Clay-Worker.

FOR SALE CHEAP.

1 Chambers "CD" Machine Complete. This machine is doing good service but increased demand makes it necessary for us to put in a Chambers' largest size, which is now being installed.

THE SUMMERVILLE BRICK CO., 2 tf d Summerville, S. C.

FOR SALE
AT A DECIDED BARGAIN,

The best brick plant located in the northwest. It is fitted up with modern machinery, including Penfield Brick Machine, Potts disintegrator, Benson side cutter, Bechtel system of trucking, good kilns and drier sheds, machine shop, barns, boarding house for employees. Good reason for selling. A. L. MARTIN, 613 Hennepin Ave., Minneapolis, Minn.

1 tf d

FOR SALE—ENGINES AND BOILERS.
—Engines—

Corliss and Automatic—20x42 Allis, 18x42 Hamilton, 18x36 Wright, 16x32 Buckeye, 14x24 Atlas; also 12x30, 10x30, 13x16, 13½x15, 12x18, 12x14, 12½x12, 10x10, etc., etc. Throttling—18x26 H., S. & G., 18x24 Erie City, 16x20 Chandler & Taylor, 14x24 Atlas, 14x14 Vertical, 12x18, 11x16, 10x16, 10x12, 10x10 Vertical, 9x12, 8x16, 8x12, etc., etc.

—Boilers—

Horizontal Tubular—84x18, 78x16, 72x18, 72x16, 66x16, 60x16, 60x14, 54x16, 54x15, 48x14, etc., etc. Fire Box—60, 50, 40, 35, 30, 25, 20, 16, 14, 12 and 10 horse power, etc., etc. Vertical—55, 35, 30, 20, and 15 horse power, etc., etc. Pumps, heaters, tanks, saw mill and general machinery. THE RANDLE MACHINERY CO., 1735 Powers st., Cincinnati, Ohio. 2 tf d

FOR SALE—Or lease on royalty, forty acres fine white clay, suitable for fire brick, tiling and pottery. On railroad and healthy location. Address A. J. UNDERWOOD, 3 1 cm Heber, Ark.

WANTED—A dry pan man, who understands taking care of that machinery. Will pay \$2.50 a day, but only practical man need apply. Give references. Address BURKE BROS., 3 2 d Ft. Smith, Ark.

FOR SALE—One 14 horse power traction engine. One all iron Quaker brick machine, steam power. Three trucks, 21 panel bottom cherry molds. All in No. 1 good condition and good for several million brick. Cheap for cash. 2 2 d GEO. H. JENKINS, Monona, Ia.

FOR SALE—Well equipped brick and tile plant. Four 24 foot down draft kilns under roof. Dry sheds for 300,000 brick, new mill and automatic tables. Ten acres ground, large barn, inside city limits. Demand exceeds capacity. Plant practically new. OAKES BROS., 2 3 dm- Iowa City, Iowa.

Tile plant, 30,000 daily capacity. Make FOR SALE—Complete Modern Brick and vitrified brick from shale beds owned. No others in hundreds of miles. Ship to thirty towns: three clamp kilns, capacity 750,000; one down-draft kiln, Stewart patent; steam dry kiln, fifty steel cars, complete, equipments in running order. Address W. H. CAPPS, 3 1 cm Villisca, Iowa.

FOR SALE.

One steam power and one h. p. soft clay machines. One feed water boiler heater. A number of dryer cars. Two second-hand dump carts, practically as good as new. All of the above in first-class condition. Address THE HORTON MANUFACTURING CO., 6 tf L Painesville, Ohio.

FOR SALE OR LEASE—An up-to-date, well-equipped dry press brick plant near Charleston, W. Va., now idle, owing to the death of the proprietor. Well situated, good market, and excellent clay from which can be made buff, iron spot, gray, red and flash brick. Natural gas for fuel. A rare opportunity for an experienced man to establish himself in the press brick business with small capital. For full particulars, Address MRS. W. A. BRADFORD, 1 3 cm Charleston, W. Va.

FOR SALE—The undersigned are dismantling and closing out the machinery of the best equipped industrial plant in Northern Illinois, and will dispose of the following at about one-half the price of new: One Chambers "B" brick machine; one Chambers "C" machine; two Chambers pug mills; one brick repress; one 200 h. p. Atlas Automatic engine; one 80 h. p. Atlas automatic engine; one 12 h. p. simple engine; three large boilers; one 15 h. p. Electric locomotive; one seven foot exhaust fan; one 30-ton ref. Wolf ice machine. Pumps, shafting, etc. for complete plant. ANTHONY & BUCHANAN, 2 3 cm Kewanee, Ill.

FOR SALE.

Valuable brick and drain tile yard on James River, Va. Two separate and complete outfits, stiff and soft mud, 100 and 40-h.-p. boilers, 50 and 35-h.-p. engines, 50,000 and 30,000 capacity machines, crusher, automatic cutter, Scott's patent brick cars, with hacks and pallets for open air drying, patent hack pipe steam dryer, and all needed tools and appliances. Installed by Henry Martin Company last season and not operated twenty days. New and commodious dwellings for manager and laborers. Inexhaustible supply of finest plastic red clay, for brick and drain tile, burns cherry red in five days. The markets are eight cities, rapidly growing, and immense truck fields adjoining, equally accessible by barges: freight, \$1.00 per thousand. Brick net \$7.50 to \$9.00 at kiln. Such an investment is rarely offered, but I am not a brickmaker, bought to protect myself, and will sell very low and on easy terms. W. S. JONES, Lock Box 5, Williamsburg, Va. 3 1 dm

You Can't Afford To Cut Special Shapes by Hand

Not when your competitor is using a

Bradford Brick Recutting Machine.

This machine will cut arch and key brick, also track paving brick, uniformly and accurately.

The machine is EASILY and QUICKLY adjusted to shape desired. We would like to tell you what it did for the other fellow.

G. W. FLEMING CO.,

Mention
The Clay-Worker.

BRADFORD, PA.

DON'T BE DECEIVED

You say you are getting all the air you need with your natural gas to give perfect combustion.

But! Are You Sure?

You can be dead sure when you are equipped with Kern Gas Valves, as the air regulation is automatic.

Comparison.

We will equip a kiln with Kern Gas Valves and if we do not save you from 10 to 25% on your gas and give you better results, no sale.

We send an expert to install them.

Leader Specialty Mfg. Co.,

Smethport, Pa.

Write FRANK P. CLEVELAND,
REAL ESTATE EXPERT,
965 ADAMS EXPRESS BUILDING,
CHICAGO, ILL.

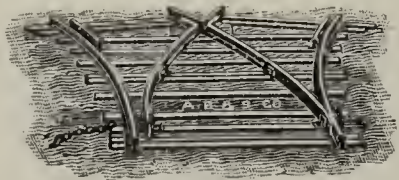
if you want to buy or sell any kind of brick
plant, business or real estate.
I t f d

FOR SALE.

No. 1 Thew Shovel in first-class condition.
6 "L. G." Traction Shovels.
Locomotives, cars and rails for up-to-date
clayworkers.

We buy and sell.

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Right and left hand one, two and three
way switches of various gauges, radius
and weight rail, at special prices.

THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

FOR SALE AT A GREAT BARGAIN.

Clay property consisting of 12 acres of
clay adapted to the manufacture of brick,
roofing tile, hollow tile, terra cotta, and
kindred articles. Clay of the finest quality,
having received the Gold Medal at the St.
Louis Exposition, also Bronze Medal on
roofing tile made from same.

The plant consists of two kilns, two Ray-
mond brick presses and clay shingle dies;
one Freese brick and tile mill, Bensing
automatic cutter, Potts disintegrator, boiler
and engine, and a lot of tools and imple-
ments. It is located at Searcy Station,
Ky., and directly on the L. & A. R. R.,
making shipping facilities ideal. Great de-
mand for the output, and the right party
could make a fortune. Best reason for sell-
ing. Will go at a sacrifice. Address

1 3 cm

C. L. S.,
Care Clay-Worker.

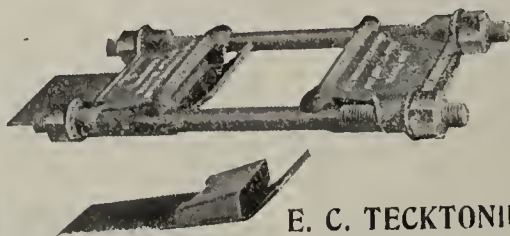
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MANGANESE
FOR ALL USES.
LUMP, GRAIN AND GROUND
60-70% 70-80% 80-90% OXIDE.
CLAY WORKERS GOODS A SPECIALTY.
SAMPLES AND PRICES ON INQUIRY.
METALLIC ALLOYS CO.
99 JOHN ST NEW YORK, N.Y.
SUCCESSORS TO KENDALL & FLICK.

TAPLIN, RICE & CO.,
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Sewer Pipe and Clay-
Working Machinery.

ESTABLISHED 1862.

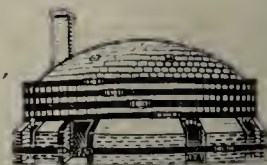


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Write us for price.



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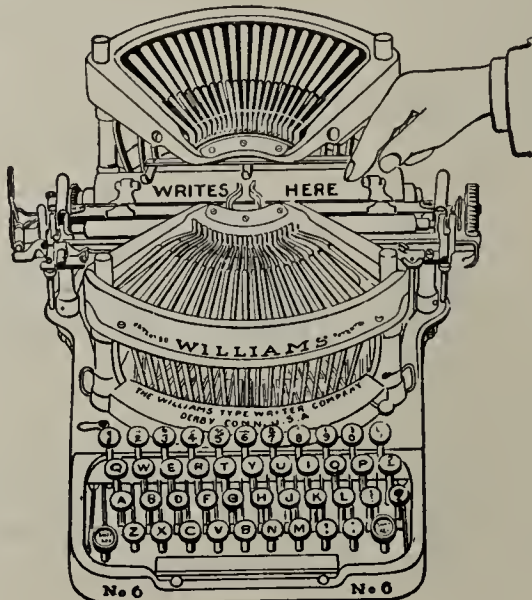
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Wooden Brick Pallets.
WRITE US
BARCHARD & CO., Limited, 135-151 Duke St.,
TORONTO, CANADA.

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Saves the beginner time when learning.

Saves the learned time when beginning.

**New
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Six
Visible
Writer**



Saves time, energy,
worry and money.

Gives speed, simplic-
ity and beautiful work.
Single shift. Strictly
visible writing.

Old machines of any
make taken in trade.

The Williams is sold
under a positive guar-
antee and on easy
terms.

If you want the best
value in a typewriter
ever offered, write us.

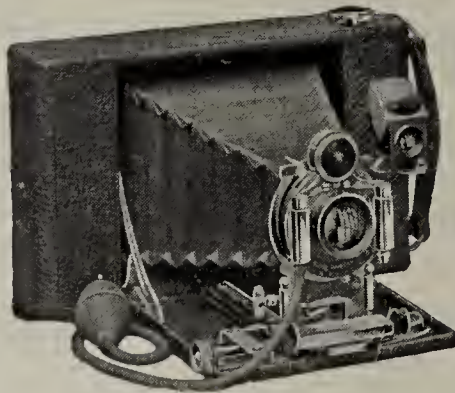
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Home Office and Factory,
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Old Machines Taken in Trade.

"OPENS THE CORRECT WAY."



For Pictures 4 x 5.

**No. 4
Folding
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No. 4 Folding Hawk-Eye for pictures, 4 x 5, represents the highest attain-
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No. 2 Single Valve Shutter, R. R. Lens, \$22.00.

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MANUFACTURERS OF

MUSIC WIRE

NEEDLE WIRE

NEW BRUNSWICK, N. J.

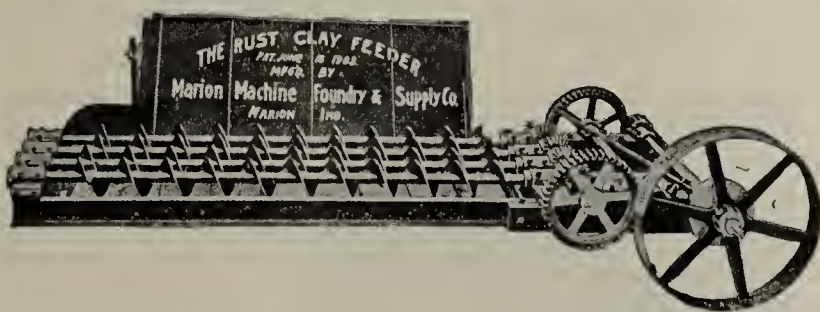
We manufacture **BRICK AND TILE CUTTING WIRE**, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.



C. A. SHOOP, Pres.

N. R. WITHERS, Sec. and Treas.

H. L. JACOBS, Gen. Mgr.

SUFFOLK CLAY COMPANY,

MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

Marion Machine, Foundry & Supply Co., Marion, Indiana:

Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

Very truly yours,

SUFFOLK CLAY CO.,

For further information address

H. L. Jacobs, Gen. Mgr.

MARION MACHINE, FOUNDRY AND SUPPLY CO., MARION, IND.

The Department of Clayworking and Ceramics

Established by the Legislature in 1902 at the

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NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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W. H. S. DEMAREST, D.D.

OHIO STATE UNIVERSITY

Offers through its College of Engineering, full courses of instruction in Civil, Mechanical, Electrical and Mining Engineering, and in Architecture, Ceramics, Chemistry, Industrial Arts and Manual Training.

ITS DEPARTMENT OF CLAYWORKING AND CERAMICS, established in 1894, was the pioneer of its kind in America, and has been from the first successfully training men to overcome the technical problems of clay manufacture.

Tuition is free. Laboratory fees are nominal. Faculty of over one hundred instructors. Equipment very extensive.

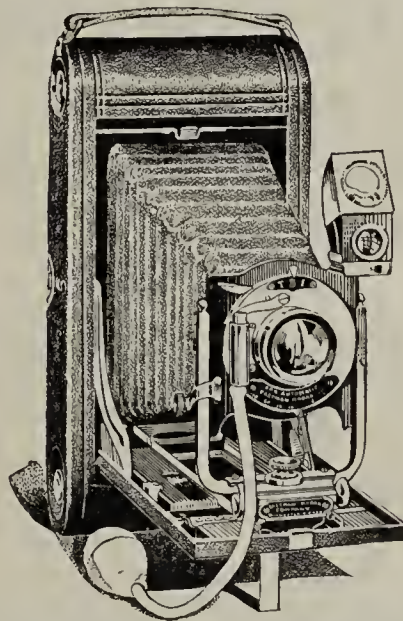
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NO. 5, 11x26 CHAMPION CRUSHER.

It Looks Good

on paper.

It Looks Better

crushing shale, fire clay, rock and other hard material.

THE CHAMPION CRUSHER

is expensive, *to do without*, because it saves you money.

Catalogue is free on application. Address

AMERICAN ROAD MACHINE CO.

KENNETT SQUARE, PA.

G. K. WILLIAMS & CO.,
EASTON, PA.

Largest Manufacturers in
United States of

Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
on application.

Chattanooga Paint Co.,
Chattanooga, Tenn.

Manufacturers of

**Red Oxides for Brick-
makers' Use.**

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

COLORING

All Mineralogists Know
Clinton Hematite Red
is the highest grade
Oxide of Iron.

Be sure you get the genuine, with the "Little
Yellow Side Label" on each package.

MADE ONLY BY

Clinton Metallic Paint Co.,
CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712.

205 Pearl Street.

NEW YORK.

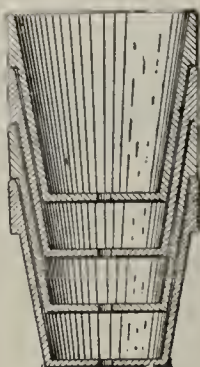
Sole Importers in the United States of the

Precipitated  Carbonate
of Barytes

The only preventative for scum and discolor-
ation on Facing Brick and Terra Cotta, neu-
tralizing the Sulphate of Lime in the Clay and
Water.

Circulars and Particulars on Application.

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Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

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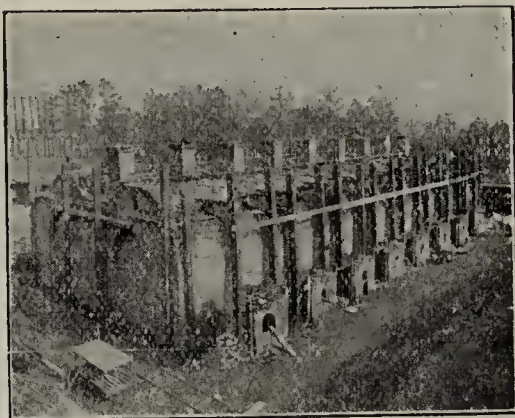
INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.



Double Up and Down Draft Kiln.

1st. They can be built as cheaply and are more
durable than old style up draft Dutch kilns.

2nd. I can change your old style up draft kilns
into my type down draft.

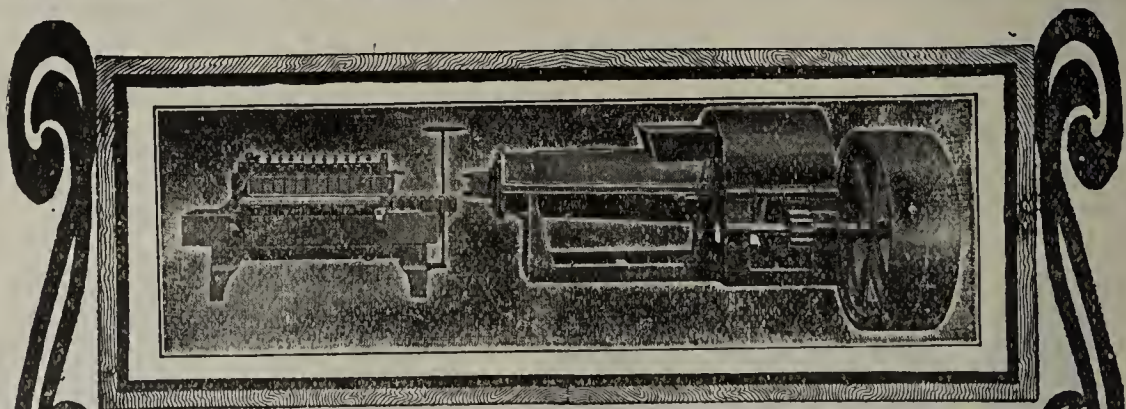
3rd. My type kiln needs no roof, consequently
saves lumber, reduces fire risk, saves labor of re-
moving and replacing kiln roof each burn.

4th. Less skill required in burning; draft un-
der perfect control; easier to direct heat to any
desired point; practically burns all hard brick.

In conclusion, you cannot afford to ignore these
statements, as their truth is easily verified
through investigation, these kilns being no exper-
iment, but being in use by many intelligent, prac-
tical and successful brickmakers, whose names I
shall be pleased to furnish you, whose plants are
easy of access and whose statements cannot be
biased by personal interest.

Wood burning kilns changed to coal burning.
Brick plants installed and put in operation.
Write for booklet. Correspondence solicited.

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THE PIONEER. Kells Brick and Tile Machine

has been the synonym of excellence in the Brick and Clay-
working industry for the past thirty years.

It has had few rivals and no superiors. Improved from
year to year to gain increased

Strength, Simplicity, Durability, Efficiency and Quality

of finished product, until it has reached the highest state of
the Mechanical Arts in Brickmaking.

Our new handbook will give you the detailed informa-
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The Kells Foundry and Machine Co.
ADRIAN, MICH.

COX'S Special Drawn Coil Wire is
Unsurpassed for Strength and Durability.

Brick and Tile Cutting Wires

GEO. S. COX, East Liverpool, Ohio.

For End-Cut, Side-Cut
and Automatic Tables.

Satisfaction guaranteed.
Send for samples and prices.

Improved Belt Conveyors



For carrying all kinds of material, gritty and otherwise. Gradual, uniform curve of belt secured without complicated parts.

Bearings thoroughly lubricated and *dust-proof*. Economy and satisfaction—nothing to get out of order.

We manufacture Complete Handling Equipments.

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White Pine Pallets

For Brick, Roofing Tile,
And Sewer Pipe Boards.

The Best Are the Cheapest.

Send Specifications and Get Prices.

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TRIPLE PRESSURE BRICK PRESS

The strongest and most efficient Brick Machine made, and the only Press that gives three distinct pressures to the brick.

We build and equip complete

SAND-LIME BRICK PLANTS,

SHALE AND CLAY BRICK PLANTS.

Ross-Keller Triple Pressure Brick Machine Co.,

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\$2.00

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ONE YEAR (IN ADVANCE)

\$2.00

The Anton Vogt Down Draft Kiln

and the

QUESTION OF THE HOUR.

Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,

Ada, Okla., U. S. A.

ATTENTION.

Do you want to buy a

Good Clay

Disintegrator

or Pulverizer?

Do you want to buy a

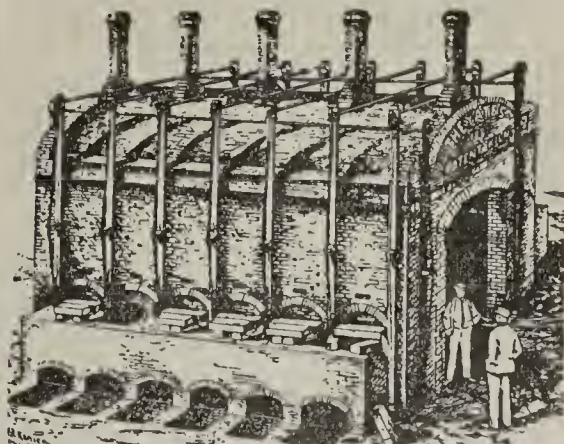
Good Clay Screen?

If So

Correspond with

Stedman's Foundry & Mach. Works

Aurora, Ind.



For Economy of Fuel and Percentage of Hard Burned Brick,

This kiln will give satisfaction. Constructed to burn without smoke and give an even distribution of heat, producing uniform burns.

Hot air dryer. Continuous and muffle kiln.

ALFRED YATES,

SHAWMUT, PA.

Or Eastern Terra Cotta, Brick and Tile Co.,
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IF YOU ARE HAVING TROUBLE

With your machine, or your drying or kiln burning, send for an expert who will soon put you right and teach your employes how to do it. Will go East as far as Montana and South as far as Mexico. Address the Brick Machine and Kiln Burning Expert,

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Terms
reasonable.

First-class
references.

If you have trouble with Clay, Machinery or Kilns, then consult

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Julius J. Koch,

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Special attention paid to dry clay press processes and down-draft kilns.

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Are the Best for

"LACLEDE" PLANT
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Laclede=Christy Clay Products Co., St. Louis, Mo.

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Sewer and Culvert Pipe. Locomotive Tile.
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Brand of

FIRE BRICK

Awarded Gold Medal at St. Louis for
Kiln Construction.

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MITCHELL CLAY MFG. CO.,

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\$2.00 THE CLAY-WORKER \$2.00
ONE YEAR, (IN ADVANCE)

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

If you intend to build or rebuild your brick plant acquaint yourself with the

Chmelewski Patent Kiln

That's just the thing you need to get prosperous.
For descriptive booklet write to

DR. HERMAN ROBERGH,

Sole Agent in the U. S. A. and Canada.

24 Cottage Ave., Fitchburg, Mass.

The Improved Flue System.

The most profitable kiln on the market
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Absolute Draft Control. Economy of Fuel and Time.
All Hard Brick.

Kiln and Yard Rights, with Plans, Specifications, etc., sold at very reasonable rates. Booklet, estimates and full information cheerfully furnished.

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New Cumberland, W. Va.

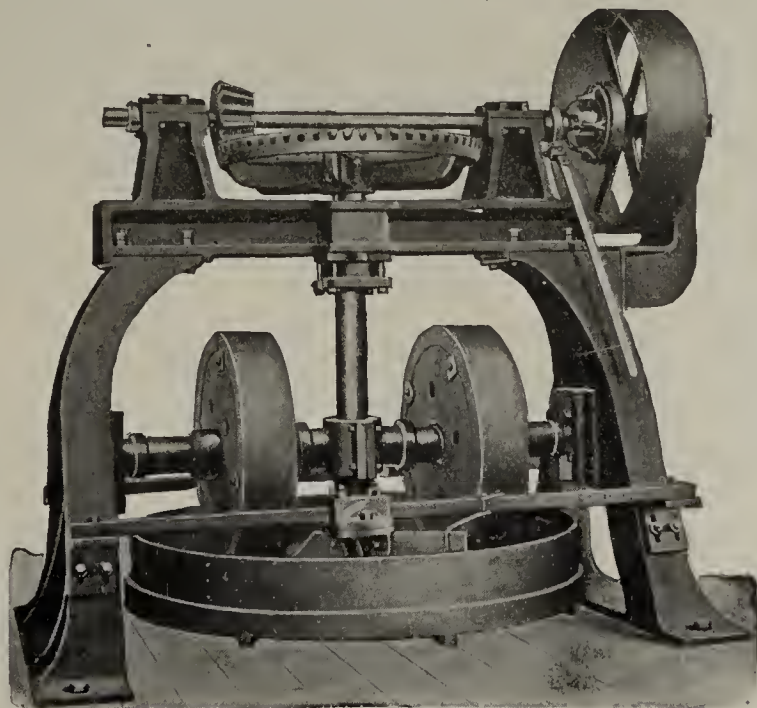
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Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

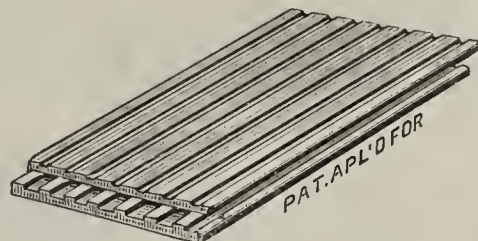
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kind of Clay or Material to be
ground and capacity desired.

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\$2—The CLAY-WORKER One Year in Advance—\$2.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for
Interlocking Tiles, Dies for all shapes,
Hips, etc., in metal or plaster.

Special Roller and Auger Presses for
Shingles, Interlocking Spanish Tiles, Au-
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Stiff Mud Machinery for smaller capa-
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and hollow block dies, dry press liners.

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**You Want
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or Buy...**

Second-hand Claywork-
ing Machinery, Tile Mills,
or anything pertaining
thereto.

**If...
You Want
a Man**

for any position or a posi-
tion in any connection
with the Clayworking
Trades use the

**For Sale
and Want
Columns
of...**

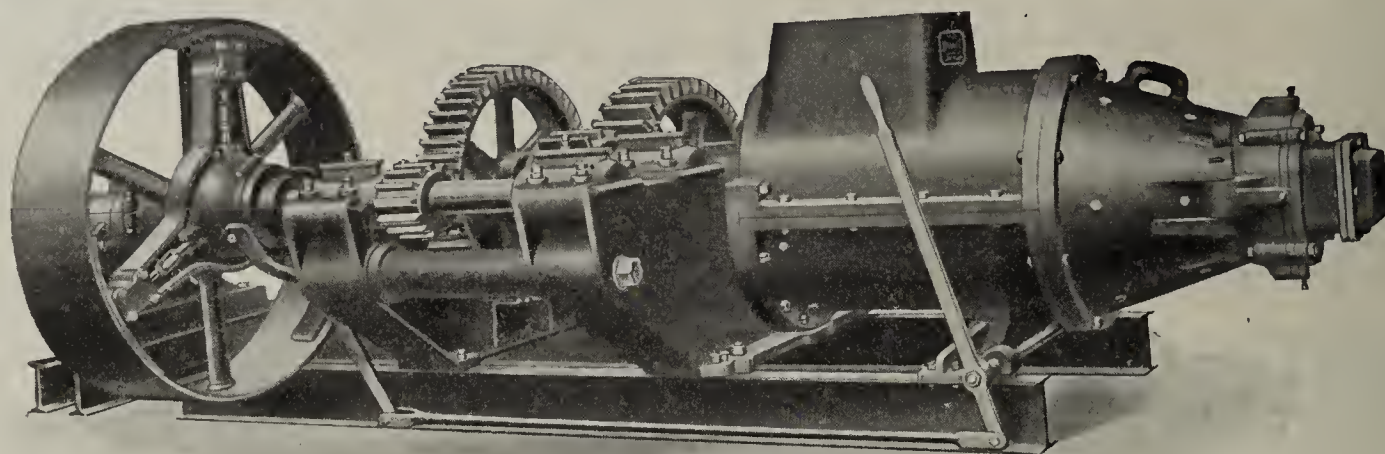
**The...
Clay-Worker.**

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For all transient advertisements, such
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is 25 cents a line per insertion. Aver-
age of seven words to line. Head line
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**The Best, Quickest, Cheapest
Method of Securing Results.**

Modern Clayworking Machinery.

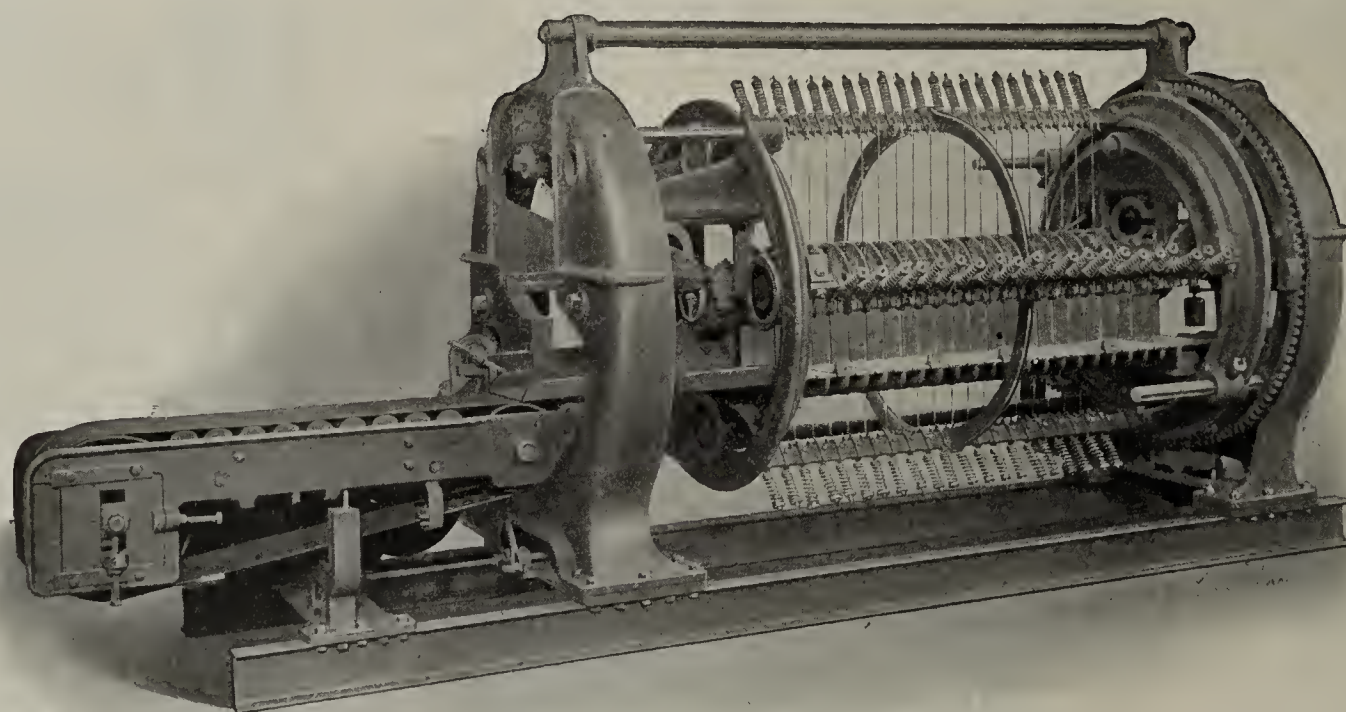


No. 10 Auger Brick Machine
Capacity 50,000 to 75,000 per Day.

A GOOD MACHINE AND EASILY GET-AT-ABLE.

CANTON REPRESS is the Best of its Class.

ASK US FOR THE PROOF.



Rotary Automatic Cutting Table
Capacity Up to 100,000 Daily.

Cuts Brick Within 30 Inches of the Die. End Frames Are Stationary.

COMPLETE LINE OF CLAYWORKING MACHINERY.

THE BONNOT COMPANY, Canton, Ohio.

WESTERN OFFICE, 305 NEW YORK LIFE BLDG., KANSAS CITY, MO.

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Consulting Engineers and Factory Architects.
Manufacturers of Controlling Apparatus.

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Plants Designed and Construction Superintended.
Dryers for Any Clay Product.
Kilns of Every Type.
Faults of Manufacture Corrected.
Modernizing for More Economical Operation.



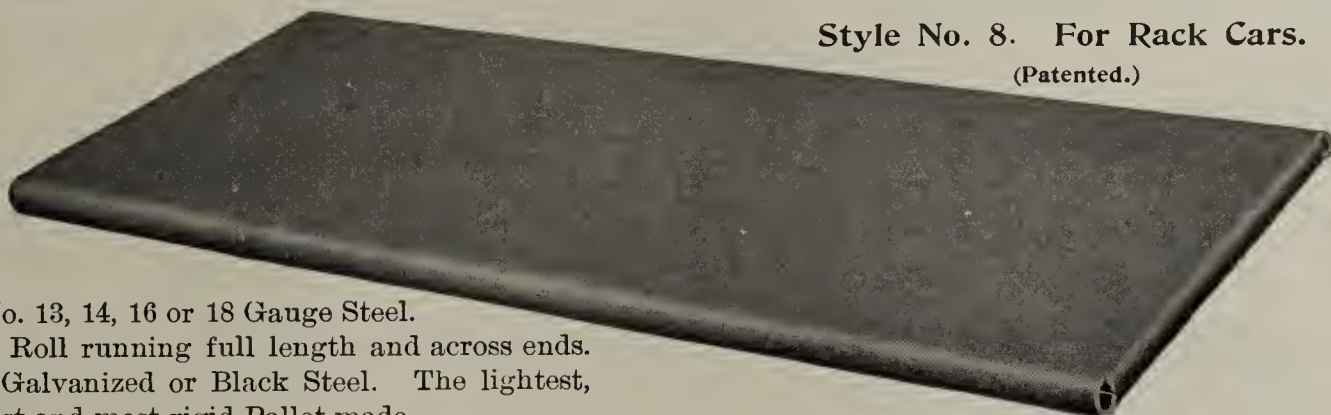
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MENTION THE CLAY-WORKER,
WHEN WRITING TO ADVERTISERS,
MENTION THE CLAY-WORKER.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
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THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

The
ROESSLER-HÄSSLACHER
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100 William Street,
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As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese
and all Chemicals used by the Clay Trades.

THE BOSS SYSTEM OF BURNING BRICK.

WATER SMOKE WITH ALL SLACK
BURN WITH ALL SLACK
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME
LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS COMMON BUILDING BRICK
BURNS PAVING BRICK
BURNS DRY PRESSED BRICK
BURNS HIGH CLASS FRONT BRICK
BURNS TERRA COTTA

Thirty years' experience; will guarantee to burn any kind of clay, including the most refractory fire clay for 40% less fuel cost than by the old method. Can be applied to kilns already built without any alterations. Write for Catalogue.

JOHN C. BOSS,
Office, 404-405 Monger Bldg., ELKHART, IND.



B. E. BECHTEL.

We Are PRACTICAL BRICKMAKERS.

We install Dryers that **DRY BRICKS** either open air or artificial.

We manufacture Disintegrators and Automatic Brick, Tile and Hollow Block Cutting Tables. Absolutely no stop for broken wires. Write for our catalogue.

BECHTEL'S,
Waterloo, Ont., Can.

STEAM SHOVELS FOR BRICK YARDS.



We have a large number of Shovels in brickyard service in all parts of the country, and can furnish machines of any dipper capacity desired from $\frac{3}{4}$ to 5 cubic yards. If interested write for catalog.

The Marion Steam Shovel Co.,

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.

Marion, Ohio.

F. H. HOPKINS & CO., Agents,
Montreal, P. Q.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.



These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Square Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.

Don't Nurse Old Equipment

with the hope that it will last for your present requirements. If you do, there will be a constant drain on your pocketbook.

Industrial Cars that have to be continually patched up and that will not carry their full load on account of their weakness are an endless expense.

Write for our new Catalog "2" on Cars and Track for all purposes.

RAILROAD SPECIALISTS FOR ALL INDUSTRIES.
ERNST WIENER
COMPANY.

162 Morris Bldg., New York, N. Y.

863 Monadnock Bldg., Chicago. 141 Milk Street, Boston.
Bisbee, Ariz. Denver, Colo.

Works
Youngstown, O.
Brooklyn, N. Y.

LARGE STOCK
CARS, RAILS, etc.

Handle Your Clay With One Man and The Thew Steam Shovel.



Type No. 2—For Shales and Fire Clays.

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

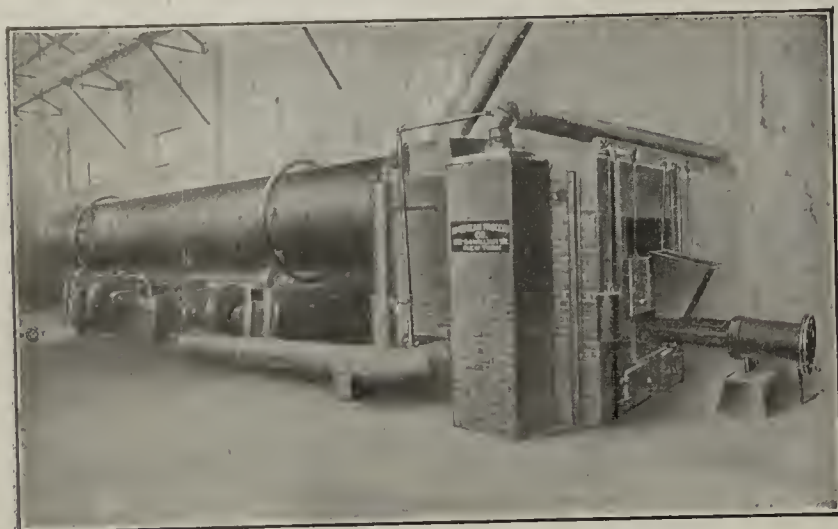
Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

Made in four sizes.
Mounted on Car Wheels
or Traction Wheels.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

WRITE US FOR CATALOGUES OR INFORMATION.

**THE THEW AUTOMATIC SHOVEL CO., LORAIN,
OHIO.**



Automatic Improved DRYERS

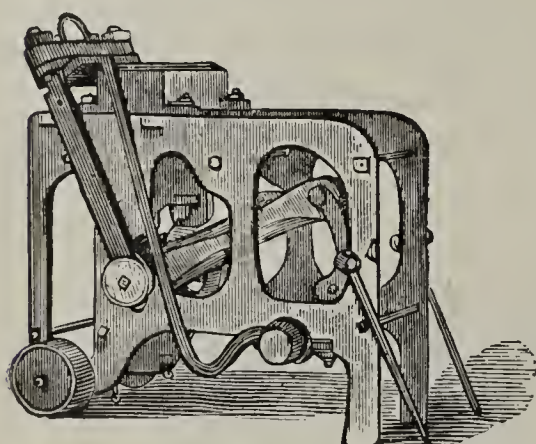
ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

AMERICAN PROCESS CO.,

62-64 William St., New York.

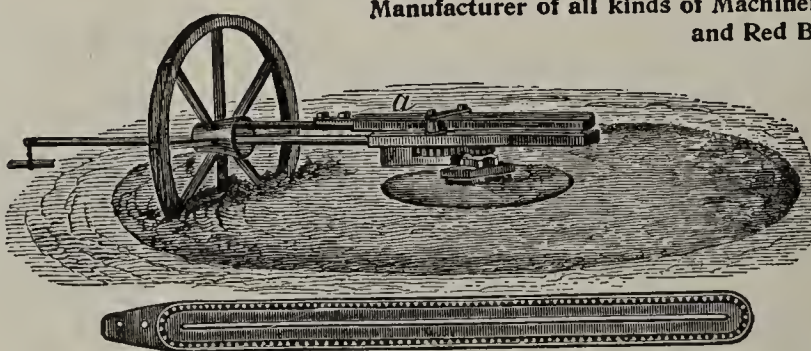


RED BRICK PRESS.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

Barron Dryer Company,

ESTABLISHED 1879.

Manufacturers, Patentees and Builders of the

CHICAGO IRON CLAD DRYERS,
BARRON'S TENDER CLAY DRYERS,

Cars, Wheels, Axles, Decks, Turntables,
Castings, Forgings, Pipe, Valves, Fittings,
Rails, Splices, Spike, Structural Material.

Office-Shops- 18 Sloan St. ^{On} C. & N. W. Ry. Chicago.

EXHAUST STEAM

And a **NATIONAL DRYER** will enable you to make brick Every Day in the year. So that your customers can **DEPEND** upon you for brick. You could make a surplus in the winter and be ready for the early spring trade.

The **NATIONAL** is the best.

Our large catalogue gives details and contains information that will be of value to you.

Send for it today.



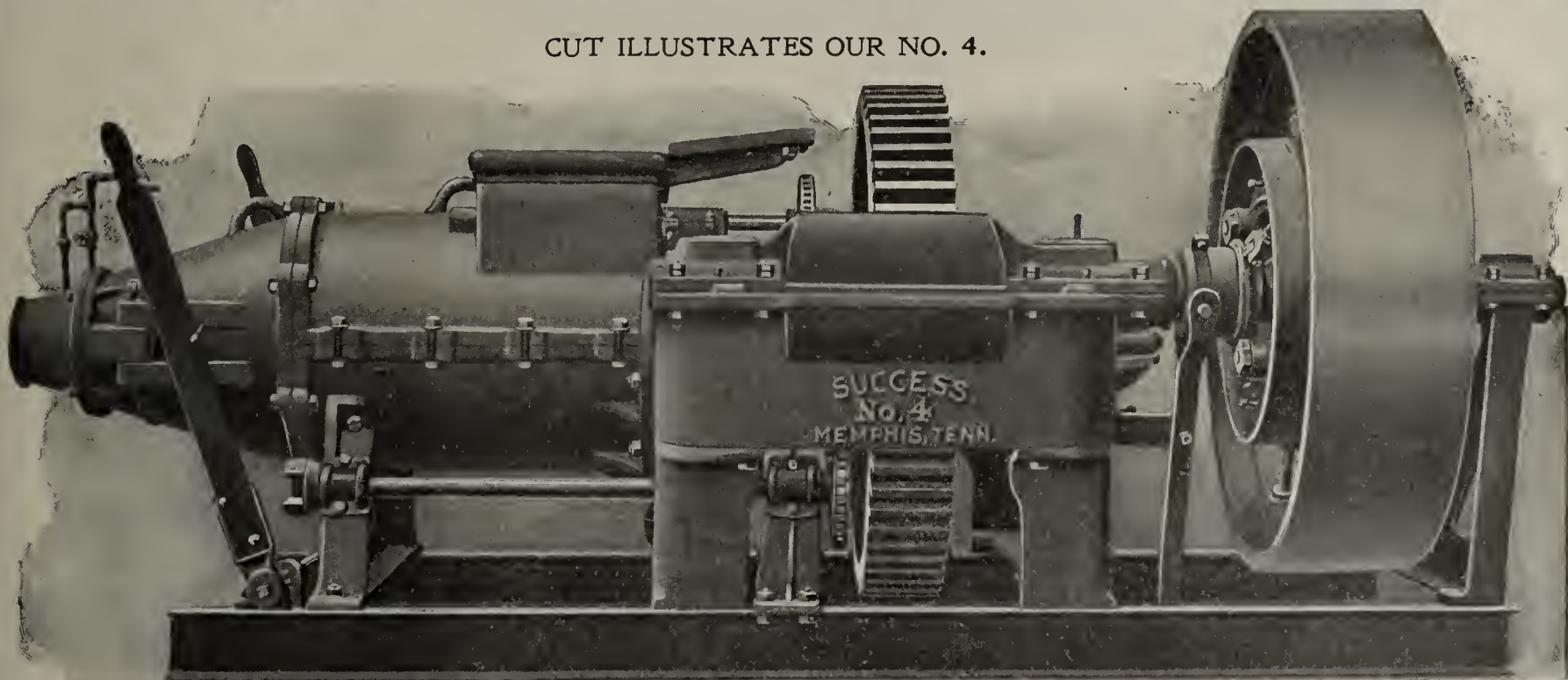
Steel Roller Bearing cars of all kinds. Transfers, Turntables, "T" Rail, etc.

C. H. BEALE, Manager Southern States, Montgomery, Ala.
TATUM & BOWEN, Pacific Coast Agents, Seattle, Wash.,
Portland, Ore.

THE NATIONAL DRY KILN CO., Indianapolis, Ind.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for; write us.

Success Brick Machinery Company,

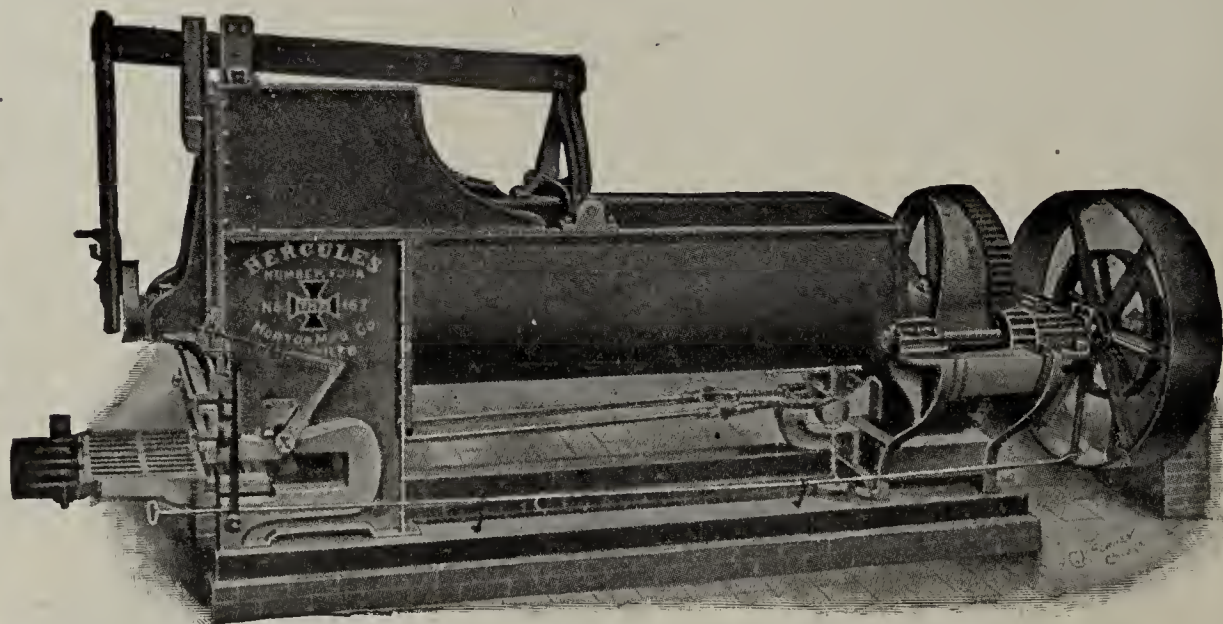
Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.

Get Busy Mr. Brickmaker.

Have you thought about the improvements that you are going to make on your brickyard for the season of 1908? Winter is here and the season will open up before you really know it. You will then want your repairs on hand and new machinery and supplies with which to commence work. It would be expensive to wait until Spring before you placed your order. Get your orders in at once and be ready to start to make brick early.

Possibly you are going to start a new yard, and in that case, it is more than important to be ready to do business. We have had a great many years of experience



Hercules Brick Machine.

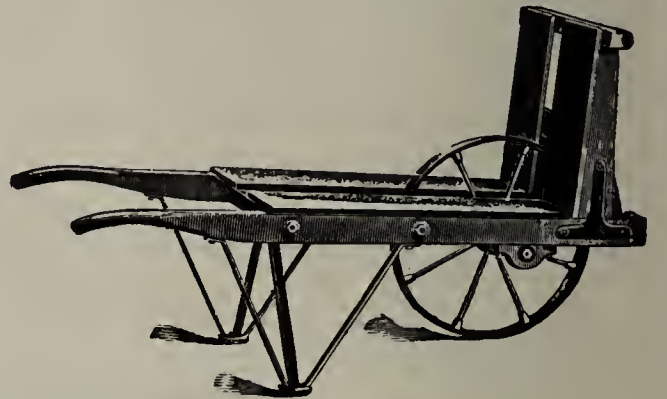
with all classes of brickmakers, and a letter from you giving us an idea of what you want, will have immediate attention. We can equip your plant with the most modern and up-to-date Brick Machinery now made, and can give you nine different styles of Brick Machines from which to choose, both Horizontal and Upright, Steam or Horse Power.

Every machine of our construction goes out under a strict guaranty. We have hundreds of machines in successful operation all over the country. With a plant equipped and modernized with our machinery, you will be in position to make good, square, marketable brick which will command the highest price, and which are not excelled by any. We make a complete line of Brickyard Supplies and want your patronage.

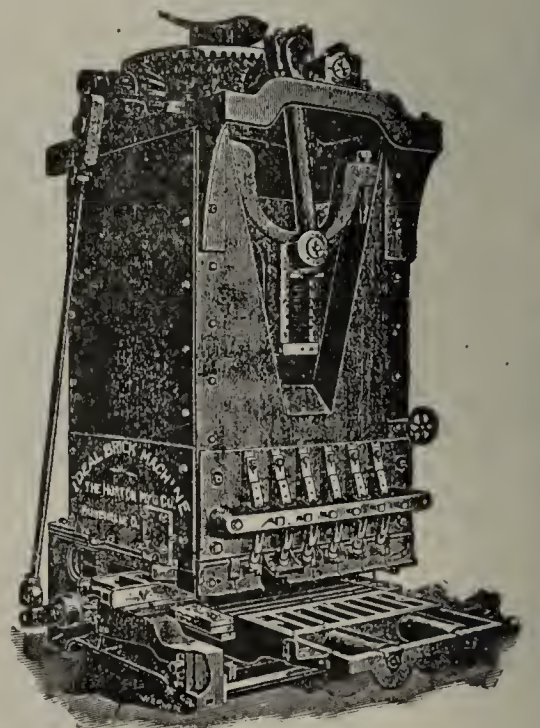
The management of this Company has been changed, and it may be that during some time in the past you have had cause for complaint. However, if we have made mistakes in the past, we are but human, and, as "Teddy" says, **"the man who does not make mistakes, does not do anything,"** but we have increased our capacity and are improving all the time, and can assure you of first-class material and workmanship.

Give us an idea of your wants. Our prices are right, and the quality we guarantee.

THE HORTON MFG. CO., Painesville, Ohio.



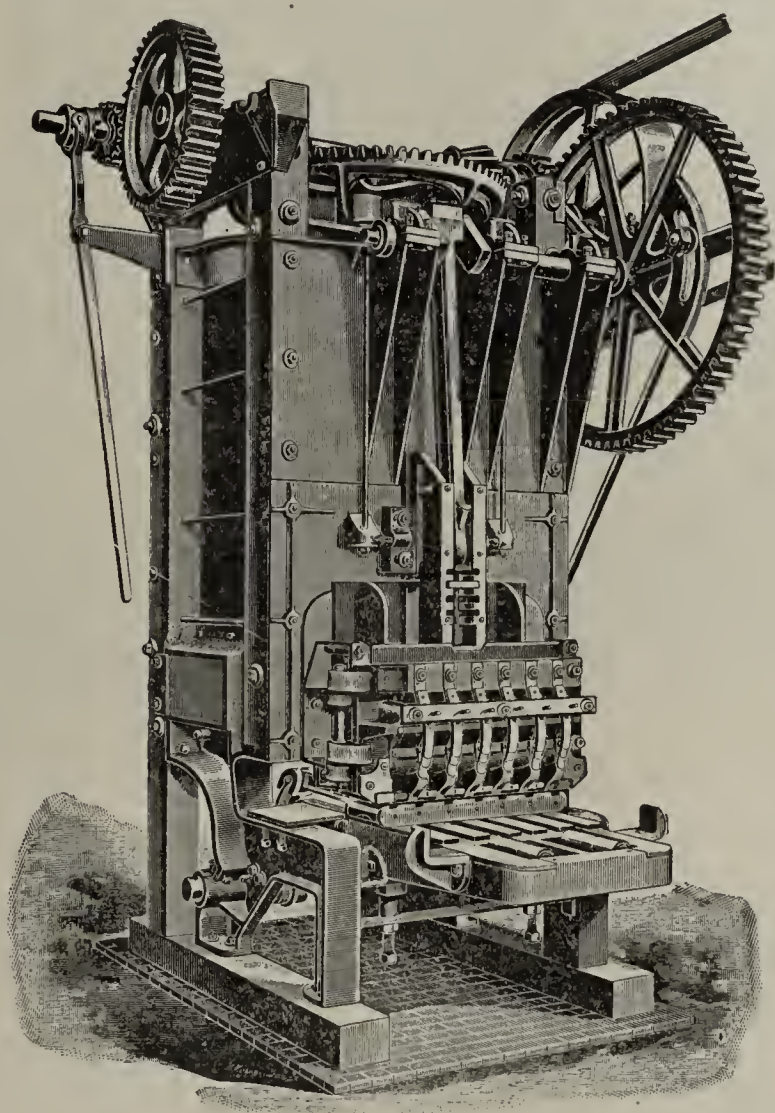
Ideal Brick Barrows.



Ideal Horsepower Machine.

EARNING CAPACITY.

The thing which gives value to any machine is its earning capacity. The earning capacity of brick machinery depends as much on strength and thorough construction as anything. Most brickmakers have learned this in the expensive School of Experience. When a machine is broken down its earning capacity and its value is gone. Continued results, therefore, determine the economic value of a machine, rather than first cost. On this basis "New Haven" Machines have proven to be the least expensive on the market.



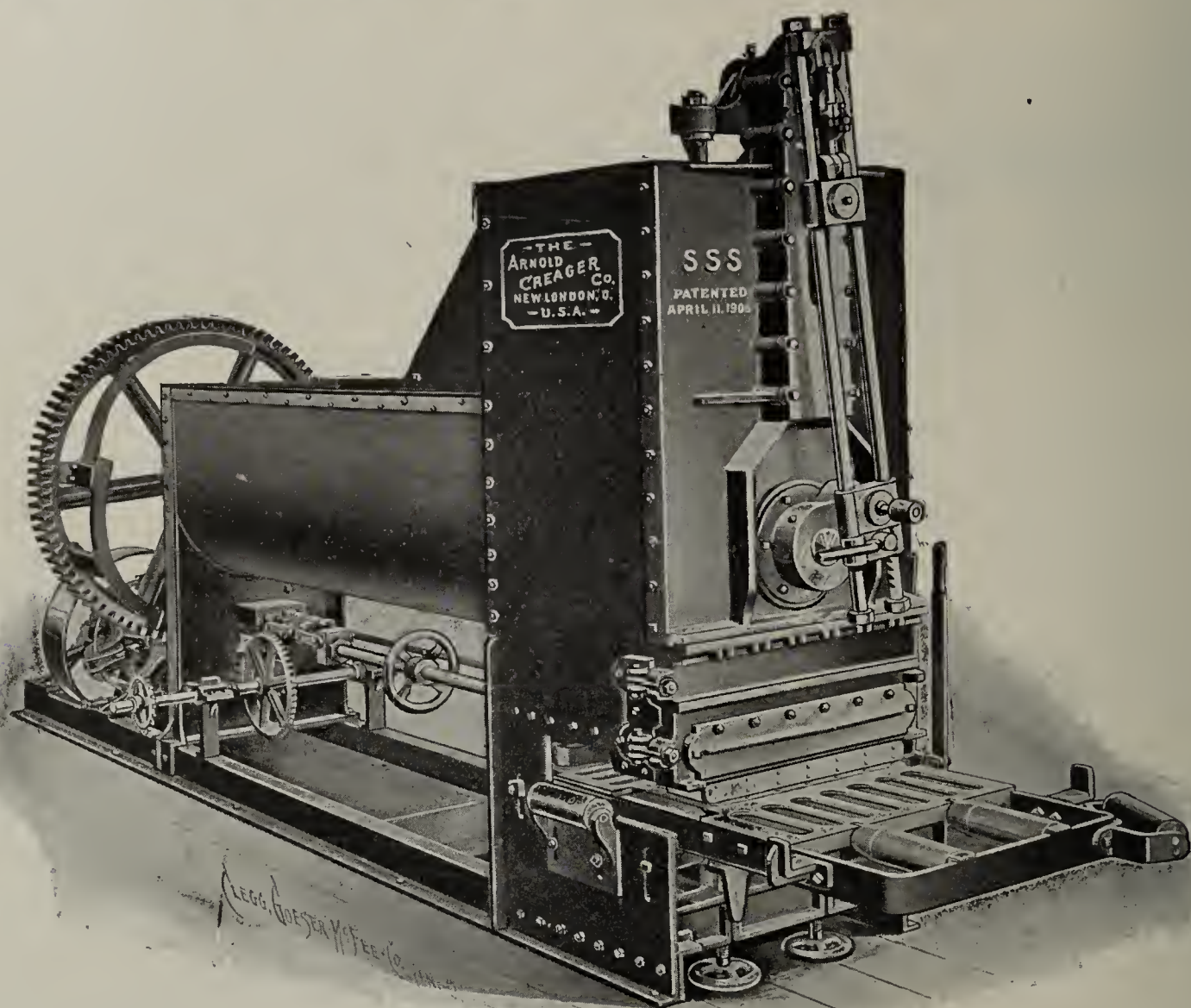
"New Haven" Vertical Brick Machine.

Because of their simplicity, unusual strength, and excellent construction, "New Haven" Vertical Brick Machines are seldom out of repair, and hence earn more and are much more valuable to their owners than the light weight affairs that break so often. They do better work than is possible with less powerful machines. It will pay any prospective buyer to think seriously about this matter of earning capacity, and look into the merits of the "New Haven" Machine from that point of view.

The EASTERN MACHINERY CO.,

NEW HAVEN, CONN.

HONESTY IS THE BEST POLICY.



S-S-S.

Every Brickmaker should insure himself against loss through poor machinery by taking out a policy NOW with the Arnold-Creager Company, and adopting one of their S-S-S all-iron-and-steel Brick machines. A perfect combination of Simplicity and Strength. Few parts, and all Automatic. Inside Press, exerting tremendous pressure, easily regulated. Twelve feet of tempering capacity, and can easily run 16 moulds per minute. Solid construction enables the working of very stiff clay, making the ideal brick. Front of Press fitted with stone doors when desired. A strictly first-class machine at a small price.

For complete catalog giving details of this, and other high grade machinery and the "1908—Grand-Automatic" address

The Arnold-Creager Company, Inc.,

NEW LONDON, OHIO.

CINCINNATI, OHIO.

CABLE "AUTOMATIC".

THE LAST CALL

Before the season for making brick begins.

If you have a

**Brick Machine, Disintegrator, Mold Sander
or Pug Mill**

which is not Modern and with which you can not compete with your neighbors either in Quality or Cost; if your supplies are worn or broken,

DON'T DELAY

but write at once, stating your troubles. We can help you.

We manufacture the most complete and modern line of

**Sand Mold Brick Machines, Horizontal Brick Machines,
Disintegrators, Mold Sanders, Pug Mills, Winding
Drums, Clay Cars, Elevators, Molds, Trucks
and Barrows,**

As Well as the Best Drying Proposition on the Market.

As we have neither traveling salesmen nor agents, our operating expense is small. You will find our prices right.

We are in position to equip your plant complete, from Clay Bank to Kiln, guaranteeing results.

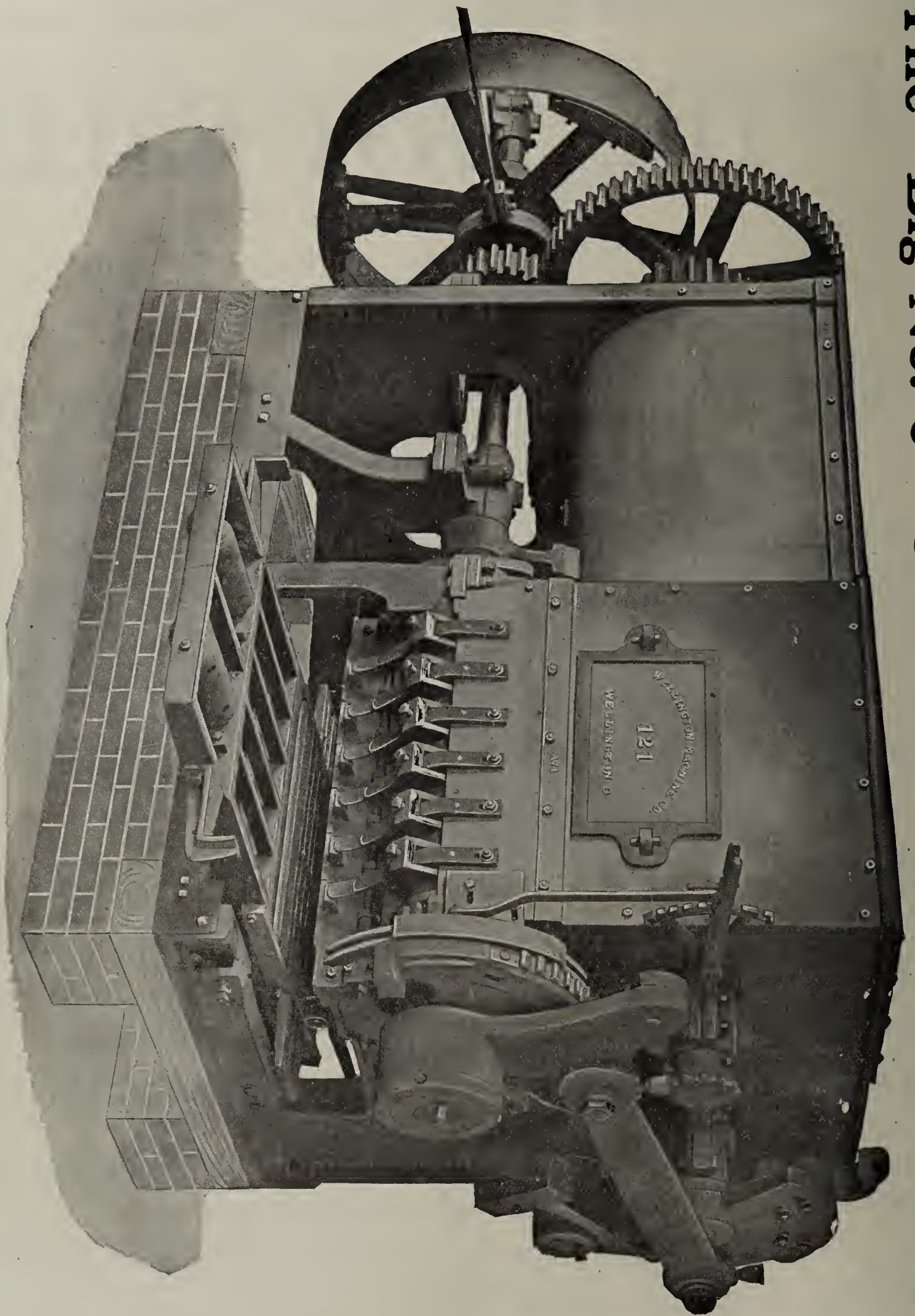
Write for our catalog.

C. & A. Potts & Co. Indianapolis, Ind.

OVER
235
"Monarch"
Brick
Machines
in use

OVER
565
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators.
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The "Big No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our
**ROLLER-BEARING
BARROWS.**

The Wellington Machine Co.,

WELLINGTON,

OHIO.

Send for Catalogue.

We manufacture a complete line of BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BEARERS.

The best built, Price \$6.50 each.

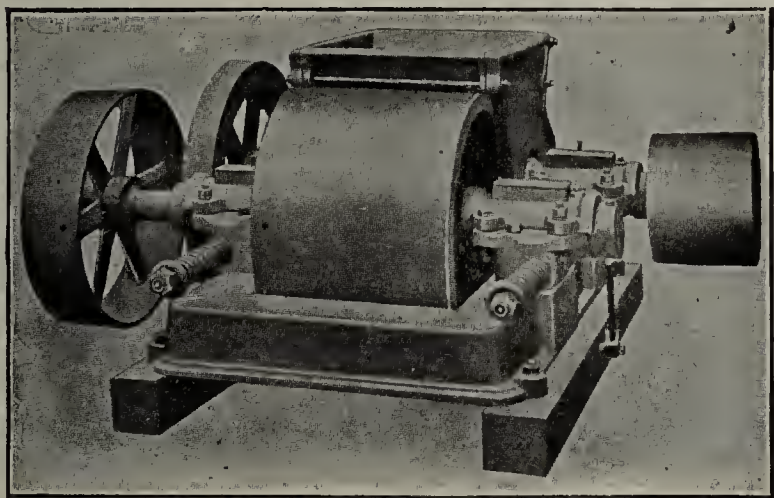
Stock size wheel, 20 inches diameter.
(If wanted 18 inches.)



There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.

Our Heavy Clay Disintegrator.

Note the springs and what is said about them below.



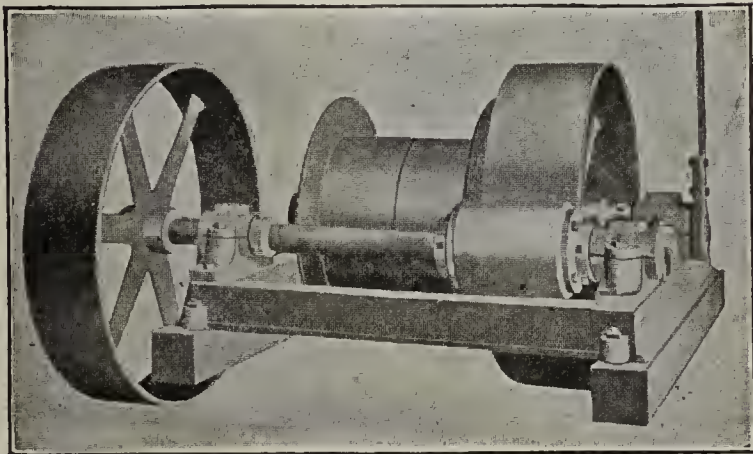
This particular disintegrator we believe to be much the best one that is built, as we intend it for large capacity, and to stand up to severe work for years. Both rolls are chilled. The journals are 10 inches in length. The small roll has a heavy balance wheel. Note its massive construction. There is a weighted scraper so hung that it automatically cleans the large roll.

RELIEF SPRINGS: After considerable experimenting we have learned just how to put relief springs on the large roll, and do it successfully. Occasionally a bolt or something else gets into a disintegrator that cannot be crushed, and it always means a smash-up. We have experimented long before adopting these, but can now guarantee them a success.

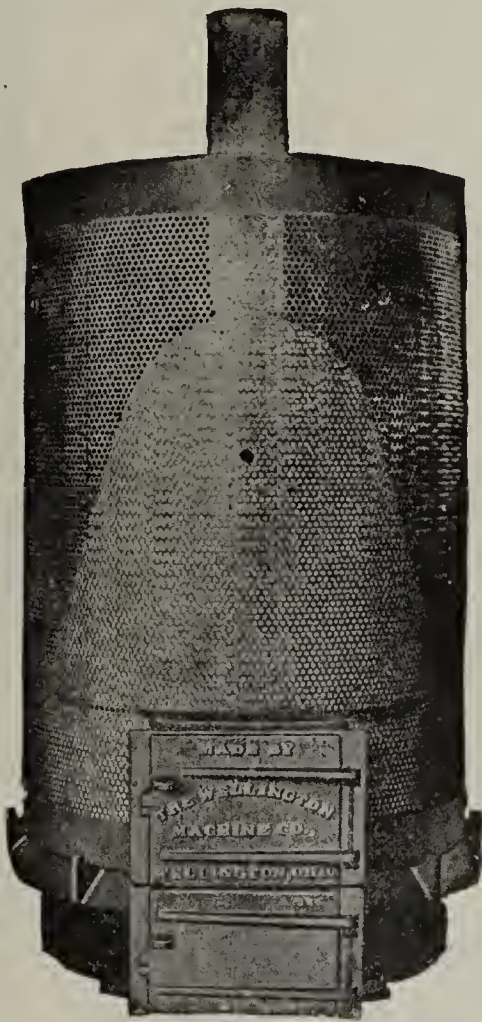
CAPACITY, 25,000 to 50,000 per day according to speed at which it is run. Pulleys fast roll 14 dia. x 10-in. speed, 700 to 800. Slow roll, 24 dia. x 6-in.; speed, 50 to 75.

1908 CATALOGUE MAILED FREE
ON APPLICATION.

Winding Drum.



Our Direct Driven Self-Contained Winding
Drum is a Labor-Saver.



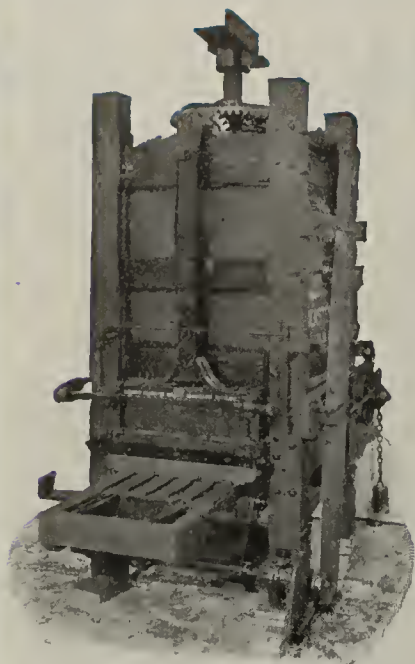
Sand Dryer.

Weight, 1,100 lbs. Every brick works needs one. Diameter over all, 3 ft. 1 in. Height, 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

JAMES W. HENSLEY,

Successor to S. K. Fletcher.

Indianapolis, Ind.

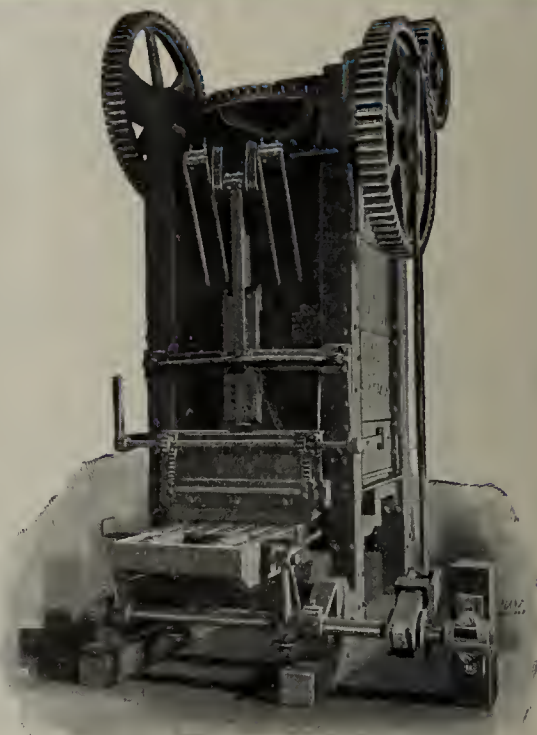
ANIMAL POWER
MACHINE

THE "MARTIN"

PRACTICAL BRICK-MAKING MACHINERY DOWN-TO-DATE

"We Furnish Everything
the Brickmaker Needs"

From CLAY BANK to KILNS

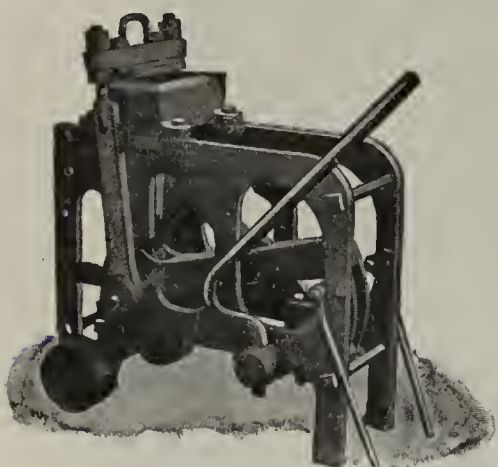


STYLE "A" BRICK MACHINE

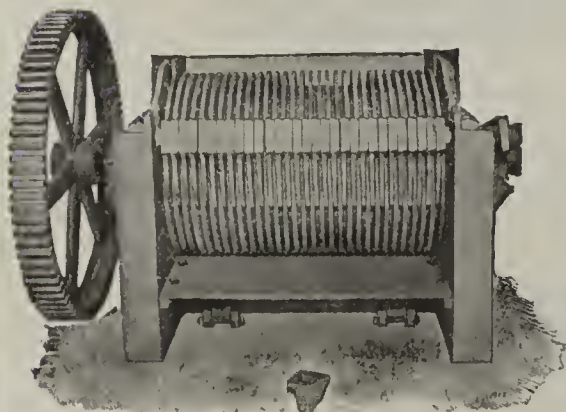
THE OLD WAY

Of Handling and Drying.
BRICK==GET WISE

Let Us Figure With You on
the Most Complete and
Labor-Saving System Yet
Devised==The "Martin" Way
==The ONLY SURE WAY



HAND REPRESSES



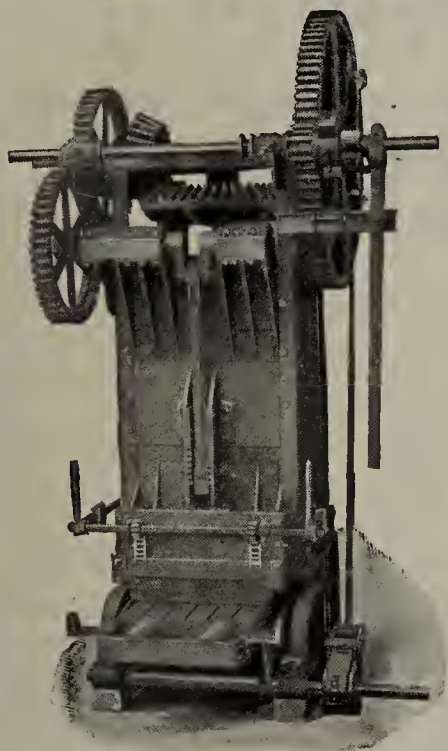
CLAY SCREENS

The MARTIN COMPANY
Has the Most Complete Line
of High-Grade Crushing
And Pulverizing Machinery
Let Us Know Your Needs
And Get Our Prices
We Guarantee Satisfaction

THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.



STYLE "A" BRICK MACHINE



STYLE "P" BRICK MACHINE

THE "MARTIN"

BRICK DRYERS
ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

FULLY COVERED BY PATENTS

PATENTED Feb. 22, 1898 = 599509
Oct. 10, 1905 = 95520
Nov. 14, 1905 = 804489

UNITED STATES & CANADA



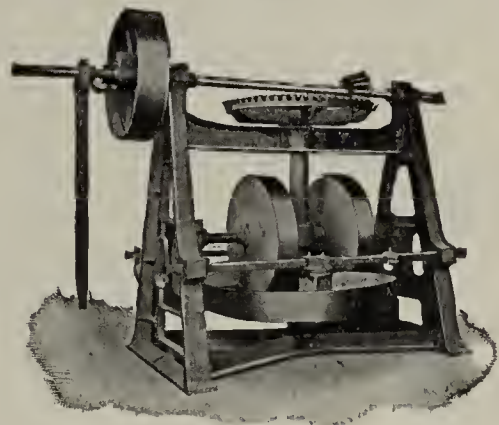
MARTIN'S SAND DRYER



THE NEW WAY

Of Handling and Drying
Brick == INVESTIGATE

The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem == Quick to Install and
Low in Price == Write Us.



DRY OR WET PANS



STYLE "B" BRICK MACHINE

THE "MARTIN" COMPANY
AT LANCASTER, PA.

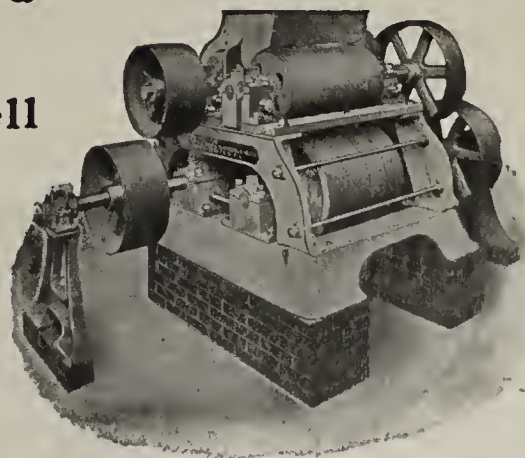
Own and Control These
Important Dryer Patents
and Have Authorized

— NO ONE —

To Manufacture or Sell
This Type of Brick
Dryer

ALL CONTRACTS MADE BY

THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.



DISINTEGRATORS

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO

Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET
KIT and THE CLAY-WORKER
for One Year to any address in
the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

Name

Postoffice

Street and Number

County State

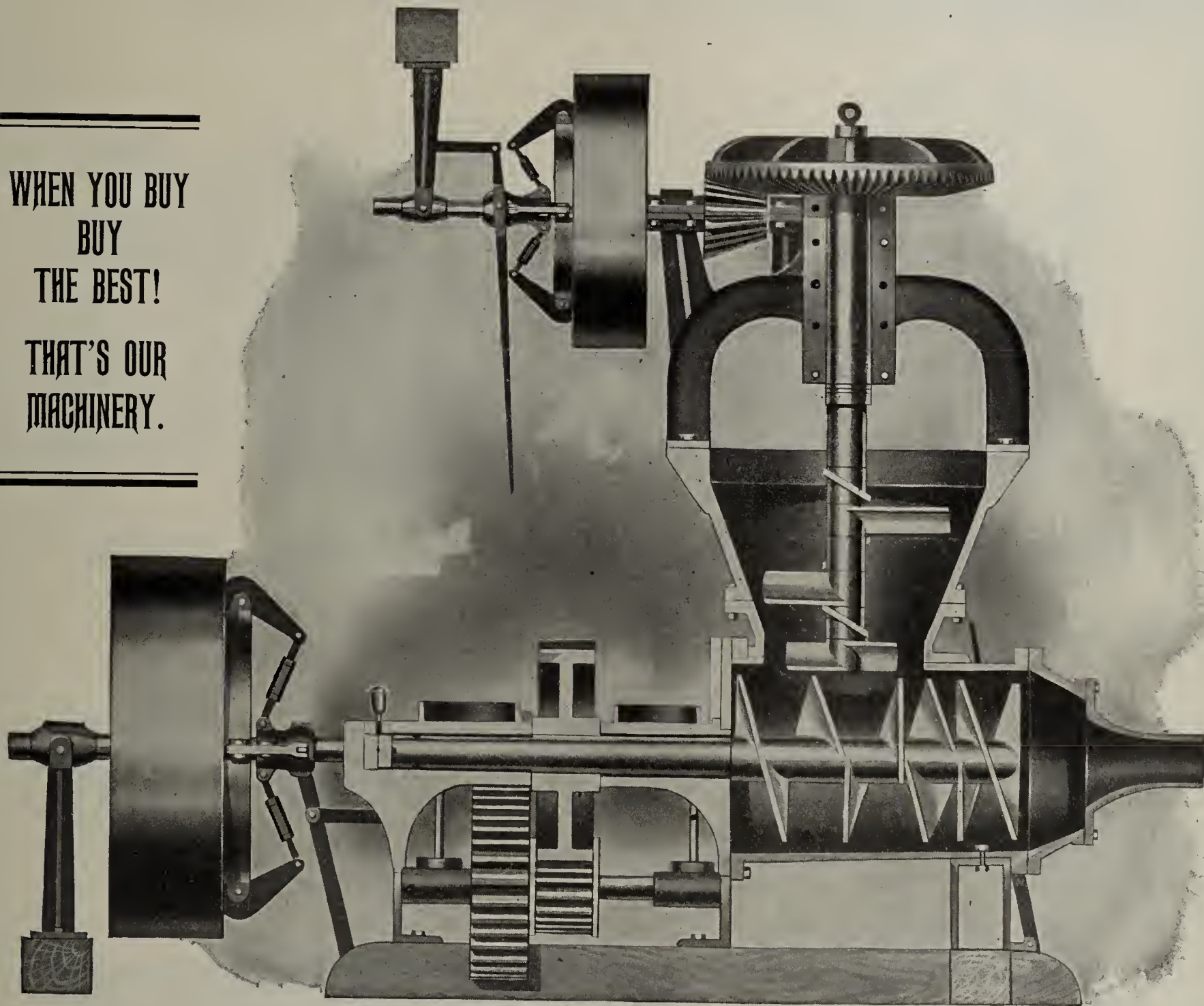
YOU FORGET ALL ABOUT TROUBLE

When Using the "Eli" Machinery

For the simple reason that what we turn out is Serviceable, Durable and Just What You Need.

Our statements are backed up by 52 years' experience.

WHEN YOU BUY
BUY
THE BEST!
THAT'S OUR
MACHINERY.



OUR SPECIAL "ELI" BRICK MACHINE.

ARE YOU IN THE MARKET FOR BRICK AND TILE MACHINERY?

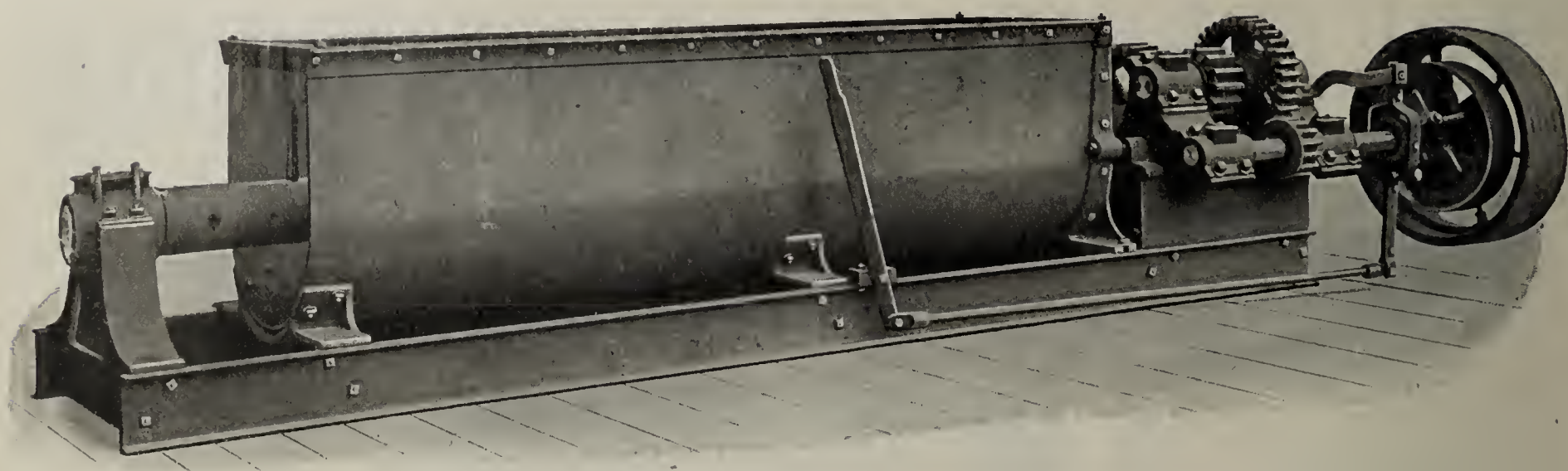
We have a full line of "Eli" Brick, Tile, Hollow Brick and Block Machines, ranging in capacity from 20,000 to 100,000 brick per day.

Write for our catalog and full particulars.

Michigan Brick and Tile Machine Company,

[ESTABLISHED 1856]

Morenci, Mich., U. S. A.



No. 45 (Pushing) Pug Mill.

PUG MILLS

We can give you Pug Mills ranging in weight from 5,000 to 18,000 pounds; spur-gearred or bevel-gearred, pushing or pulling. If you do not already know about Brewer Mills it will pay you to investigate, for they are not just ordinary, but are in a class by themselves.

More Pugging, Less Power, Better Service.

Get complete catalog of the Brewer line. It's worth having and costs nothing.

If Marked



It's Good.

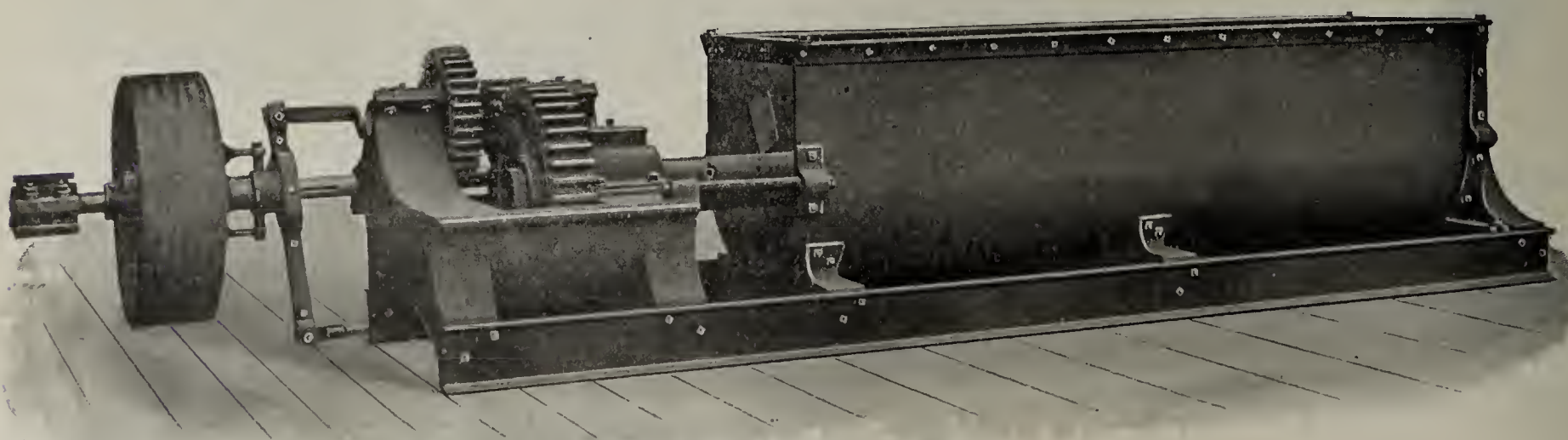
H. BREWER & CO.,

Tecumseh, Michigan.

If Marked



It's Good.

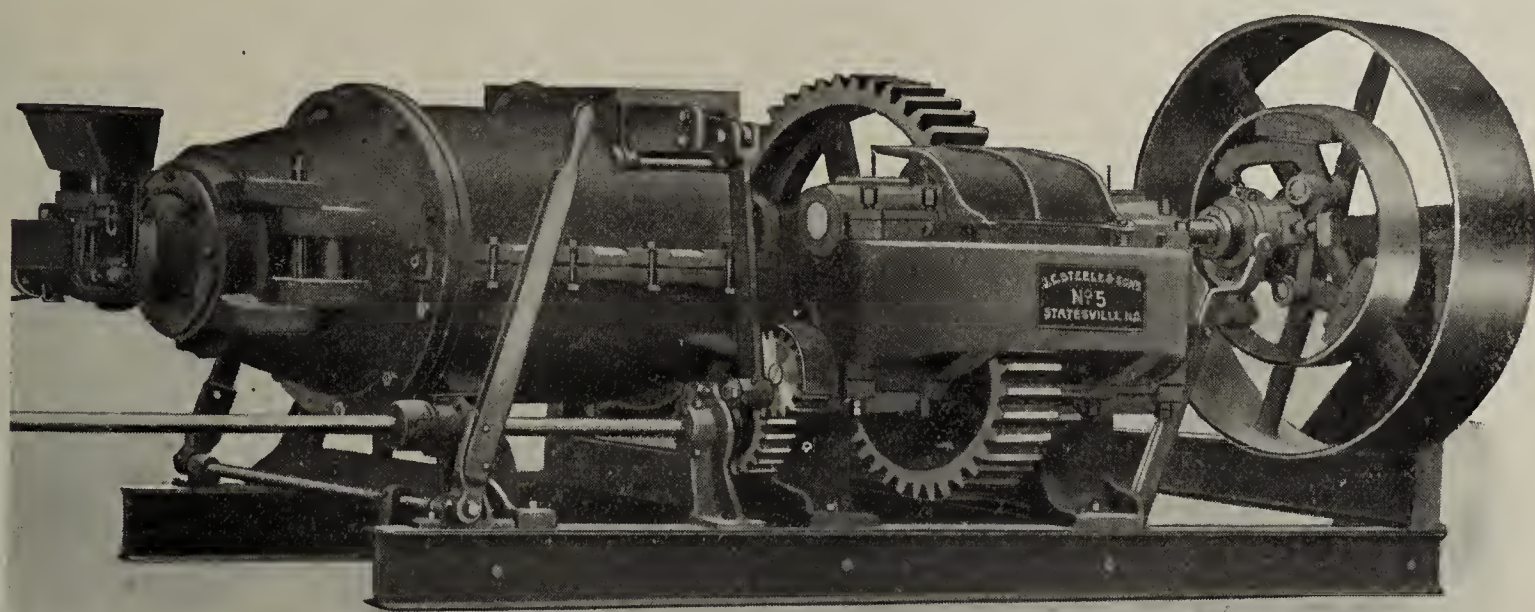


No. 44 (Pulling) Pug Mill.

The Steele 1908 Model Brick Machine

And Automatic Cutter.

Sixteen Years' Experience in Building Brick Machinery to Work
the Wide Variety of Southern Clays Enables Us to Point
With Pride to Our No. 5, Refined in Every Detail.



The Steele 1908 Model Brick Machine.

Winston-Salem, N. C., Nov. 30th, 1907.

Messrs. J. C. Steele & Sons,
Statesville, N. C.:

Dear Sirs—I have been using J. C. Steele & Sons' brick machinery for 5 years—first put in a No. 3 side cut; two years ago put in a No. 4 side cut, and this year a No. 4 end cut, and all are doing good work. I am glad to recommend these machines, as I find them first-class in every respect.

Yours truly,
R. W. HEDGECK.

**We build a complete line of clayworking machinery.
Write for further information.**

J. C. STEELE & SONS,

Mention
The Clay-Worker.

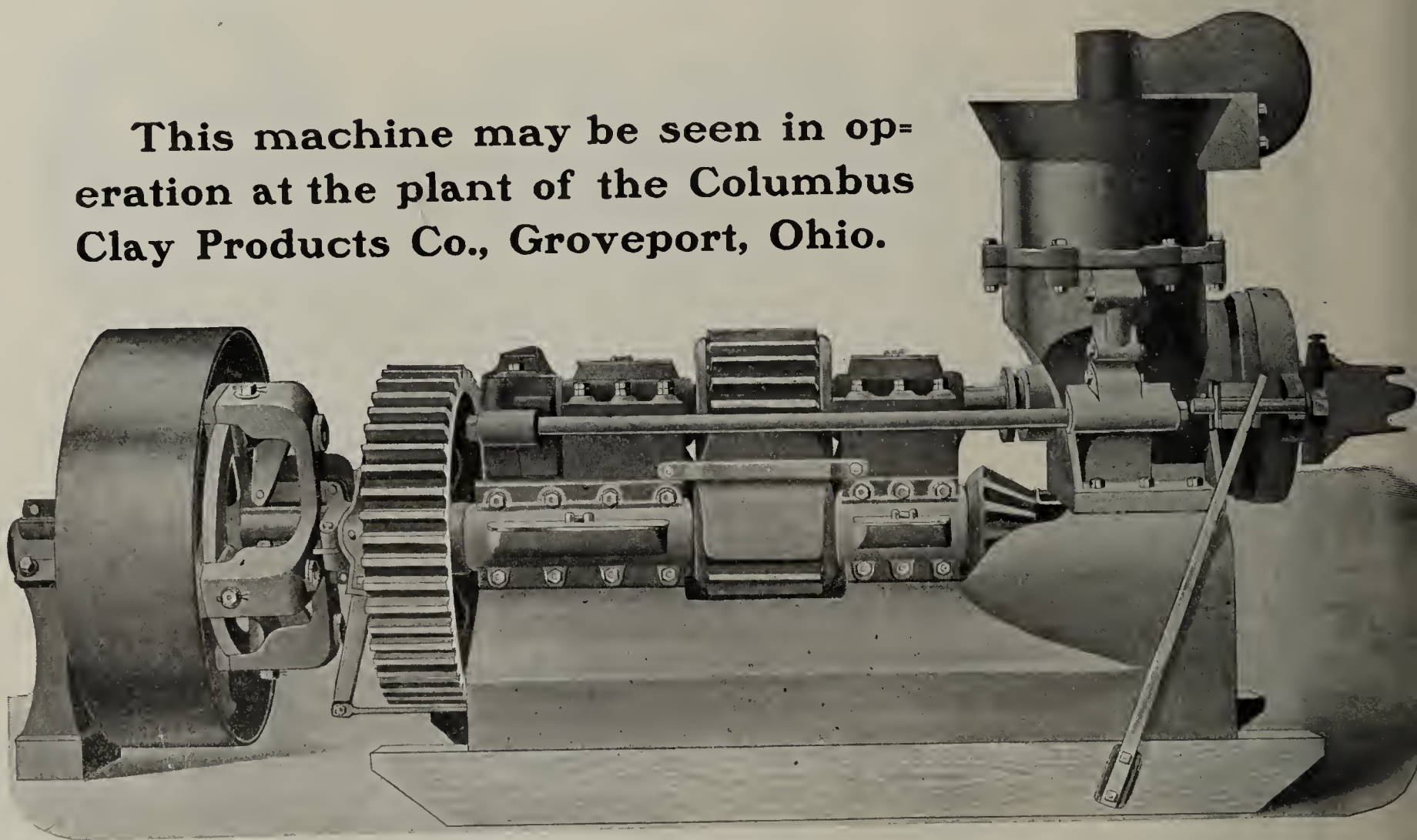
Statesville, N. C.



THE BIG WONDER.

The Brick and Tile Machine That
Does Not Laminate the Ware.

This machine may be seen in operation at the plant of the Columbus Clay Products Co., Groveport, Ohio.



No. 4 Wonder Brick and Tile Machine.

A Large Capacity Machine With an Unequaled
Record for Durability.

THE WALLACE

FRANKFORT,

Mention The Clay-Worker.

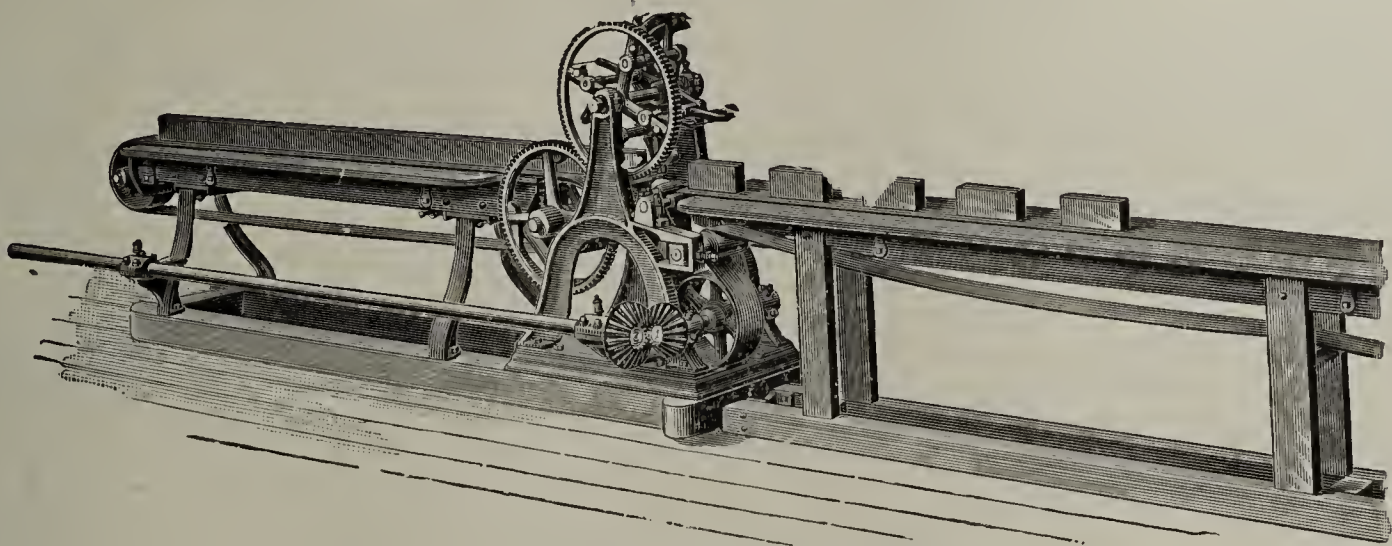




THE PROOF OF THE PUDDING:

Brick, Tile and Hollow Block made on Wonder Machines afford ocular demonstration of the full truth of our claim.

Write for list of plants in your section where Wonder Machines may be seen in operation.



Rotating Automatic End-Cut Brick Cutter.

THIS IS THE TABLE OF CAPACITY—
Runs as regular as a clock. We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans and Disintegrators, Pug Mills and Granulators, Corrugated and smooth Roll Crushers.

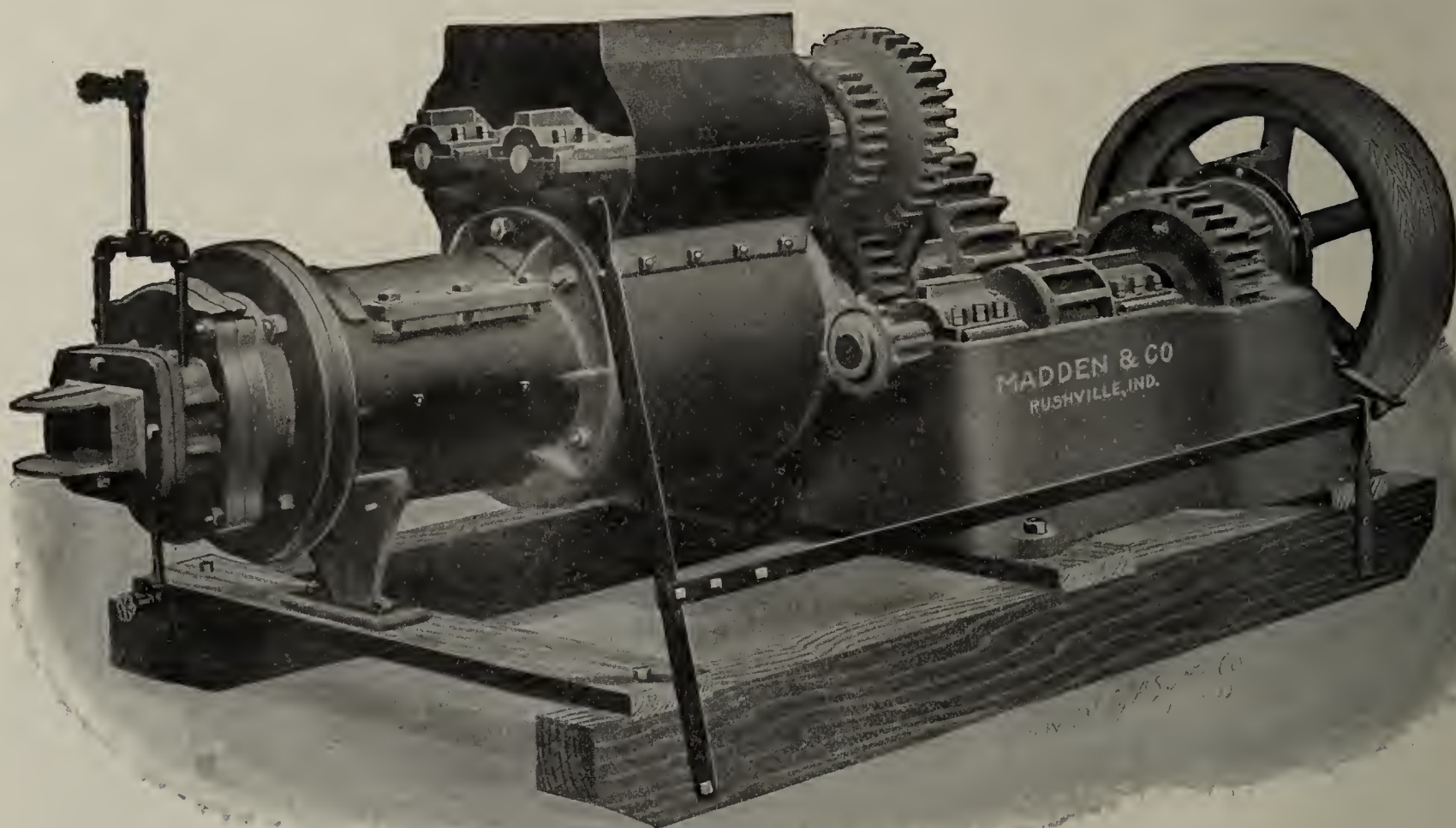
Write for Catalog and prices.

MFG. COMPANY,
INDIANA, U. S. A.



NEW MODEL HOOSIER BRICK, TILE

**A Line of Extra Heavy Stiff Clay Machinery of Great Strength,
Capacity and Durability for Making Brick,
Tile and Fire Proofing.**



No. 6 D Hoosier Brick Machine.

This is a New Heavy Duty Machine designed to meet the demands for a machine constructed on somewhat the same lines as our well-known C Machine, but larger, heavier and stronger, and with greater capacity; gearing is all extra heavy, broad faced, steel-cut when desired; shafts are heavy and strong and amply able to withstand the severe strain; bearings are unusually large and long; rear bearing of auger shaft is of the submerged type, provided with adjustable anti-friction thrust discs; machine is furnished with our friction clutch pulley, 40-inch diameter, 12-inch face.

Recent Purchasers of These Machines

Mason City Brick & Tile Co., Mason City, Iowa; North Iowa Brick & Tile Co. (2), Mason City, Iowa; National Drain Tile Co. (2), Streator, Ill.

If you want a machine of capacity and with the question of breakage practically eliminated, write to

**Mention
The Clayworker.**

MADDEN & CO.,

AND HOLLOW BLOCK MACHINERY.



Extra Heavy Hoosier Clay Granulator.

Our Heavy Duty Granulators, heavy gears, spur or bevel, and shafting, self-contained bearings, large and long, free from contact with the clay, main shaft, set "off center" which prevents rocks or foreign substances becoming wedged between drum and end of knives, thereby avoiding the greatest cause for broken and bent knives. Drum of heavy boiler firmly bolted to frame. The whole making a very rigid and compact machine, capable of standing the most severe service. Made in any length.



Extra Heavy Hoosier Pug Mill.

Our Pug Mills built with the same generous proportions as granulators. They are machines for large capacity; either bevel or spur gear; made in any length.

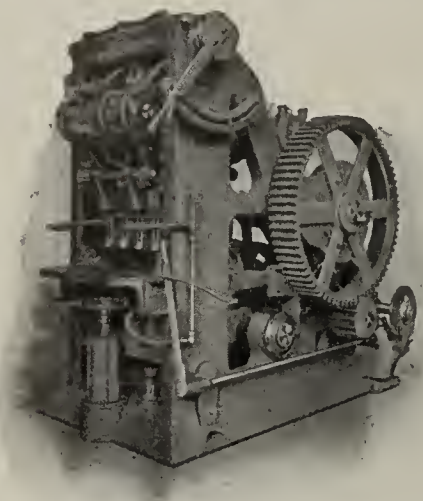
Write for Catalogue.

Rushville, Ind.

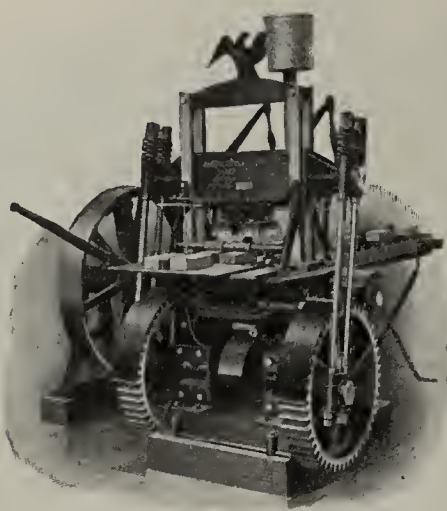
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

BUILT RIGHT RUN RIGHT



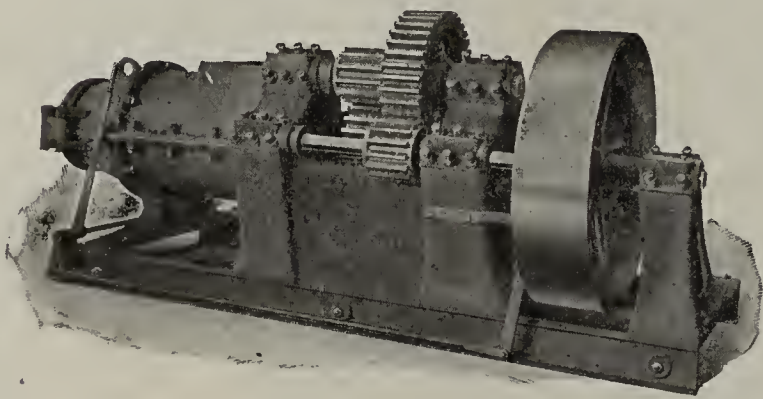
D-3 Dry Press



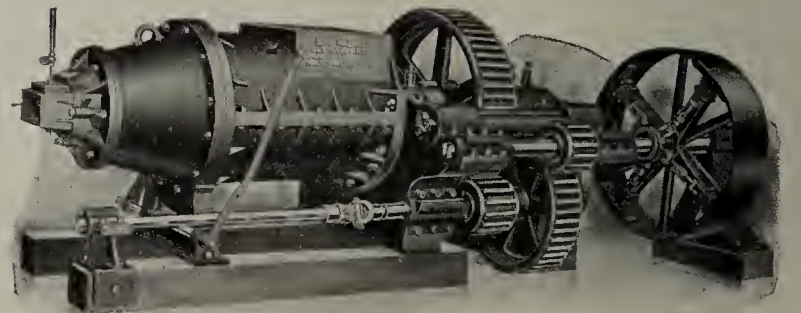
Eagle Reprass



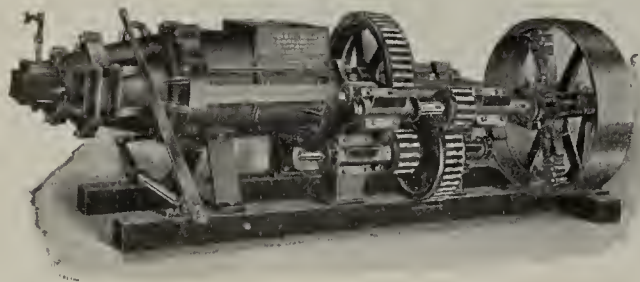
Roofing Tile Press



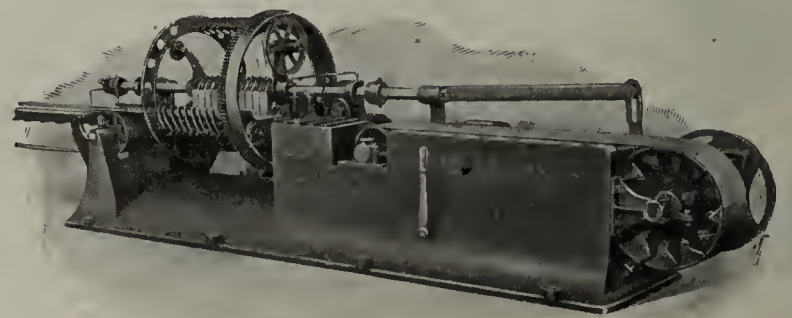
No. 65 Auger Brick Machine



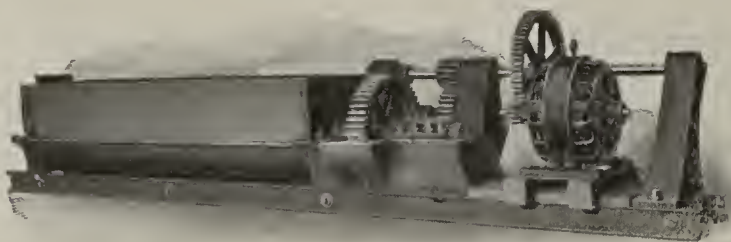
Special Giant Brick Machine



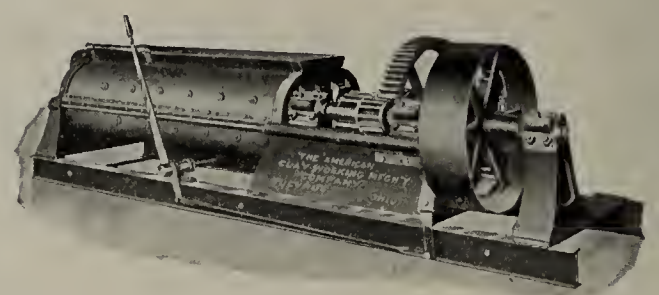
No. 2 Giant Brick Machine



No. 83 Automatic Cutter



No. 51 Electrical Driven Pug Mill



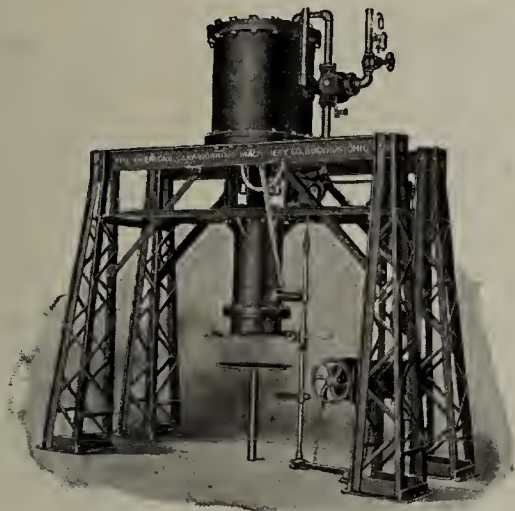
No. 38 Double Shaft Pug Mill

We Build Every Machine and Every Appliance Needed for the Manufacture of Every Class of Clay Products by Every Process.

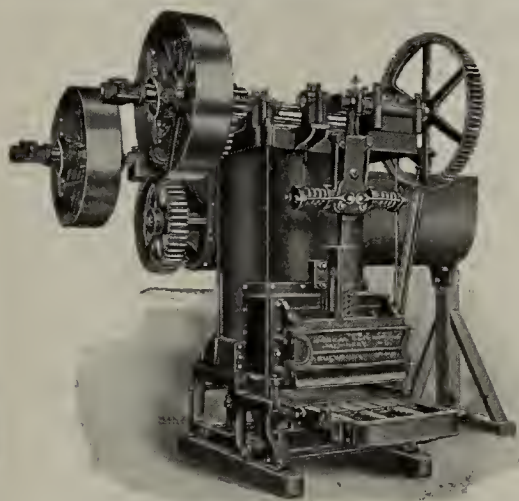
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

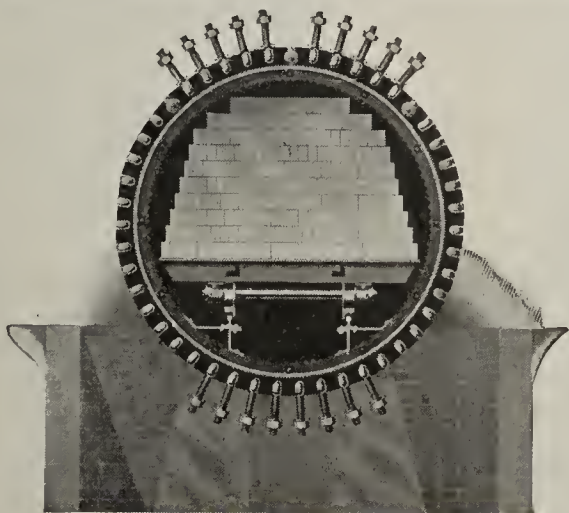
BUILT RIGHT RUN RIGHT



Sewer Pipe Machinery



Upright Stock Brick Machine



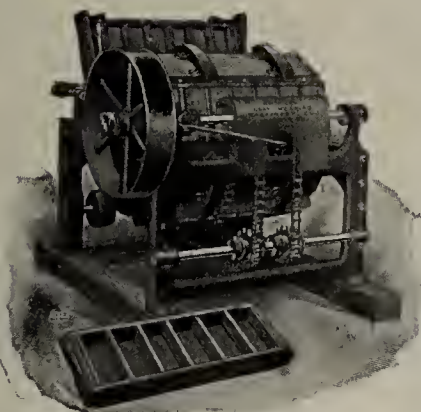
Sand-Lime Brick Machinery



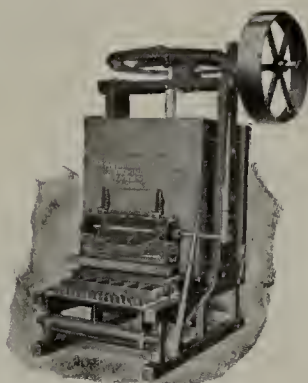
No. 64—9 Foot Wet Pan



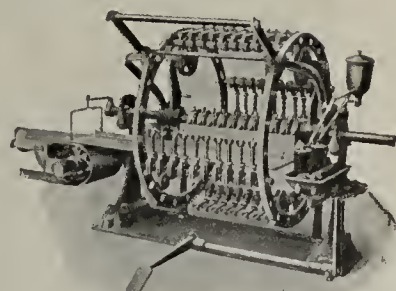
Blower Dryer Apparatus



Mold Sander



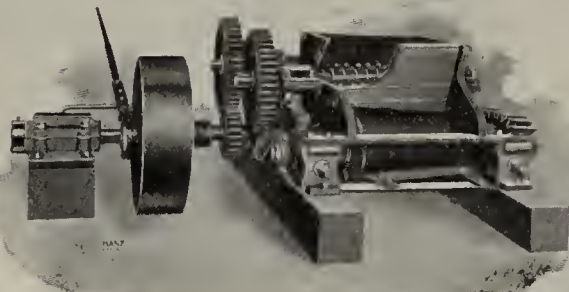
H. P. Brick Machine



No. 62 Hand Power Cutter



Dry Cars



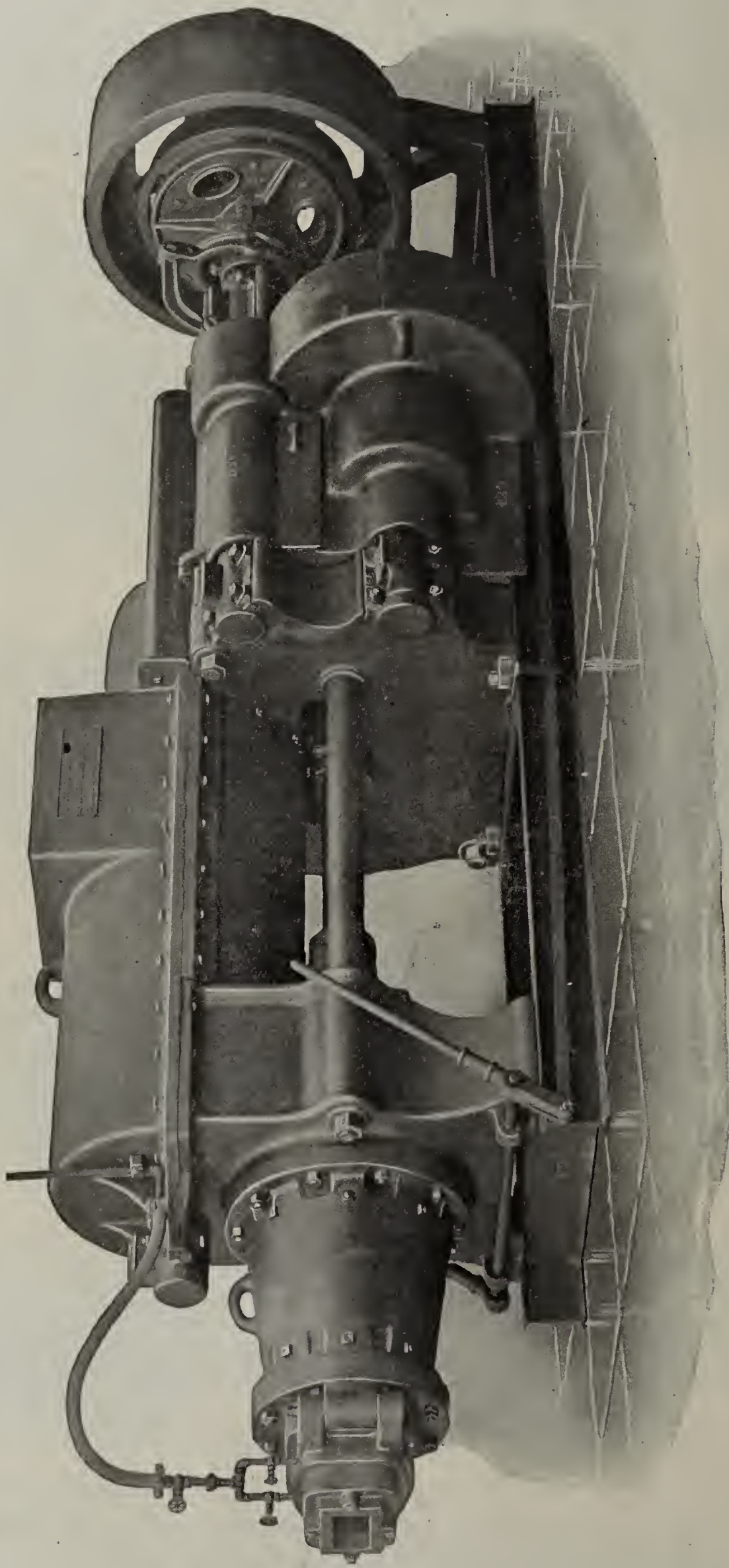
No. 25 Smooth Roll Crusher



Winding Drums

We Are Much the Largest and Much the Most Extensive Manufacturers of Much the Best Clay-working Machinery in the World.

Another Brick Machine.



This is a Brick Machine of massive proportions and of modern construction throughout, designed for large capacity and severe service. The gearing, shafting and other parts are very heavy. The gearing is protected by a removable dust and accident proof covering, hinged for convenient access to the interior. The feeding chamber is of ample diameter and length, and this result is obtained without excessive overhang of auger shaft. The auger shaft is supported by three journal bearings of sufficient distance apart to give it a substantial support. The part of the auger shaft in the clay chamber is about 4 feet in length, while the part outside is more than 9 feet long.

The machine is mounted on steel "I" beam sills between which are placed heavy cast iron spreaders with flanges, affording a substantial method of attaching the machine to its foundation. The outer end of the pulley shaft is supported by a rigid stand having an adjustable journal box.

Length of machine over all, 19 ft.

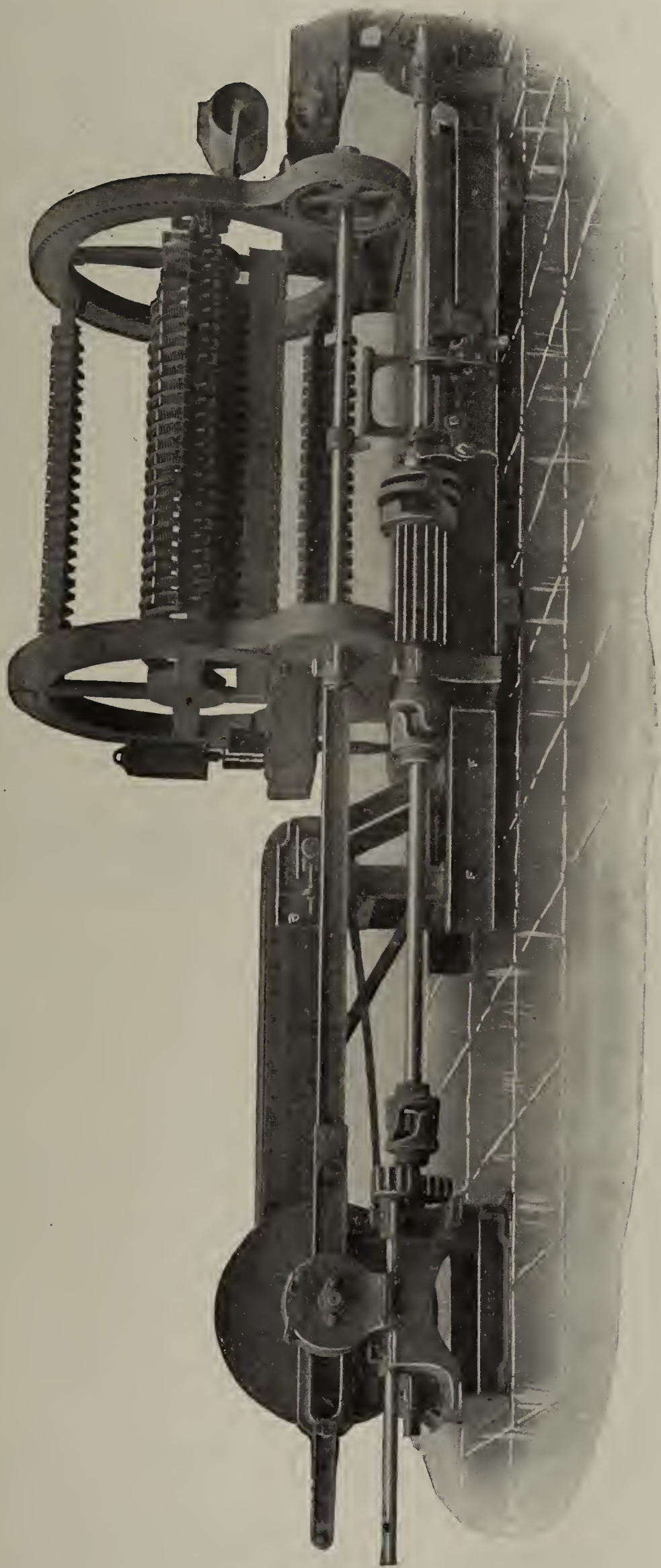
Height from floor to top of hopper, 5 ft. 8 in.

Size of hopper, 26-in. x 26-in. x 26-in.
Weight of machine about 26,000 pounds.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

An Improved Rotating Automatic Cutter.



Our Rotating Automatic Cutters are the result of many years' constant hammering at a single type of Cutter. One of the three sizes we are building will suit your Stiff Mud Brick Machine.

We ship on trial—YOU say whether our guarantee of "satisfactory operation" is fulfilled. If desired a man will be sent to arrange details of installation.

These Cutters will give you satisfaction when all others have failed.

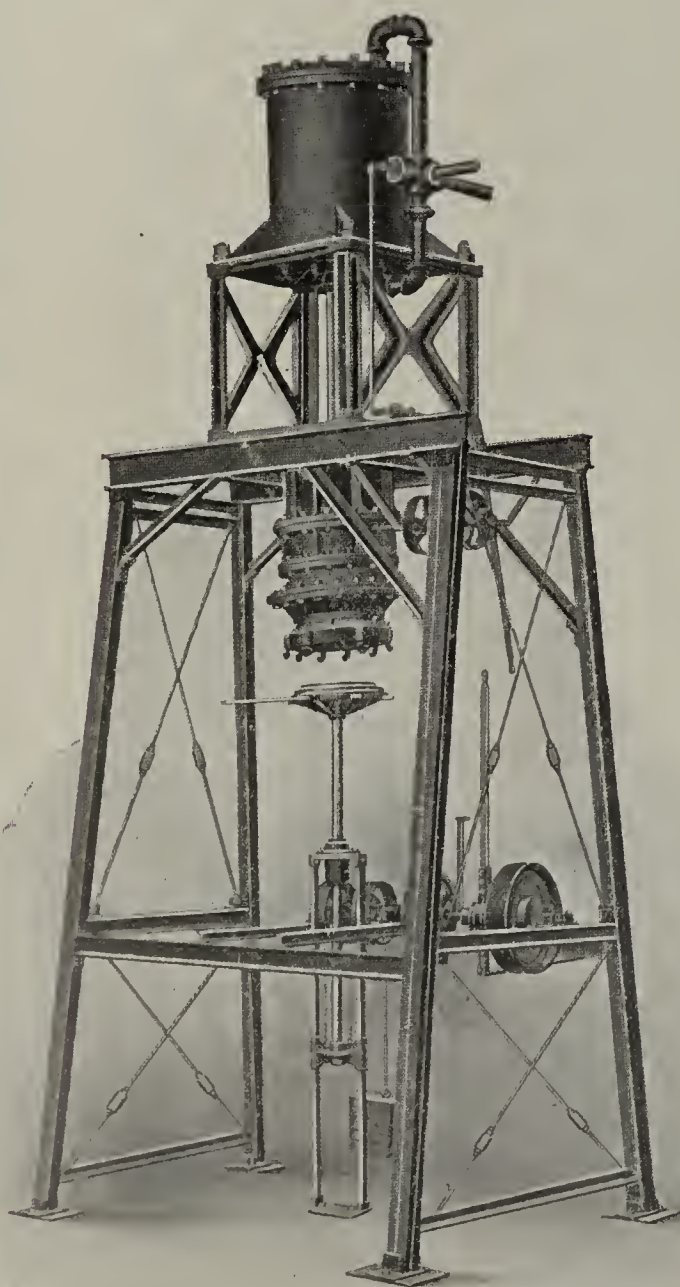
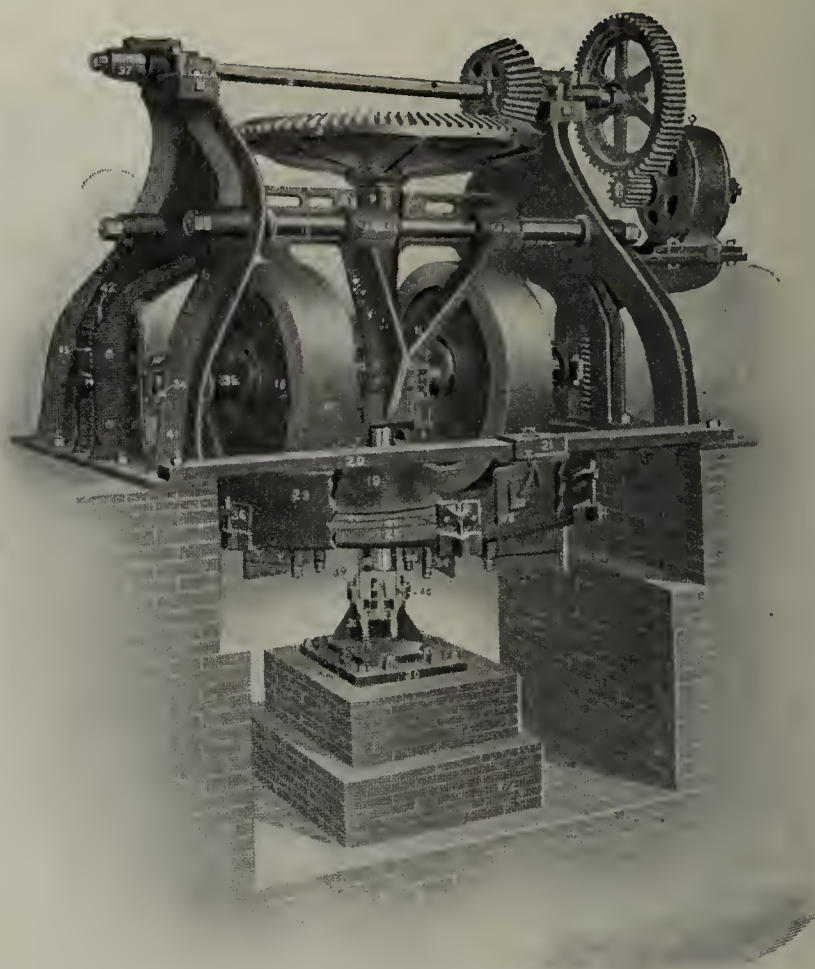
(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

THE HARRINGTON AND KING PERFORATING CO.



PERFORATED STEEL FOR CLAY SCREENS.

Samples or blue prints with prices furnished on request.

For Chute or Gravity Screens, Shaking or Vibrating Screens, Revolving Screens, Dry Pan Screens.
For Cleaning and Grading Clay, Shale, Sand, Cement, Coal, Stone, Etc.
For Pallets or Trays, Car Bottoms, Drying Floors, Conveyor Bottoms, Separators, Etc.

NEW YORK OFFICE
No. 114 Liberty St.

No. 231 North Union Street,
CHICAGO, ILL., U. S. A.



THIS IS JUST TO TELL YOU

that the brick manufacturers known throughout the west to be the most successful from a standpoint of quality of product manufactured, as well as money made, are drying their brick in

Rodgers Waste Heat Dryers

AND TO ASK YOU WHY,

if you are not included in the above class by yourself or your competitors, you do not

TELL US

and give us the opportunity of putting you there?

WE CAN DO IT.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

108 LA SALLE ST.

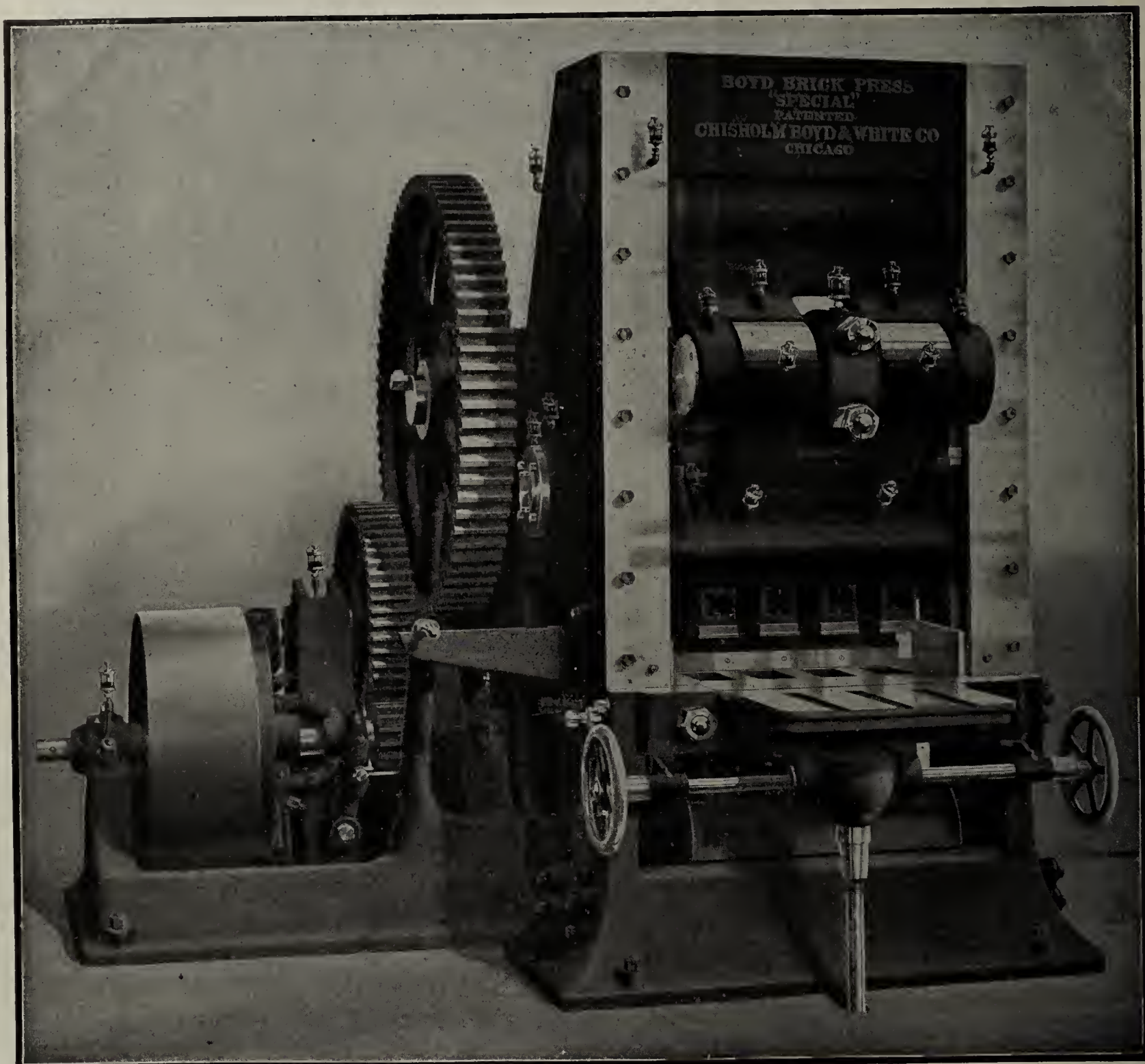
CHICAGO.



Mention The Clay-Worker.

The Boyd Brick Press

Built in Two, Four and Six-Mold Sizes.



FOUR-MOLD SPECIAL.

BRICK PLANTS designed and complete machinery equipment furnished. Machinery and product guaranteed.

More Boyd Presses in use than all other Press Brick Machines combined.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 19 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end.

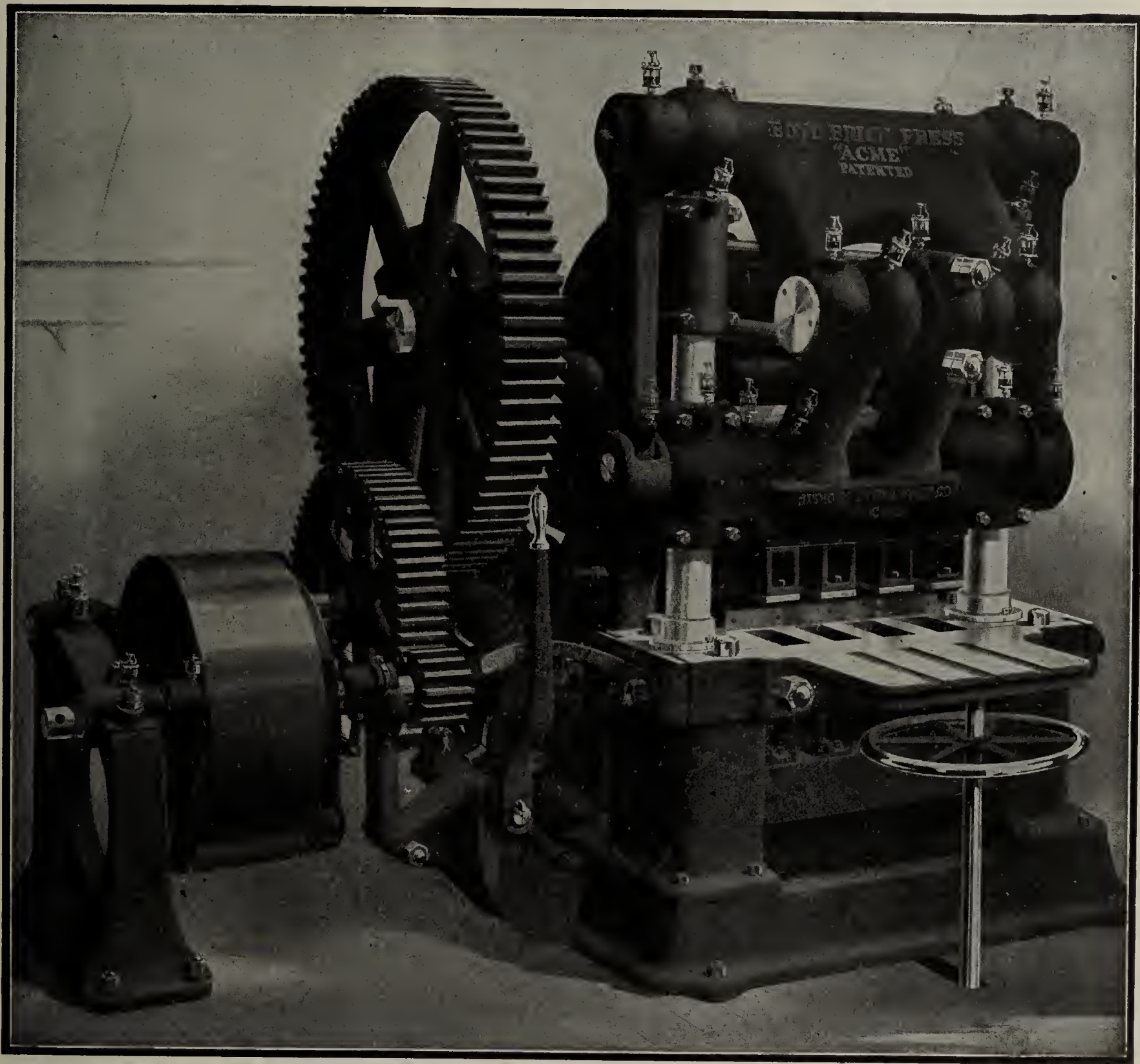
Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Boyd Brick Press

Four-Mold "Acme."



We have been building this type of machine for over ten years. It has all improvements to date and embodies all the special features of the original Boyd Press.

Detailed perfection, strength, endurance and quality of product have made THE BOYD the Brick Press by which all others are judged.

We will send to any responsible party a *Boyd Brick Press on trial* under the broadest and safest guarantee. We take the machine back if not satisfactory.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Grath Special Brick Press

Patented.

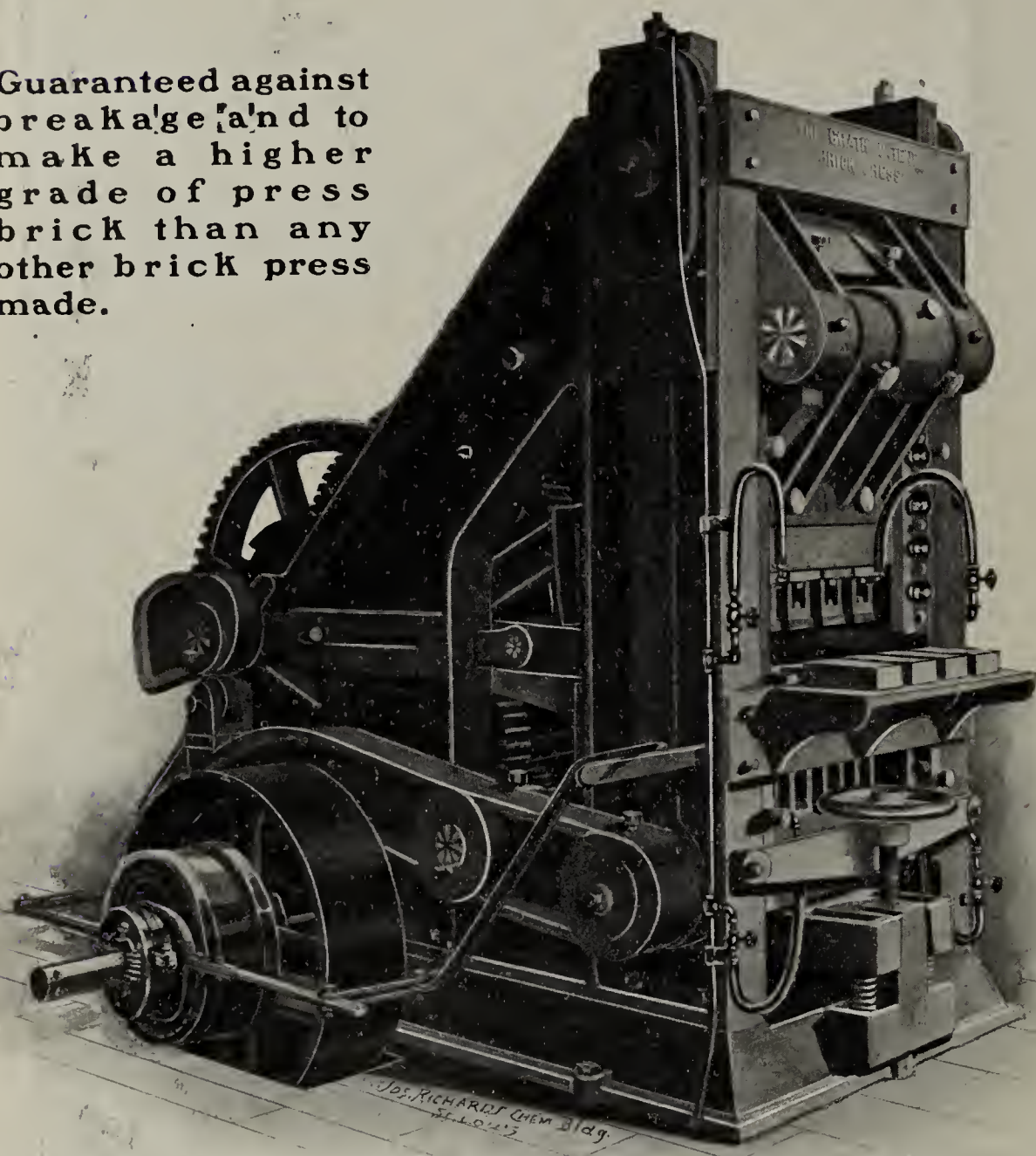
Made in Two, Three, Four and Five-Mold Sizes.

THE ONLY PERFECT BRICK PRESS

For SAND-LIME and DRY CLAY BRICK of Unequaled Quality.

FOUR MOLD MODEL.

Guaranteed against breakage and to make a higher grade of press brick than any other brick press made.



BRICKMAKERS

Do not buy Brick Presses every month or year.

When you **do** buy get a **modern** press. It costs no more than one which is **out of date**.

Unless the press is **double geared**, with gears between frames and bearings, which prevents all side strain and twisting of crank shaft, it is out of date and behind the times.

The above construction is contained in the **Grath Special** and is securely covered by patents. All infringements will be prosecuted.

THE PRESS OF TODAY.

THE ALBERTA PORTLAND CEMENT CO.

W. P. Grath, St. Louis, Mo.:

[Copy]

Sandstone, Alta., Sept. 26, 1907.

Dear Sir—Replying to your favor of recent date regarding Grath Special press purchased from you, would say that after working your press alongside another well-known make, your press has proved itself vastly superior in every way; it is stronger, simpler, easier of adjustment, makes more brick, and of much better quality.

After a long experience with presses, having operated five (5) different presses each of different makes, I consider yours "THE BEST YET," in short, "AN IDEAL PRESS."

Wishing you the success your press merits

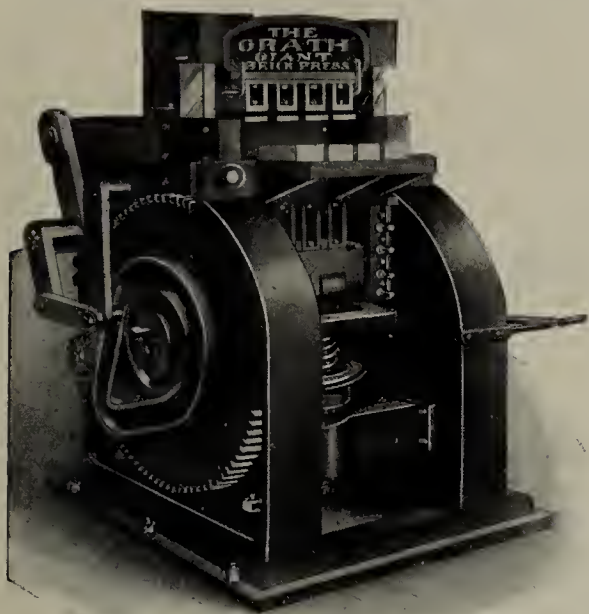
Yours truly, G. W. DELLER, SUPT.
Alberta Portland Cement Co., Limited.

Illinois Supply & Construction Co.,

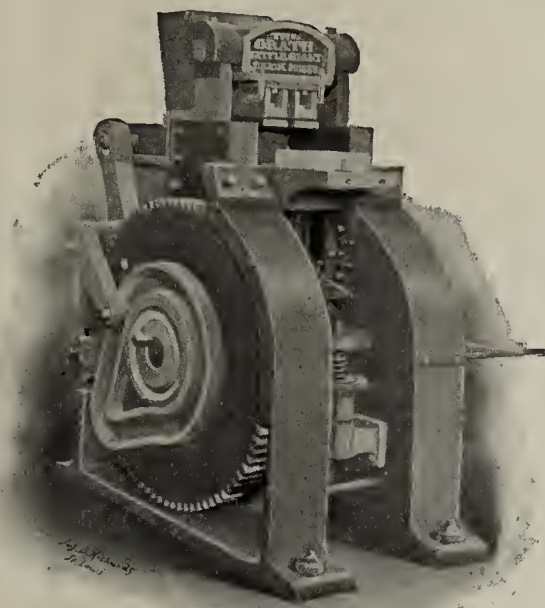
Suite 512 and 513 Holland Bldg.

St. Louis, Mo., U. S. A.

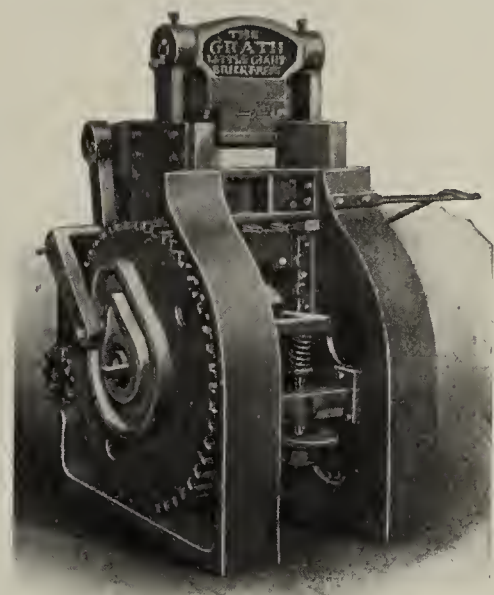
Mention The Clay-Worker.



**THE GRATH GIANT FOUR MOLD
BRICK PRESS**
For Fine Press Brick
From Dry Clay or Sand-Lime.



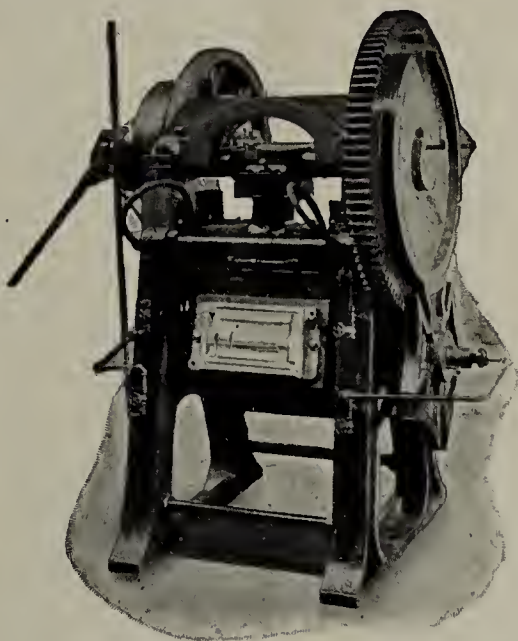
**THE GRATH LITTLE GIANT TWO
MOLD BRICK PRESS**
For Fine Dry Press Brick.



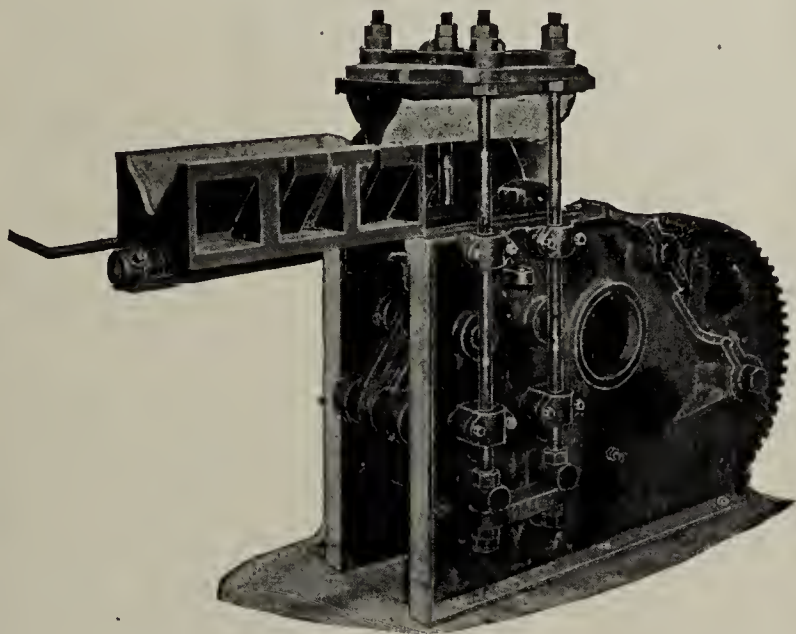
**THE GRATH LITTLE GIANT
ONE MOLD BRICK PRESS**
For Perfect Sand-Lime or
Dry Clay Face Brick.



The Grath Special Hand-Power Brick
Press, for Plain and Ornamental
Press Brick.
From Dry or Semi-Dry Clay or Sand-Lime.
Guaranteed against breakage.

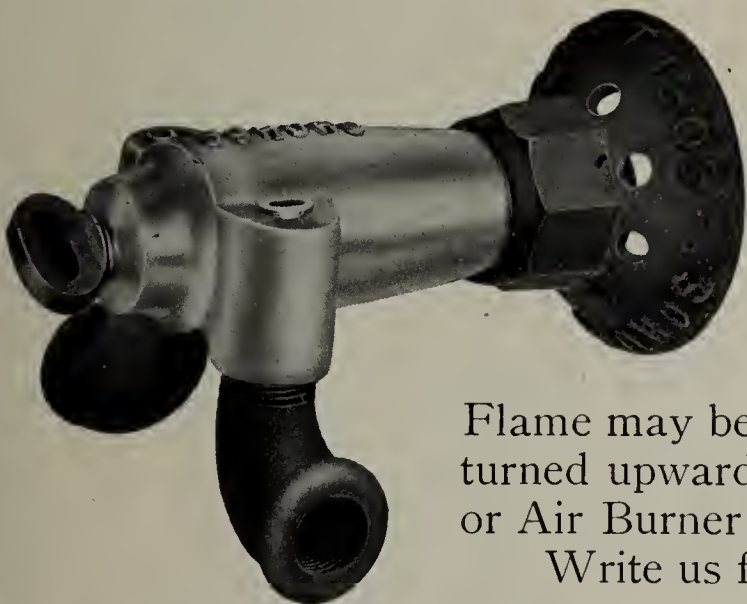


The Grath Revolving Roofing
Tile Press.
Strongest and Simplest Made.
For Plaster or Metal Dies.
Top Cross Head and Pentagon Adjustable.



The Grath Roofing Tile and Trimming Press
No Roofing Tile Plant
Complete Without This Press.
For Plaster or Metal Dies.
For Special Tiles, Hips and Crestings.

GUARANTEED AGAINST BREAKAGE.



Selling Agents for The
**SCHURS PATENT PERFECT
OIL BURNERS**

Especially designed for burning Brick, Tile, Terra
Cotta and Lime. For Up and Down Draft Kilns.

Flame may be regulated as desired and to produce any heat, can be
turned upward, downward or sideways. Most economical Steam
or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices and information.

Lieber's Code.
Cable Address,
GRATH, St. Louis.

Illinois Supply & Construction Co.
HOLLAND BLDG.. ST. LOUIS, MO.

Long Distance
Phone
Bell, Main 235.

REMOVAL NOTICE.

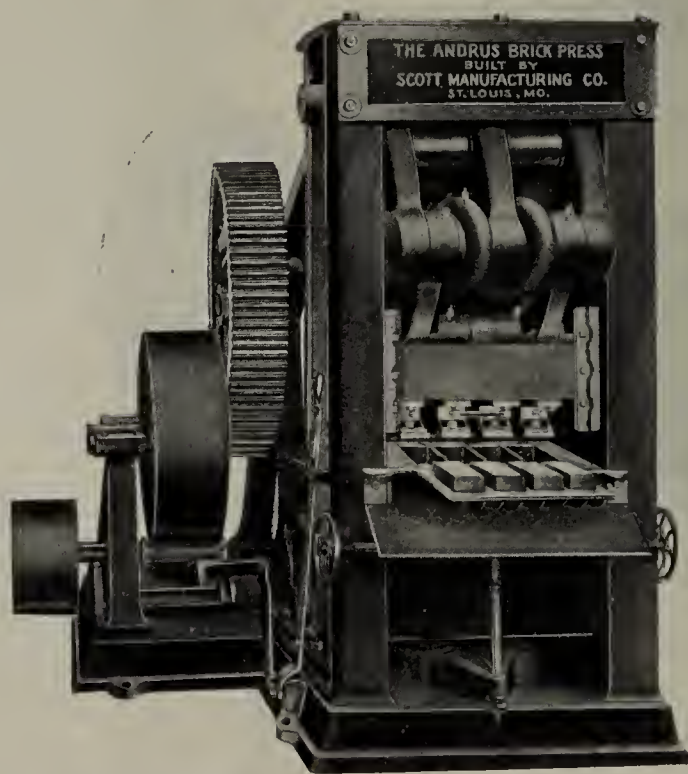
We wish to announce the removal of our offices from 421 Olive Street to the Third National Bank Building. It has been our pleasure in the past to extend whatever hospitality we could to the visiting clayworkers and, if possible, to have them come and see us, no matter what branch of the clay industry they might be following. To meet this desire we have arranged our new quarters in such a manner that visitors can come and go without feeling for an instant that they are discommoding us in the least by leaving their baggage in our care, writing or dictating their letters or using our unrestricted telephone service. All of these features have been arranged as much for our visitors as for ourselves.

To the pressed brick fraternity let us insist that St. Louis is still the greatest pressed brick center in the world, and we now have two dozen Andrus Presses right in the St. Louis district, three of which have been installed during the past year, and at least a dozen of which have been in constant operation for the past 15 to 20 years. So when coming to St. Louis, whether on pleasure or business, come and see us. If you have time, we can show you some of our pressed brick machinery, but if not, you needn't think that we don't want to see you, for we certainly do.

Cordially,

**Scott
Manufacturing
Company,**

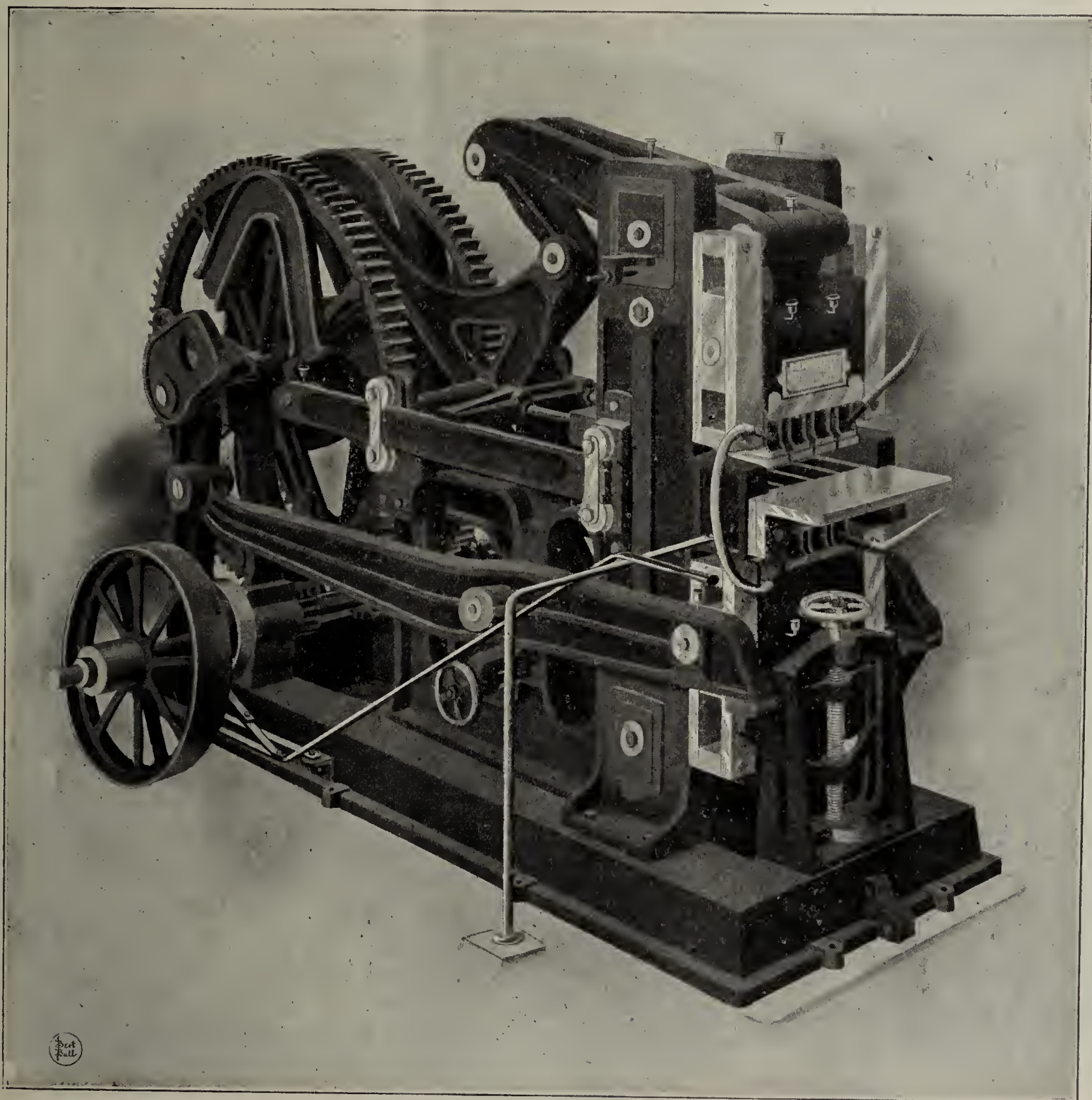
**506 OLIVE STREET,
ST. LOUIS, MO.**



THE PRESS THAT SCOTT BUILDS.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

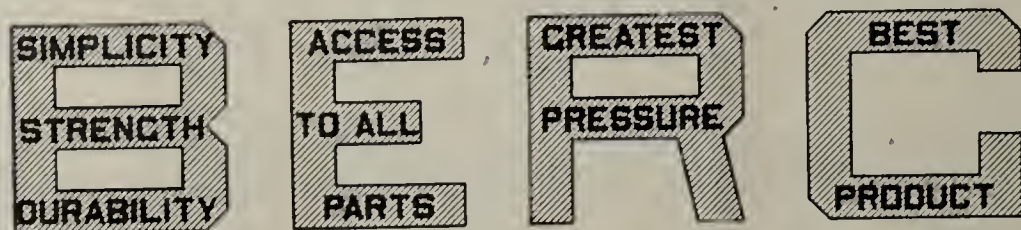


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

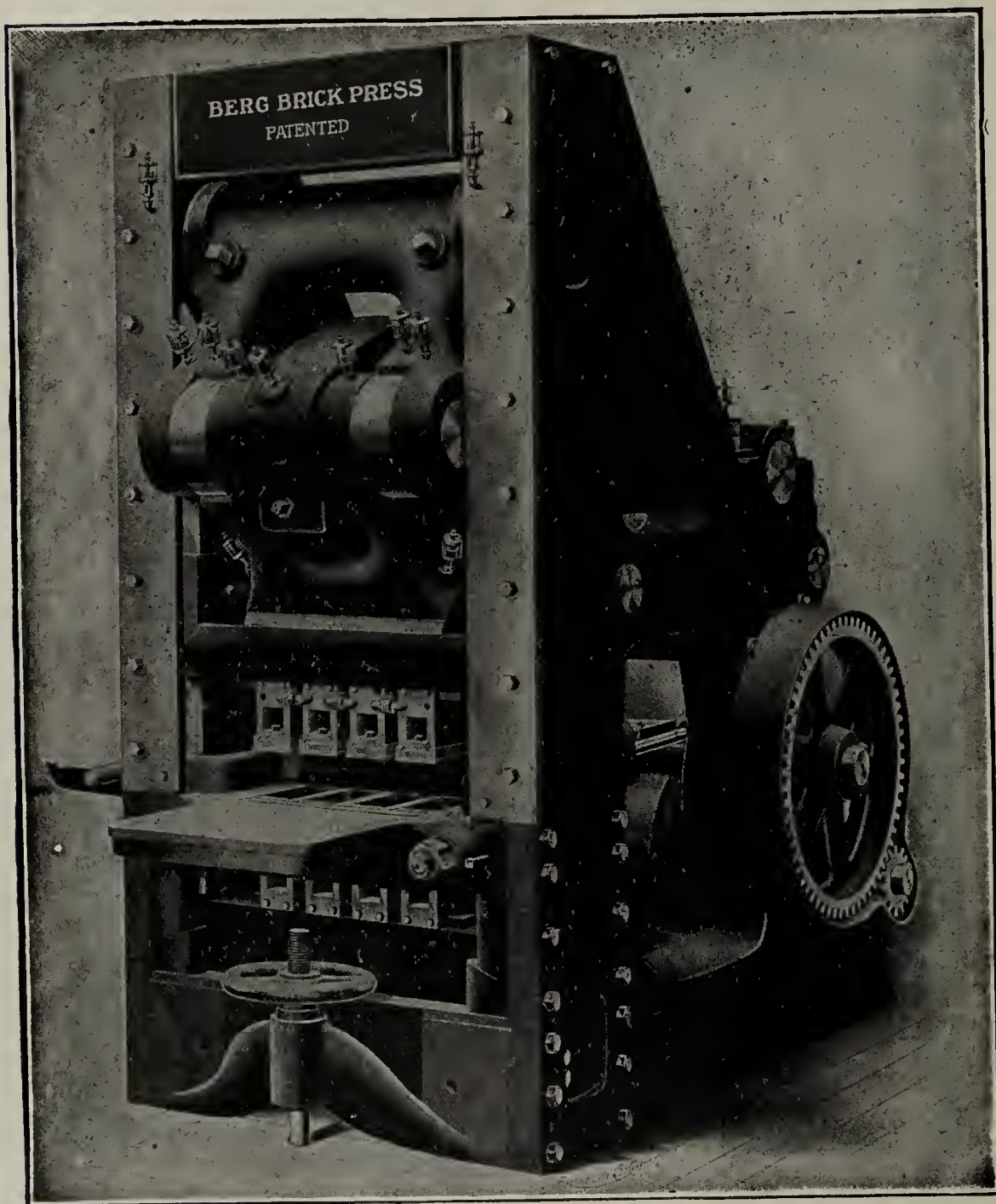
The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

WHAT'S IN A NAME?



The "Berg Press" is The Highest Development in The Art of Brickmaking Machinery, so Pronounced by The U. S. Government.



IMPROVED BERG BRICK PRESS.

THE BERG PRESS EXCELS
for

Shale Pressed Brick.
Clay Pressed Brick.
Sand-Lime Pressed Brick.
Sand-Cement Pressed Brick.
Fire Brick.

THE BERG PRESS
Gives THREE Distinct PRESSURES:
Result is,
No Granulated Centers.

THE BERG PRESS
HAS ALL WORKING PARTS ABOVE
Clay Line.

THE BERG PRESS
is fitted with "THE BERG PATENTED
MOLD BOX"—the DELIGHT of brick-
makers, and which many OTHERS
have tried to IMITATE.

All Sizes and Shapes
Can be Made.
Molds Can be Changed in a
Few Minutes,
Owing to the
SIMPLE MECHANICAL
CONSTRUCTION.

Cut Gearing, and many other steps forward in *Improvements*, and built of the *Highest Grade of Material and Workmanship. Fully Guaranteed* as to its *Success*.

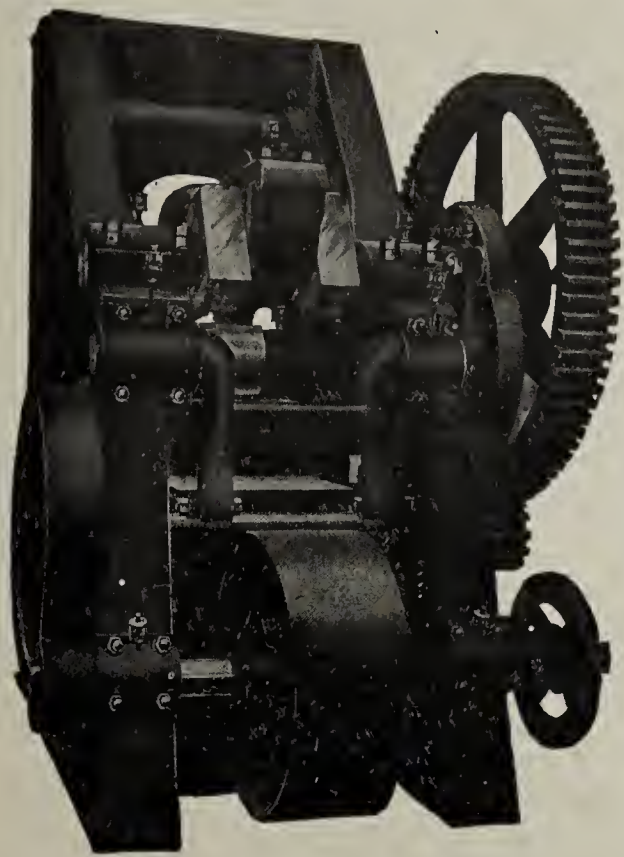
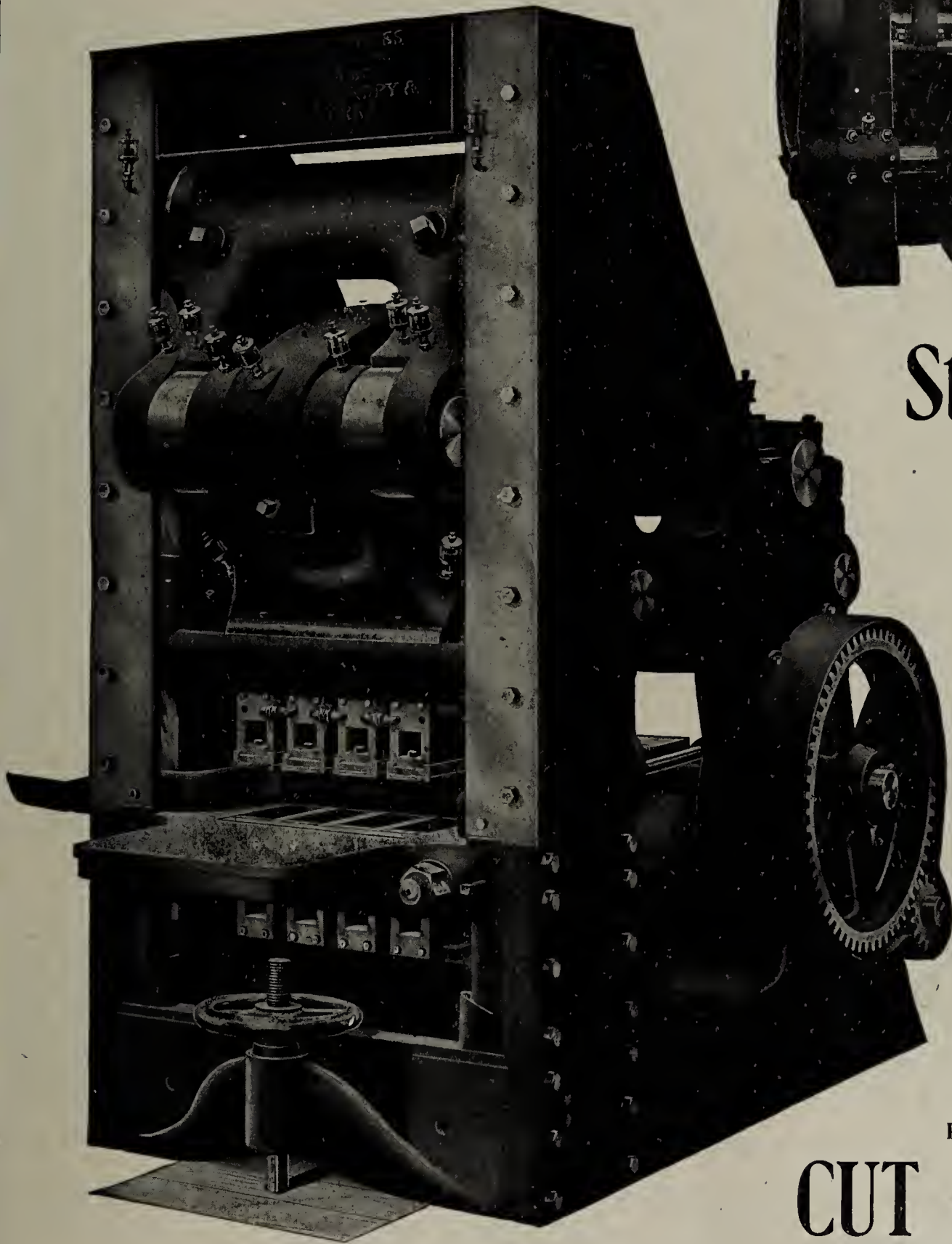
Manufactured by its Inventor in Toronto, Canada, exclusively. Also all equipments for Pressed Brick Plants to make *Sand-Lime Brick, Sand-Cement Brick, Shale Brick, Clay Brick* and *Fire Brick*. Correspondence solicited.

A. BERG & SONS,

Mention The Clay-Worker.

Manning Chambers, TORONTO, ONT., CAN.

New Model Berg Brick Press



Back View.

Still in the
Lead
and
One Step
Further
Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact, and

SHIPPED IN ONE
PIECE.

Provided with

CUT GEARING

of either iron or steel, if desired.

Sold by

CHICAGO BRICK MACHINERY CO.,
Great Northern Bldg.
77 Jackson Blvd.
CHICAGO.

Manufactured and Sold by

Anderson Foundry & Machine Works,

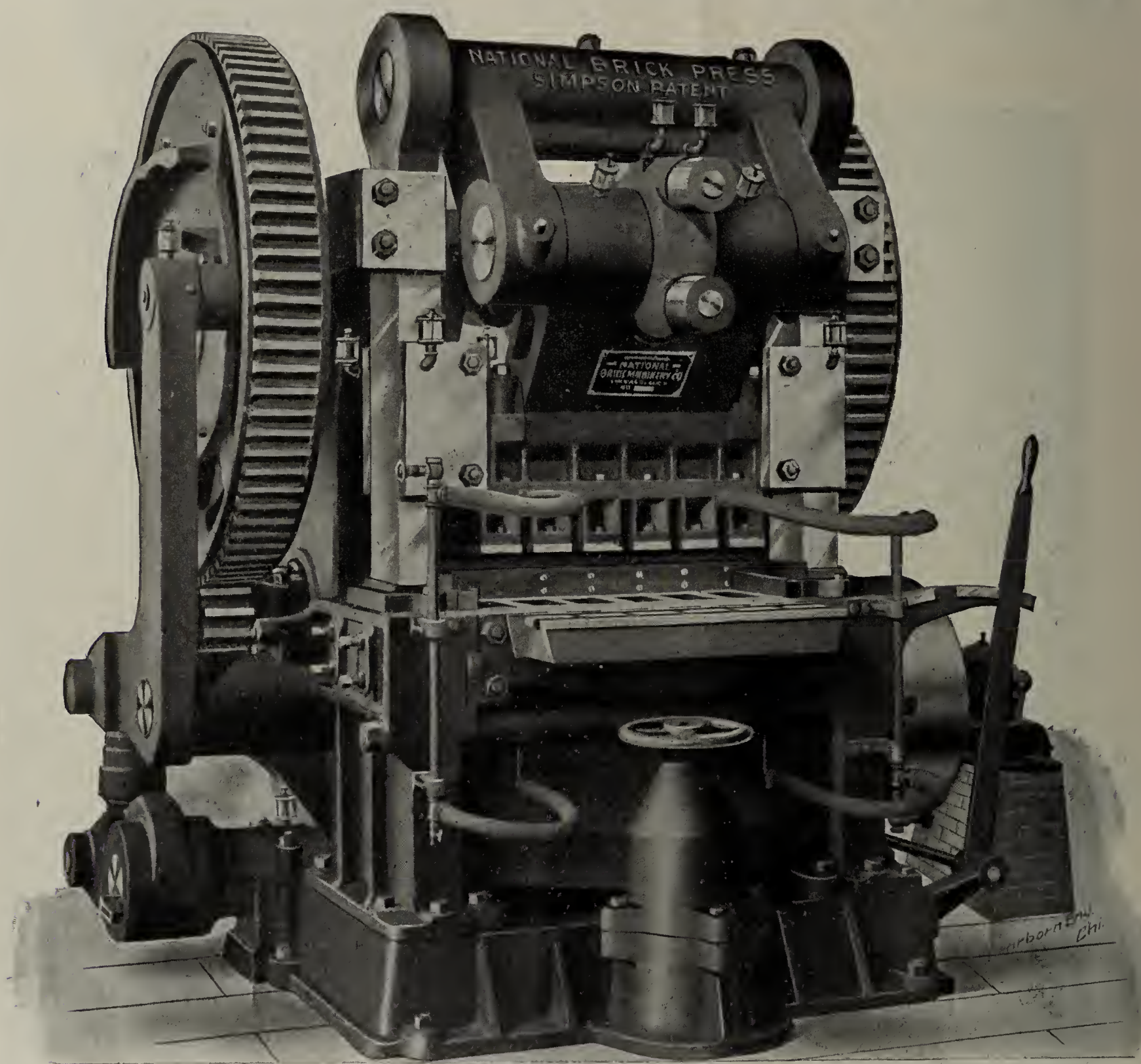
Southwestern Office, Wilson Bldg., Dallas, Texas.

ANDERSON, IND.

NATIONAL BRICK PRESS

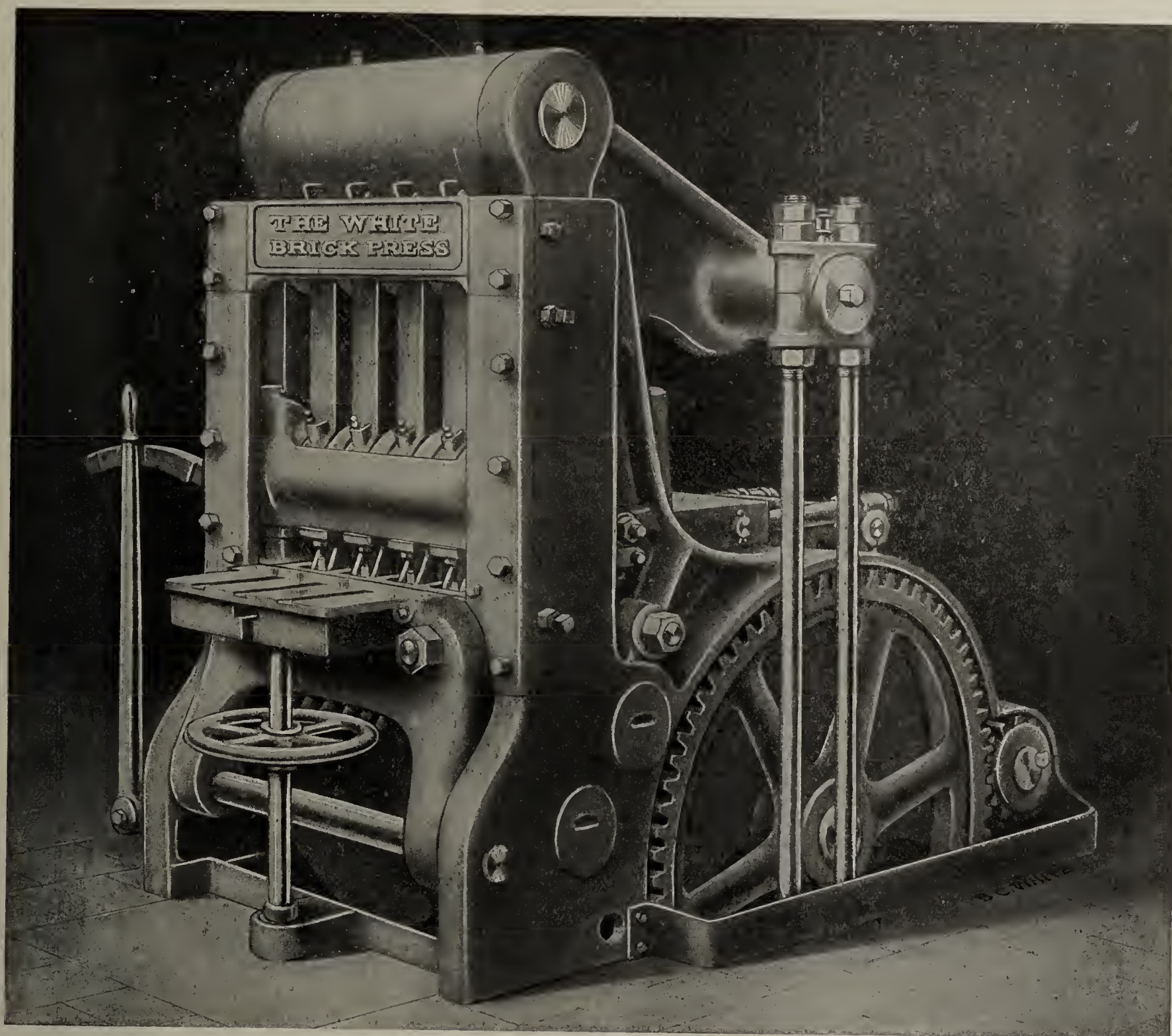
SIMPSON PATENT

SIX-MOLD



Built in Four, Five and Six-Mold Sizes.
Send for our new Treatise on Dry Press Brickmaking.
Complete Outfits for Brick Plants.

National Brick Machinery Co.,
Chamber of Commerce Bldg. CHICAGO.



The White Brick Press

FOR MAKING HIGH GRADE BRICK

Either Clay or Sand-Lime. This is the Only Press having **Hinged Mold Table** and **Removable Mold**, enabling you to change molds in **less than ten minutes**. Two complete mold boxes furnished with it.

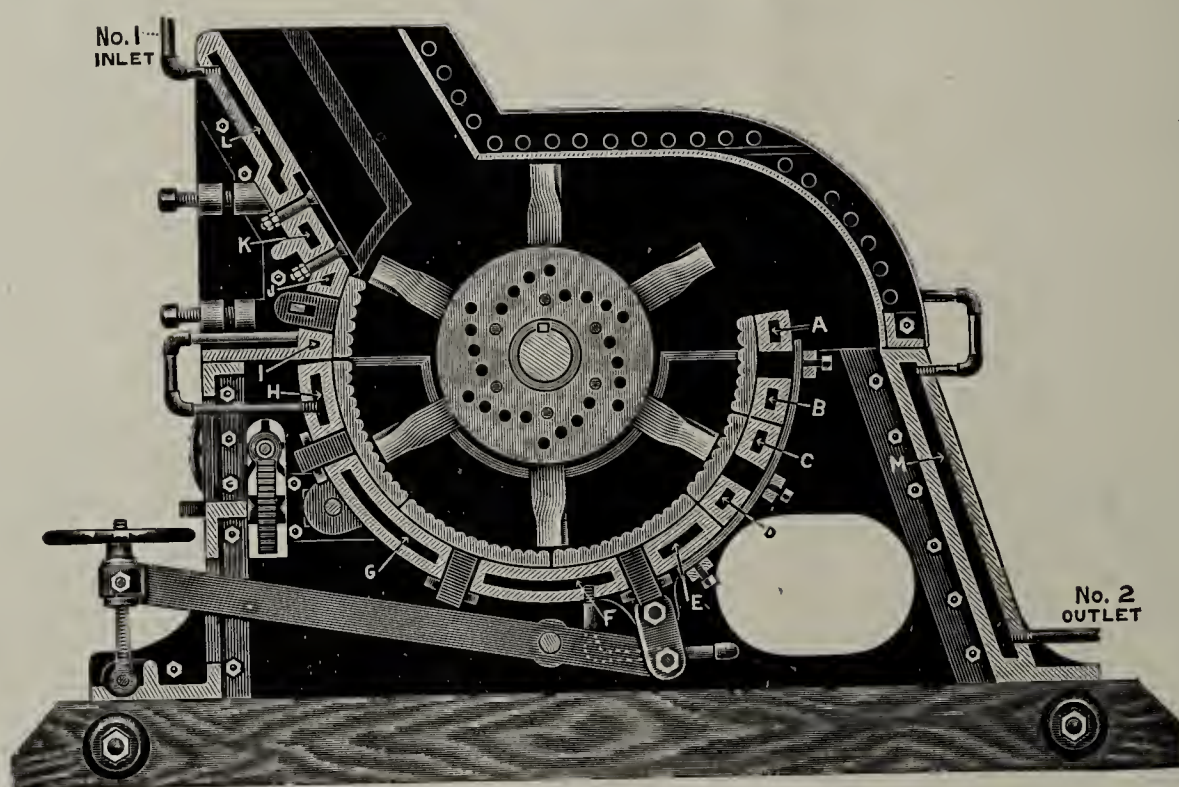
This is by far the **Strongest**, most **Durable**, most **Powerful** and most **Convenient** Press in use. Runs smoothly and noiselessly, without jar or backlash.

SEND FOR CATALOG.

CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

Williams Patent Crusher and Pulverizer Co.
St. Louis, Mo., U. S. A.

Write for Bulletin 21.

Over 1300 of the Williams Hinged Hammer Crushers and Pulverizers in daily operation.

Mention The Clay-Worker.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO

Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

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THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlers steel, and tempered to withstand hard usage.

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The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

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Our material has for nearly fifteen years successfully stood the
heaviest traffic of Indianapolis, Terre Haute, East St. Louis and
dozens of other large cities of Indiana and Illinois. We ask investigation
and comparison by those seeking the best paving material.
Samples furnished on application.

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Manufacturers of the Highest Quality of

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WE OWN AND OPERATE EXTENSIVE DE-
POSITS OF THE VERY BEST GRADES.

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Have been in the business for TWENTY-FOUR
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An unexcelled repressed shale paver.

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The Purington Paving Brick Co.,

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HAS the largest and best equipped plant in the United States for the manufacture
of Paving and Sidewalk Brick. The Galesburg Paving Brick have a reputation
second to none, and this Company points with pride to its record for quality of
material and its methods of conducting its business.

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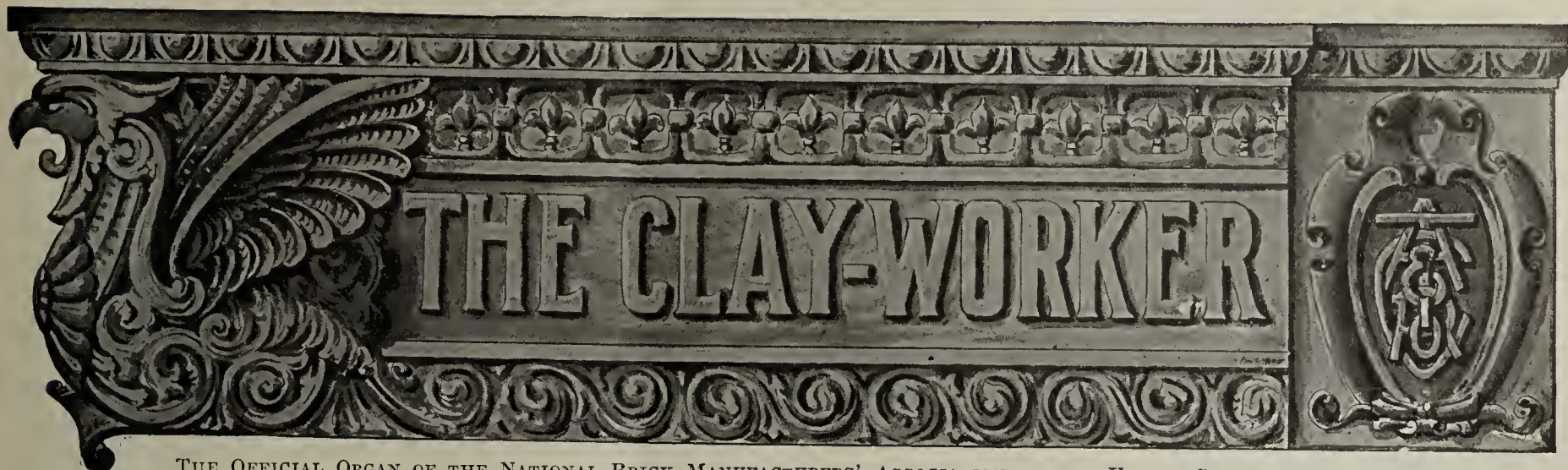
Successfully Dries All Kinds of Clays



THE New Standard Heating System embodies important modern improvements that every brickmaker should know about. It is this New Heating System that makes The Standard Drier the most effective on the market in utilizing *exhaust steam* for drying. Send a postal today for our interesting illustrated booklet, "Money-Saving Drying"

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THE STANDARD DRY KILN CO.,
647 South Pennsylvania Street :: INDIANAPOLIS, INDIANA



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. XLIX.

INDIANAPOLIS, IND., APRIL, 1908.

No. 4.

Written for THE CLAY-WORKER.

THE SCHOOL OF BRICKLAYING.

The Gate of Hope at the Winona Technical Institute, Indianapolis, Now Open to Young Men Desiring to Learn a Trade.

WE ARE PLEASED to present to the readers of THE CLAY-WORKER the accompanying view of the School of Bricklaying recently established at the Winona Technical Institute, Indianapolis. The picture was taken the third day after the school was started, when five pupils began the work, which, continued to the end of the course, will enable them to hold their own with any average journeyman bricklayer. Indeed, they will be even better equipped than workmen of years of experience, for they will be schooled not alone in practical work, but will also be thoroughly trained in every phase of bricklaying and contracting.

including designing, estimating, etc., details of which many old-time bricklayers know but little.

Members of the N. B. M. A., who, by their support, have made possible the establishment of this school, may well congratulate themselves on the favorable auspices under which the school work begins. The services of an expert bricklayer and contractor, Mr. Ora C. Pierson, have been secured. He is a high-class man and workman, a born and bred brick-mason, who, for several years past has been successful in the business of building and contracting, and has also had considerable experience as a teacher, having had charge of the Y. M. C. A. night school in architecture. The school is now open for pupils, and no intelligent and energetic youth who is ambitious to learn the trade of bricklaying will apply in vain. The Gate of Hope is open to him. If he is lacking in means, the same will be supplied through the N. B. M. A. scholarship fund, if he comes with the proper recommendations.

The course will require from four to nine months, and



Department of Bricklaying, Winona Technical Institute, Indianapolis, March 28, 1908.

will comprise a study of materials used in building construction, drawing plans, and estimating costs of material and labor in brick work. The actual work of laying all classes of common, press and ornamental brick in walls, flues, chimneys, mantels, arches, cornices, boiler setting, etc., will occupy the greater portion of the time of instruction. Those desiring to enter the school will be required to make formal application on a blank that will be furnished on request. The following rules will govern the granting of admission, etc.:

Tuition and Tools.

The cost of tuition is sixty dollars for the course.

Each student must provide his own tools, which will cost approximately eight dollars.

Statement.

According to the purpose and plan of the board of trustees of the trade school,

Applicants for Admission Must Have

1. Sufficient knowledge to pass a thorough examination in reading, writing, spelling and arithmetic. An eighth grade certificate will enable a student to pass this examination.
2. Sufficient physical ability to perform the work in the chosen trade.
3. A natural aptitude and a liking for mechanical work.
4. Satisfactory evidence of good moral character.

No student will be admitted to the school who is under sixteen years of age.

Sessions.

The school is in session for nine months, divided into two terms.

Scholarships.

Many scholarships have been placed at the disposal of the president, which make it possible to admit students of exceptional qualifications who may not be able to meet the tuition fee. A student borrows from the scholarship fund the amount sufficient for tuition. He gives his note without interest. After leaving the school a borrower is expected to gradually repay the scholarship, when the sum so borrowed becomes available for another student. A scholarship, by this method, becomes virtually perpetual. For conditions governing the granting of scholarships write to the general director.

School Record.

Three items make up the school record—prompt attendance at exercises of the school, standing in examinations and advancement in skill and workmanship.

Certificates.

To obtain a trade school certificate a student must have a school record while here of not less than eighty per cent.

Rules of Conduct.

The use of tobacco in any form is prohibited on the grounds or about the buildings; violation of this rule may lead to dismissal. The authorities of the school may at any time dismiss a student if his further continuance in the school is deemed undesirable. In such cases there will be no rebate of tuition.

This certainly is a golden opportunity to learn one of the best of the building trades.

Restrictions in this trade in recent years have been such that only a very few have been permitted to learn the trade and consequently there is a great demand all over the country for brickmasons.

Members of the N. B. M. A. are requested to refer young men desiring to learn the trade of bricklaying to Mr. W. C. Smith, General Director, Winona Institute Trade Schools, Indianapolis, Ind.

Written for THE CLAY-WORKER.

OHIO FACE BRICK MANUFACTURERS ORGANIZE.

THE FACE BRICK manufacturers of Ohio have formed an association, having for its purpose the furtherance of the interests of those concerns engaged exclusively in the manufacture of face brick. The organization was perfected at a meeting held at Columbus. William H. Hunt, of Cleveland, ex-president of the National Brick Manufacturers' Association, is president of the association, J. M. Adams, of Columbus, is vice president, L. G. Kilbourne, of Columbus, is treasurer, and J. R. Charles, of Cleveland, secretary.

Fifteen concerns were represented at the initial meeting. These were the Canton Press Brick Company, Canton, Ohio; Clermont Brick Company, Cincinnati, Ohio; Columbus Brick and Terra Cotta Company, Columbus, Ohio; Columbus Clay Product Company, Columbus, Ohio; Devonshire Brick and Ceramic Company, Columbus, Ohio; Federal Clay Products Company, Mineral City, Ohio; Hanover Press Brick Company, Hanover, Ohio; Hydraulic Press Brick Company, Cleveland, Ohio; Iron Clay Brick Company, Columbus, Ohio; Logan Clay Products Company, Logan, Ohio; McArthur Brick Company, McArthur, Ohio; Oakland Pressed Brick Company, Zanesville, Ohio; Ohio Mining and Manufacturing Company, Shawnee, Ohio; Shawnee Flash Brick Company, Shawnee, Ohio, and the Straitsville Impervious Brick Company, Straitsville, Ohio.

The formation of this association came as the result of the general disturbance of conditions in connection with the revision of freight rates. The face brick manufacturers felt that they were in danger of being discriminated against and promptly sought counsel with each other as to the best means of preventing this.

Five elements are engaged at present in a discussion over the brick tariff. These are the face brick, the paving and fire brick manufacturers, the interstate commerce commission and the railroads. The trouble has followed the complaint of the Stowe-Fuller Company, of Cleveland, a year ago, over rates charged on fire brick. The commission ruled that a brick is a brick, and the railroads promptly proceeded to charge the highest rate for all brick shipped over their lines.

The fire brick rate, which had been twenty-five cents per hundred, New York to Chicago, was reduced to twenty-two and one-half cents, while all other paving brick, which has been twenty cents, went up to that of fire brick. The paving brickmakers then filed their complaint with the commission. This stirred the face brickmakers to action.

The association proposes to put its side of the case up to the interstate commission. Over half of the building brickmakers in Ohio are said to be members of the organization. The paving brick association asked that the brick be classified "packed" or "unpacked," the former to be charged at a higher rate than the latter. This the new face brick association members object to, declaring that simply because they put straw between their brick to protect them they shouldn't be fined for doing so.

Considerable interest is centered on what the Interstate Commerce Commission will do. It is not seen how the commission can relieve the situation unless it reverses itself, which is just what the brickmakers look for. The case may be carried to the United States Supreme Court if relief is not given by the commission.

The Ohio members of the face brick association say that the idea has spread all over Pennsylvania and that an association will be organized in that state. It will probably join forces with the Ohio association in a fight for better freight rates.

The science of making money is an intricate one to acquire, but it is most essential for the accumulation of wealth. The art of spending it judiciously is quite as important.—Ex.

Written for THE CLAY-WORKER.

IOWA BRICK NEWS.

THE PLYMOUTH Clay Products Company, of Ft. Dodge, has completed plans for the erection of a pottery on their property adjoining the city on the south. The new plant will be started at once and the estimated cost will be \$50,000. Ever since the destruction of the Western Stoneware Company plant in this city some three years ago, there has been more or less talk of a pottery, but the plans were not completed until a day or two ago. The new pottery will be started with four kilns of about 10,000 gallons capacity and arranged so that additional kilns may be added advantageously. The product will consist of both dark and white stoneware.

The Red Wing Sewerpipe Company, Red Wing, Minn., has decided to build its new sewerpipe plant at a point between Red Wing and Minneapolis, known as Minnesota Transfer. The raw material will be shipped from a point near this city. The purchase of a tract of clay land on the Des Moines River, adjacent to Fort Dodge, last fall, gave rise to reports that a new factory would be located near this city, but the stockholders have authorized the directors to proceed with the plans for a new plant at Minnesota Transfer. A sum of \$300,000 has been provided for the erection of the plant and working capital. The object of the location is the special advantage of freight rates, a better rate being made from here to

Written for THE CLAY-WORKER.

A TUNNEL KILN SYSTEM IN USE BY THE GERMAN PORCELAIN INDUSTRY.

By S. Geijsbeek.

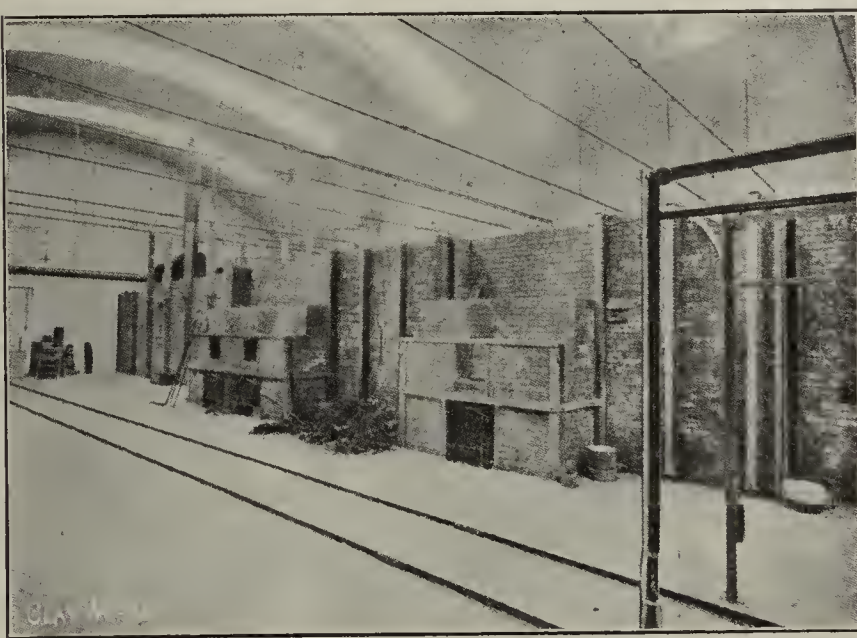


IT WAS NOT SO VERY many years ago that the writer's statement that porcelain was burned in Germany by continuous kilns, was met with incredulity. Such, nevertheless, was the fact, for the Royal Prussian Porcelain Manufactory, at Berlin-Charlottenburg, has had in use for a number of years a Mendheim continuous gas kiln, which has proven a great success.

With the advance of still more modern principles in the handling of fuel, and the greater demand for economical results for producing cheap ware, we have found, especially among the manufacturers of the European continent, a great desire for the adoption of improved kilns systems. It was there that the principle of continuous kilns for the decorating of pottery was first investigated and put in use. All large potteries in Germany are equipped with one or more of such continuous decorating kilns, which have given excellent results. The main principle of these systems is the fact that at one fixed point the ware is burned to the required temperature, while it is advanced to this point



The Start of a Loaded Car Through the Tunnel Kilns.



The Arrangement of the Fire Boxes of the Glost Tunnel Kiln.

the new location, than to Red Wing. Under the new arrangement the capital stock of the company will be \$900,000.

The Fort Dodge Brick and Tile Company, south of Fort Dodge, is remodeling its plant and increasing the capacity to 50,000 brick per day; two new kilns, two new stacks, rebuilding the dryer and otherwise improving the property.

The Lehigh Clay Manufacturing Company has moved its headquarters from Lehigh, where their plant is located, to Fort Dodge.

The Lehigh Sewerpipe and Tile Company has completed the buildings near the town of Lehigh, eighteen miles from Fort Dodge, and is now installing the machinery in the new one press sewerpipe plant. This work was started September 3d last year, and the favorable winter weather has enabled the work to be pushed along at a lively rate. The main building is 252x80 feet, four stories high, with a basement. The machinery for the plant was furnished by Taplin-Rice-Clerkin Company, of Akron, Ohio. The estimated cost of the plant complete is \$200,000. The company has a fine bed of clay, which is so located that it can be delivered in the building at a very low cost. The officers are: E. J. Breen, president, Fort Dodge; J. D. Spaulding, vice president; G. A. Lyon, secretary; Chas. Larrabee, treasurer, and C. G. Finley, superintendent. The general offices of the company will be in Fort Dodge.

J. E. D.

either by chain or car system, which moves plates or baskets filled with ware.

In advancing this same principle, Mr. F. Faugeron, of Montereau, France, experimented a long time on this idea, and the results of his efforts was a tunnel kiln, in which the ware was put in saggars on small cars, which were moved at regular intervals towards a fixed point, where the actual burning took place. After being burned the car containing the burnt ware is gradually removed from the place of firing and cooled. As soon as the car leaves the opposite end of the tunnel from which it enters, the ware is burnt and ready for shipment.

The tunnel kiln is, therefore, an advanced point in burning of pottery. Mr. Faugeron has three of these tunnels in use at his pottery in Montereau, in which he is burning white ware. The firm of C. Tielsch & Co., of Altwasser, Germany, decided a few years ago to establish a fireproof pottery for the manufacturing of porcelain. While the principle for such a factory was fairly easy to establish, there was one difficulty which was not easy to overcome. It was the handling of the biscuit porcelain ware from the old style two-story kiln. It was decided that the adoption of the tunnel system would obviate the trouble which the story kiln pre-

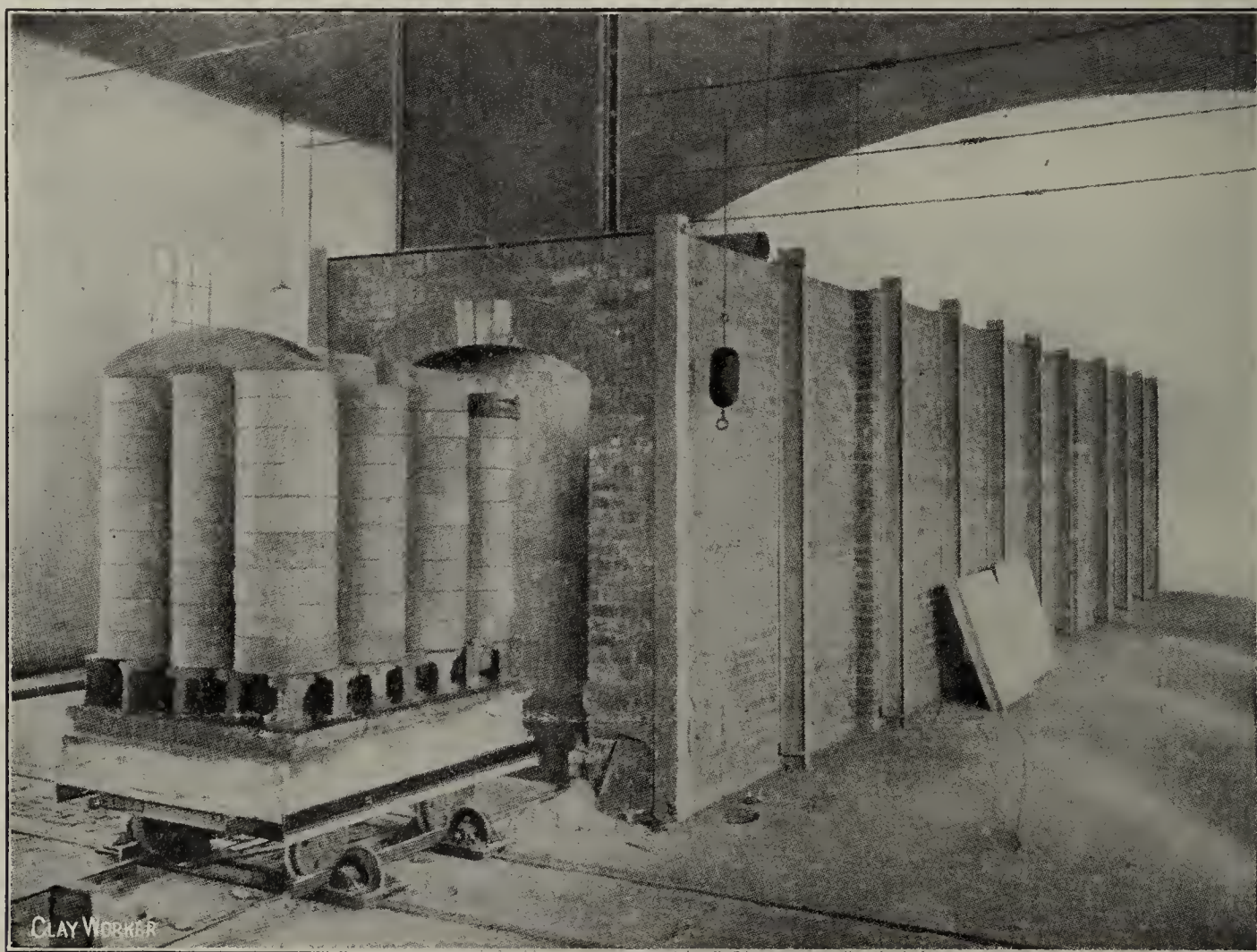
sented. Mr. George Faist was instructed by Mr. Tielsch to make the necessary experiments in order to get at the facts regarding the Faugeron kiln system. As Mr. Faugeron had only burnt white ware in his kiln, the burning of porcelain was purely experimental. The Tielsch Company made arrangements with Mr. Faugeron for the use of his tunnel kiln for these experiments. The firm packed several cars of green pottery, saggers, fire clay, and other materials, and shipped same, in addition to a car of their own coal, from Altwasser to Montereau, in France, for these experiments. After several successful tests in which it was proven beyond any doubt that it was possible to burn porcelain in this system of kiln, the Teilsch Company decided to install this system in their new plant, and Mr. Faist designed the factory accordingly.

The factory proper consists of buildings which are completely fireproof. It is built of steel and concrete, and the question of light has been solved in an excellent way. The main building is 165x65 feet, four stories high. In the basement are the plaster shops, and the model storage rooms,

room for the office employees. The whole factory is arranged according to the latest factory construction, and especial attention is paid to the interest and care of the employees.

In the plan arrangement of this factory we find one principle which can be strictly classified as new. In burning porcelain it is necessary to burn the ware twice, the first burn is the so-called "biscuit burn" and takes place at a temperature corresponding to cone 010, while the "glost burn" takes place at cone 15. In the old style periodical kiln, we find this burning done in one operation. The kiln is divided in two and sometimes three stories. In the first story the porcelain is burnt to its finishing temperature of cone 15, the heat from this kiln chamber goes through proper flues into the second story, where the ware is biscuit burned, and, when a third story is used, the saggers are burned in this third kiln room. This system necessitates a kiln shed with two floors. In order to have the whole operation on one floor, and have only a one-story kiln shed, the tunnel kiln system solved the problem.

It was therefore necessary to build two tunnel kilns. One



The Drawing of a Car With Burned Porcelain from the Tunnel Kiln.

further the clay cellars, and slip houses, the heating apparatus, and machine shops. There is also a room for the recreation of the employes. An elevator runs in the center of the building to the top floor. The jiggering and casting of the porcelain ware is done on the second and third floors, while the first floor is used for green ware storage and sagger making.

The kiln rooms are divided into the biscuit kiln room, the dipping and sorting room, the glost kiln room, and the warehouse with sorting and packing rooms.

The biscuit kiln room is 165x50 feet, with a total height of 24 feet. Skylights are exclusively used in all buildings. The dipping room is 32x130 feet, while the glost kiln room is 230x90 feet.

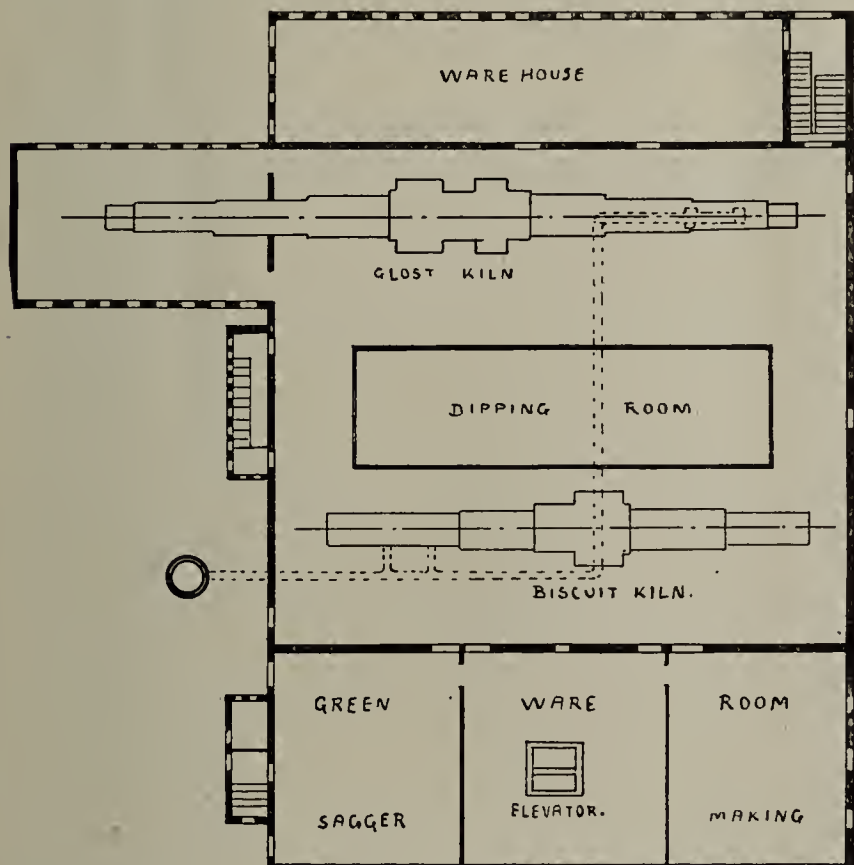
The warehouse is 165x50 feet, and contains, besides ample storage for all the different kinds of porcelain, on the second floor, a dining and wash room for the men, a dining and wash room for the women and girls, and also a separate

to be used for the burning of the biscuit ware, and the other one for the glost ware. According to "Sprechsaal" and "Keramische Rundschau," for which we are indebted for the information, the biscuit kiln is a straight tunnel and 135 feet long. The firing is done on both sides, in the middle part of the kiln. The ware is put in saggers on small cars, which are provided with fire clay tile bottom. This bottom moves in a fire clay slot, which is filled with fine grog and sand, and seals the tunnel, so that no fire nor heat can get to the wheels and the under part of the car. The cars move at regular intervals, and in that way the ware placed on these cars proceed to the point of firing. After they pass this point, they proceed in the cooling part of the tunnel. It is possible to move the cars with a speed of 35 to 40 minutes, but as the glost kiln is not large enough to keep up this capacity, the cars are moved with two hours intervals for the biscuit burns. There are 27 cars in use in the biscuit tunnel. Each car has a capacity of 88 cubic feet. The coal used

every 24 hours amounts to 6 tons, which, under ordinary circumstances, is not fit to be used for burning porcelain.

The tunnel kiln which is used for glost burning is 180 feet long, and has 36 cars. The cars are moved at intervals of one and a half hours, so that the capacity of the kiln is 16 cars every 24 hours. It takes a car 54 hours to pass through the tunnel. The capacity of the tunnel every 24 hours is therefore 1,412 cubic feet. An ordinary two-story porcelain kiln had about the same capacity. However, it takes from 5 to 6 days to burn such a kiln, so that the tunnel has 5 to 6 times greater capacity. It takes 35 tons of coal per 24 hours to burn the glost tunnel. In order to burn the amount of porcelain which this tunnel produced, it would take just twice as much coal in the old style kiln, consequently the saving is 50 per cent. of the fuel bill.

For handling this kiln it is found that four men can take care both of the glost and biscuit kilns. It takes about ten minutes to empty a car of ware. One kiln fireman or burner is necessary to look after both kilns. The kilns are burned with both seger cones and pyrometer. The pyrometer is used to maintain as near as possible the same temperature,



Ground Plan of the Royal Prussian Porcelain Manufactory.

while the cones are used on each car on top and bottom in order to determine when each car is finished burning.

Another point in which this system has its advantages is the sagger question. The sagers will last much longer, as they do not have to bear as much weight as in the old style kiln. The stands on each car are only five feet high, while in the old kiln they were from 10 to 12 feet high. The repair on the kiln is also less, as the firing is only done at one place, which forms only a small part of the kiln, and the whole tunnel does not wear out as fast as with the old style periodical kiln with its many fire boxes.

The ware which is burnt in this porcelain tunnel kiln is judged as good as any porcelain on the market, and is the best evidence that the kiln is a success.

THE FORBIDDEN APPLE.

A prominent scientist and archæologist says the Garden of Eden was in Mississippi and wants to prove it by excavating. If it is the forbidden apple he expects to unearth, he can save labor, as the negro will do for the forbidden apple for the South for some time to come.

Written for THE CLAY-WORKER.

MAINE BRICK NEWS.

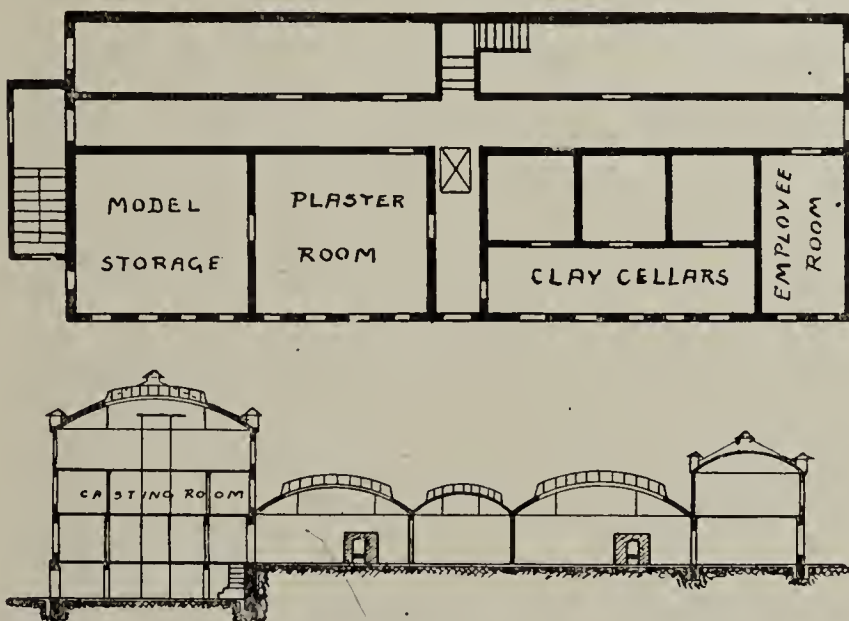
THE OUTLOOK for the brickmaker in Maine does not seem so bright as it has in the past few years. Nearly all the yards up and down the Penobscot and Kennebec valleys are stocked to overflowing, and the proprietors have begun their old-time tactics of cutting prices. Last fall the contractor for the new building that is to be constructed at the University of Maine, Orono, Maine, by the state, was receiving bids for bricks, nothing less than \$8.00 f. o. b, up and down lot. This spring they have already shown a seventy-five cent decrease.

The Bangor Brick Company, with its two yards, has nearly 3,000,000, while the Brooks Brick Company, in Brewer, has at least 2,000,000. John McDonald has 1,500,000 and the Getchell Brothers, in Brewer, who purchased the Burke outfit, have got about 1,000,000.

The lack of expert brickmakers in this vicinity discourages the manufacturer, because, with the ancient machinery, they can not handle the class of labor which presents itself.

Another problem which concerns the Maine brickmaker is the fuel. The pulp and paper mills have captured nearly all the spruce growth in the country and have begun to handle fir and are now considering hemlock as a fibre material, which has taken from the brickmaker his favorite wood.

Daniel Mullen, of Ashland, has retired from the business.



Sectional View of Casting Room and Kiln.

His yard will be closed, which will leave an opening for some plant.

The attention of the scientists is being turned towards the peat bogs of Maine, as a possibility for great business strides. These bogs lie adjacent to the railroads and are in close connection with the clay banks, so that it is not beyond the range of possibilities to see, in the near future, bricks manufactured and burned from peat gas.

In addition to these experiments that have been made with the Maine peat it is proved beyond question that it produces an excellent fibre for the manufacture of paper.

Cyrus W. Stackpole, of Bangor, has discovered on the coast, in Washington County, a material suitable for the manufacture of a high-class of buff colored brick. Mr. Stackpole is a mineralogist, and it is through his research that the molydenite mines on Catherine Hill, Franklin, were discovered. A German syndicate, having taken the matter in hand, is already mining this peculiar metal. It is certainly a strange fact that it was a brickmaker who attracted Mr. Stackpole's attention to this particular locality for his research. The brickmaker, writing a fake story for a newspaper, set his plan near this hill, the story appearing throughout New England under the head of "The Mystery of the Lost Lead Mine."

Getchell Brothers, brick manufacturers of Brewer, intend to install new machinery this spring.

SILAS.

FIREPROOF CONSTRUCTION.

Paper Read Before Various 1908 Conventions of Architects and Builders, by F. W. Fitzpatrick, Architect, Washington, D. C.

Mr. President and Gentlemen:

THE SUBJECT ASSIGNED me is generally deemed one that is more or less involved, mysterious, and, indeed, there are some who contend that there is no such thing as "fireproof construction." As a matter of fact, the whole thing is simplicity itself. A few, very few, cardinal principles have to be observed, and, if properly observed, you have the positive certainty that the structure that is the scene or field of their observance will afford absolute protection to the lives of those within it, as absolute protection to the major part of its contents, and that the structure itself, can only be damaged by the intensest fire to a very small percentage of its cost; in other words, you will have what is really and truly a fireproof building.

Some of you may not like this paper. In it we will not only touch upon this method of construction, but we will go farther and roundly scold the architects and engineers for not having done more of it. Indeed, they deserve more than a scolding, arraignment at the bar of public opinion on the charge of culpable, criminal neglect.

No nation on earth, civilized or uncivilized, submits to the cruel, senseless and sinful fire losses that we do every year. We seemingly build but to burn, and it is not only millions of dollars in property that is consumed, but hundreds of human lives are also wiped out in the operation. Owners of buildings are primarily to blame, but more as mere accessories before the fact than as principals; the builders may do their work more or less shoddily, and ought to know how to build better than they do and so, too, are to blame, but simply as accessories. It is their business to build as they are directed. The owners do a certain amount of direction, granted, but they are not supposed to know much about construction, and, as it turns out, don't even have sense enough to sanction that which will best conserve their selfish, personal interests. Our lax laws and more or less superficial enforcement of the few good building regulations we do have, also come in for a fair share of blame in this fire matter. But away above and beyond everything else blamable is the architect or engineer, or the combination of them, who direct building. It is their business to know what is right and what is wrong. They are paid to know, and they occupy a semi-official position that should inspire them, or compel them to give the community, as well as the individual clients they serve, the best that there is in them.

The results of their labors are neither edifying nor satisfactory. Shall we say the causes lie beyond our control, and that we are but victims of circumstances, or shall we frankly admit that inexpressible stupidity lies at the bottom of the trouble.

Let us see what we have accomplished in the direction of fireproof construction in this country. Roughly speaking, we have nearly 12,000,000 buildings. Of that great mass of construction, we have one building that we can call positively and absolutely fireproof as to every item and detail; perhaps twenty-five in which everything possible has been done but where, nevertheless, the contents of an entire story may be totally destroyed; then we have at most 4,000 buildings that by courtesy have been called "fireproof," but in which human life may be sacrificed, and in which the greater part of the contents may be destroyed, and, furthermore, the structures themselves may be damaged by fire all the way from ten per cent. to eighty per cent. of their cost value. After that we have possibly 5,000 more buildings of allegedly "show burn-

ing," "semi-fireproof," and other makeshift construction. But all of them and possibly 99,000 more are occasionally or always referred to as "fireproof." Is it any wonder that people have grown skeptical of the term? Why, bless you, appalling effrontery is resorted to in that direction. I have seen a hotel building of wooden construction, veneered in brick, but painted over with some patented truck or other, and advertised, extensively patronized and generally thought to be worthy of special recognition because of its strictly fireproof qualities. In spite of our wonderful advance in so many sciences, we remain a wooden people. Even in this last year of grace, 1907, sixty-one per cent. of all the construction carried on in the United States was of wood, well-seasoned fuel for future fire.

In that same year we did a vast amount of building; in fifty-five of our leading cities the total reached was \$580,000,000. But, in that same space of time, we also burnt up in that same number of cities, \$215,000,000 worth of property. Plus that, our fire departments, water service and those alleged cures for fire, cost us another \$200,000,000 and more. Then, we also paid out over \$195,000,000 to our gambling friends, the insurance people, who always accommodately bet with us on the question of fire. We paid that out in premiums, and we got from them in return \$95,000,000 to apply on the \$215,000,000 of fire waste. A simple addition will show you the terrific cost of fire in this country. No other tax equals it. No other waste of a frightfully prodigal people comes within a stone's throw of it, and yet we pat ourselves on the back and say we are the most progressive and sensible people on earth.

When stating a minute ago that fireproof construction was simple, I should have added that while there are only a few things to see to, every one of them must receive attention. Build ninety-five per cent. well and five per cent. stupidly, and you have vitiated the whole 100 per cent. Take San Francisco as an illustration; in the big so-called fireproof buildings there they did a goodly part of the work well, or at least fairly well, but undertook to save on the window protection. By that wonderful foresight and economy the architects left perhaps \$60,000 in the pockets of the owners, but that little economy was the direct cause of just about \$10,000,000 loss in those structures. In not one of them did fire originate; they were all attacked from the outside. Had their windows been protected with wire glass, or other adequate protection, the only damage they could have suffered would have been external. As it was, the insides were completely gutted, and the structures themselves were damaged, some as much as eighty per cent.

Remember this, that a building that is of incombustible materials is not necessarily fireproof; that a building of fireproof materials, but not intelligently put together, is not fireproof; that a building that is of fireproof construction and design in part only is not fireproof; that a building of strictly fireproof materials, but not designed in strict accordance with all the principles of fireproof construction, may have a most destructive fire in it, its contents, though it will not be wrecked or very materially damaged in itself; and that if a building is properly designed and properly constructed only a very small portion of its contents, those in some one unit of space in which fire originates, may be damaged, and at the same time it will suffer no ill effects in its own structure.

Now, then, those are simple enough principles, but it is heart-breaking to see how seemingly little they are understood by the majority of architects and engineers. We speak learnedly of the modulus of elasticity, the moments of inertia, lateral strains, and all that sort of thing, and we certainly do put up most substantial and scientifically correct steel frames; and we know just how far to go into the ground with our concrete piles and caissons, and we are a most learned and able lot of fellows, but we fall down most pitifully

on some one detail or other in nearly every building, and that one slip is often sufficient, and more than sufficient, to annul all our good efforts and to vitiate the whole blessed building. It is more than distressing to see a million or more dollars put into a great structure, with a wondrous and intricate steel frame, beautiful marble columns, mosaic floors, superb decorations and all the artistic luxuries that the heart of man could desire, and to then have the architect leave his elevator shafts open or a window unprotected at some vulnerable point, or any one of those foolish little oversights, that, nevertheless, is just enough to imperil the safety of everyone and everything in the building!

So far, the average architect, by some subtle process of reasoning or other, seems to have satisfied himself that he had done all that was to be done in fireproof construction the moment he put fireproofing tile or concrete arches between the floor beams of his structure. That one act, to his mind, gave immunity to all else. He could leave the steel members unprotected, he could plaster his entire interior over with wooden finish, he could build tile or brick partitions on top of the wooden floor finish, and could run the whole gamut of constructive assinnities and yet be safe, because, forsooth, he had what he termed a fireproof material in his floor construction. Of such was the Parker building in New York. And the result? Two million dollars of loss, everything that was in the building wiped out of existence, four lives lost, and the structure itself damaged to a not yet determined percentage, but certainly at least fifty per cent of its cost!

We have noted the basic principles of fireproof construction. Let us spend a minute or two with the sub-divisions of the matter, the detail.

If every building in a city were not absolutely fireproof, but only incombustible, that, paradoxical as it may seem, would be about all that was required. But we have built so shoddily in the past and our cities are in such constant and imminent danger of conflagration that when we do build a really fireproof structure it has to be superlatively well done to be calculated to withstand the terrible test to which at any moment it may be subjected. If your proposed fireproof building is surrounded by firetraps, and is exposed to external attack, it is foolish indeed to use granite or marble, sand or limestone, or concrete, or any other imitation stone facings. All of those are affected, damaged by heat, and more or less readily disintegrated. Well burned brick and well made terra cotta decoration are the best materials to resist intense heat, for they have already passed through far greater heat in their manufacture than they can ever be subjected to by even a conflagration. No exposed metal work of any kind should be tolerated on the exterior of a building, particularly where it exercises any structural function. Your windows and skylights should be of metal sash and wire glass. If you want to put on shutters, then do it, too. And your building must be remote from others, indeed, for you to be reasonably sure that it can not be attacked from the outside. In Baltimore and San Francisco, it was no extraordinary feat for fire to leap 150 feet, and even more, from one building to another. Remember, too, that seventy-five per cent. of all the damage done by fire to buildings, other than that in which it originates, is via the window route, and, further, more than forty-eight per cent. of the entire fire loss of the country is traceable to the lack of window protection. Most of our cities have learned their lesson, and compel that all buildings of any considerable height shall be steel framed. Every particle of that steelwork must be thoroughly painted and coated with cement, protecting it from rust; then it should be amply covered and in every detail with brick or hollow tile fireproofing. Your columns and your girders must be made proof, not only against fire, but against the uncovering by

abrasion, or otherwise, of any portion of the steel framework. Your floor arches should be of brick or hollow tile, of sufficient thickness, with plenty of soffit material and your partitions should be of the same material and resting on the floor construction, and not on wooden sleepers or any flimsy concrete filling. In lower buildings, if you insist upon it, and believe that by prayer and much wakeful attention you can supervise every detail of it, then use reinforced concrete. At the very best, in its most perfect state, it is an extra-hazardous material with which to work, subject to all the ills of other materials and workmanship and uncounted ones of its own. But if you do use it, be sure to get two or three inches of concrete outside of any reinforcements as a protection thereto, and then put on some tile or wire lath and plaster, something, anything to keep fire as far away from it as you possibly can. To call any material fireproof that loses fifty per cent. of its efficiency in 750 degrees of heat is nothing less than just plain, false, impudent pretense. Your elevator and stair wells should be enclosed in fireproof shafts, whose doors are fire doors and self-closing. Thus and thus only does each floor become a separate unit, virtually a building by itself, and not a menace and source of danger to every other story in the building. Further, each story should then be cut up by fireproof partitions and doors into as many and as small units as possible. The smaller they are made, the smaller space to which fire may be restricted if it should break out. Great open courts, as in our department stores, mean ultimate disaster, and it is only a question of time, gentlemen, when we will have to record the destruction of hundreds, if not thousands, of lives in some one of our great metropolitan department stores. What is said about stairs and elevators applies to the running of pipes and all that sort of thing vertically through the building. Such shafts must be closed off from the stories. The main stairway should abut directly at the main entrance, and thus serve as the most natural and usual escape in case of real danger or panic. The finished floors had better be of marble or cement or some other material than wood for sanitary as well as fire reasons. Let your interior decoration be in colors if you can not afford marbles and metals, but in heaven's name, cut out the wood!

Such a building and such a building only deserves the name "fireproof." But even in that if there be many and combustible contents, you must have fire appliances, watchmen, alarms and all that sort of thing, so that fire occurring in any one unit of space may be quickly extinguished. The chances are nine hundred and ninety-nine to one that the fire will burn itself out in that space, but don't take that chance.

The cost of such a building is not prohibitive. Put fewer gewgaws and flounces on the exterior. Why is it that when it becomes a question of cutting down the cost of a proposed building the fireproofing, its safety, is the first one to go under the pruning knife, and the fine marbles and fol-de-rols of the outside, are the last to be touched? But supposing the first cost is ten per cent. or twelve per cent. higher than that of ordinary construction. Your fireproof building will have cost you actually less than would have the other in five years' time, and it is still a permanent and good investment, while the other one would continue deteriorating at an ever-increasing and high ratio. If you are building only for tomorrow, if you are a "speculative builder," and want the thing to look well and pass muster until you have unloaded it on some poor, unsophisticated wretch, then build as flimsily as the law and your conscience, if you have one, will permit you. But to no one else is poor construction profitable, look at it in any way you wish.

And now, gentlemen, we have glanced at the materials and the general systems of fireproof construction, and there is but one more thing to do to secure a really fireproof building, a thing or virtue or quality that doesn't seem to have been used or exercised to any very alarming degree in the past, but that, surely, is not beyond us. It should be used in putting all these things together. It is what is most often referred to and the least put into practice. Yet it is very, very simple. I refer to plain, ordinary, COMMON SENSE.

Written for THE CLAY-WORKER.

THE DENVER PRESSED BRICK CO.— ITS PLANT AND PRODUCT.



MANUFACTURE OF CLAY PRODUCTS in Colorado is of no great importance compared to that of many other states. This, however, especially in commercial lines, is not due to lack of raw materials, but rather to the fact that there is very little demand for clay products in the State.

Denver consumes more brick than any other city in the State, and consequently has more brick plants. Among the best and oldest plants is the Denver Pressed Brick Company's plant.

This plant was built by S. M. Morrison and his associates in 1884. It was originally started as a stiff mud brick plant, but the clay did not prove suitable. Dry press machinery was put on the market about this time, and was tried and proved a great success with the clay available at this plant. The old Kennedy press was first used.

At the end of twenty years, i. e., in 1904, a new company was formed, with E. S. Morrison as president, H. L. Mor-



The Denver Press Brick Company's Clay Field.

ison, vice president, W. D. Hitchcock, secretary, and W. Morrison as treasurer, R. D. Lindsay having the position of superintendent. The plant was enlarged and improved to a great extent and a variety of brick produced.

In February, 1905, the buildings were burned, but rebuilt immediately, so that the plant at present is strictly modern and first-class. Mr. Lindsay, who designed the new plant, had been with the company for some years, so that he was thoroughly familiar with all the defects of the old plant, as well as the character of the clays and local conditions. He is a very well informed and experienced brick man and has entire charge of the manufacturing. The business end of the company is handled by Mr. W. D. Hitchcock, the secretary.

A Splendid Location.

The location of the plant is ideal. It is situated at Sixteenth and Clay streets, about three-quarters of a mile from the heart of the business district, and on the Colorado and Southern tracks. The main body of clay for red brick is directly behind the plant, and slightly above it, so that hauling is down grade and easy. For light brick, as buffs, speckles, etc., the clay is hauled about twelve miles, but

railway facilities are good, as well as the market price of brick.

Coal is obtained from both Colorado fields. The lignite comes from the northern fields, which are about twenty miles north of Denver, and the bituminous coal comes from the Walsenburg, or southern fields, which are about 175 miles south. To most eastern manufacturers these conditions would not seem very good, but locally they are at least as good as any other brick plants. Those that have



Bird's-eye View of the Denver Press Brick Company's Plant.

better raw material conditions are further from the market and have heavy freight rates.

The company owns its own property, not only where the plant and local clays are, but also has nine hundred acres of land where the buff clays occur. This is about twelve miles from the factory, and about three miles south of the town of Golden. It is a well known clay field in Colorado and is very peculiar in its geological formation. It is in



The Clamp Kilns of the Denver Press Brick Company.

the foothills of the Rockies and occurs in perpendicular strata.

Between the strata of clay, which are from four to ten feet wide, are strata of sandstone and other foreign materials. In mining, the foreign materials are left standing and the clay is taken from between. It is necessary to timber horizontally by placing small logs across from wall to wall. The clay is a plastic buff burning clay, very similar to the common familiar stoneware and number two

fire clays. When used for brick it requires about cone six for proper hardness. There are several qualities from nearly white to darker buffs, which are easily flashed and more ferruginous.

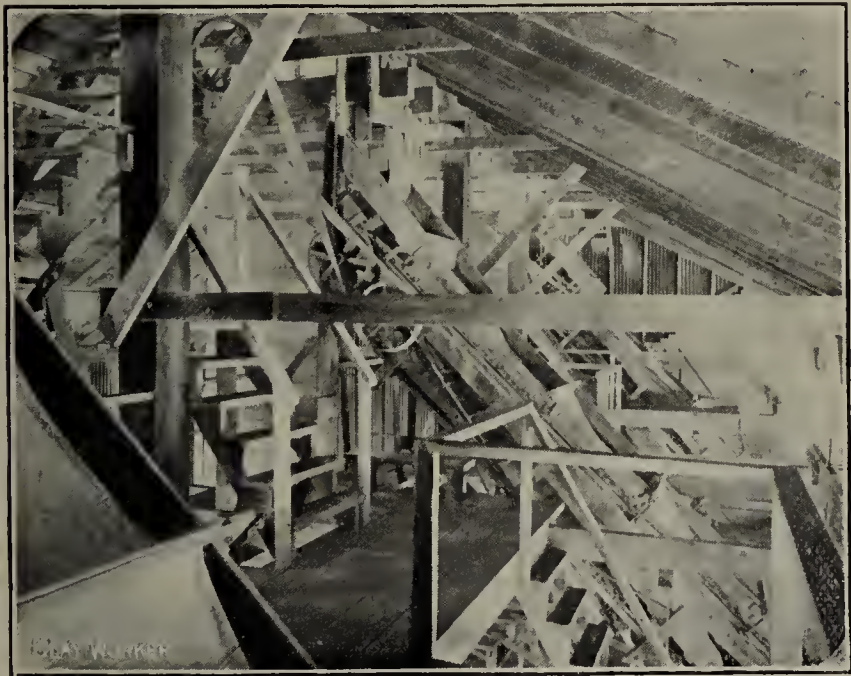
The local clay occurring some four hundred feet behind the plant is about forty to sixty feet above the level of the dry pans; it hardly deserves the name clay. In fact, it is merely a rather fine grade of sand bonded together with a small amount of clay or "adobe." It is remarkable for the



The Denver Press Brick Company's Dry Pans.

evenness of its structure and quantity as well as the ease with which it can be gathered. The men about the plant call it dirt and it surely deserves no better name. A visitor would hardly believe it possible that brick could be made from such material, and could be convinced only by actually seeing brick made from it.

The gathering of the clay is very simple. To start with, the bank, which is about twenty feet high, is arrow shaped;



A Glimpse of the Clay Screens and Elevators.

that is, it has two exposures which project out and meet at a point. One exposure is southeast, the other northeast. The southeast exposure is used in winter and the northeast in the summer. This makes it possible to have the clay of about the proper dampness all the year round.

A very pleasant thing for the neighbors, and a cheap one for the company, is the fact that no shooting is necessary. One man can get down enough clay to keep a press going and the way he does it is rather unusual. First he goes

to the base of the bank and undermines it to a depth of about three feet and along the bank as far as he desires in order to get down sufficient for the day's run. Then he goes up on top of the bank and drives steel wedges down about four to five feet deep and about three to four feet back from the edge. This will drop the whole bank as far as it has been undermined, leaving a new face almost vertical. When the loose clay drops it is broken up, so that shoveling is made very easy. There is no sorting at all, as the clay is very homogenous and no foreign surface earth.

The clay is then hauled in two-wheeled, rear-end dump carts of about one yard capacity, down a slow grade to the dry pan chute. Sixty tons, or enough clay for 20,000 brick is gathered by the underminer, two teamsters, and one helper. An elaborate series of tracks and dump cars were installed at one time, but were taken out, as the company was convinced that their present simple method was much better and more economical.

The chutes which feed the dry pans are inclined at about forty-five degrees and are about twenty-five feet long. The clay drops down the chutes onto a platform or shoveling floor right at the pans, so that it can be shoveled into the pans direct by one man.

There are three pans, two under-gear, seven-foot Boyd



A Section of the Clay House.

and one over-gear, Frost pan. All three pans are equipped with scrapers. These scrapers are not unfamiliar to the average clayworker, but, nevertheless, a description of them is worth while. At this plant they used to have long chisel-ended crow bars, or flattened pipes, which the pan operator would hold down against the slotted pan plates in order to scrape away the clogged clay. This worked very well, unless a nut or some other protruding object struck the end of the bar, when the operator received a rather sudden jar. To overcome this danger, a long iron rod of about six to eight feet was bolted at one end by a swivel joint onto the rear cross iron which holds the regular scraper which throws the clay under the muller. The other end reached out horizontally across the pan to the operator's platform. At the proper distance along the bar a scraping iron was bolted down perpendicular to the bar, so that the operator could grasp the loose or handle end and by moving it along slowly from left to right scrape the entire plate surface. If a protruding object struck the scraper it would merely lift the scraper without causing a violent jar.

After passing through the pans the clay is elevated in the usual way to the screens. The elevators are forty-four feet high and dump onto sixteen-foot Dunlap screens of the

usual type. The tailings pass back again to the pans. Most plants are apt to be built with just enough room for the machinery to be placed and hardly working room around. This plant is constructed so that every working part can be easily reached and ample space around it, so that the repairs can be made.

The screened clay drops into round, flat-bottomed bins on the second floor directly above the presses. These bins are fed on the outer edge and the clay is slowly drawn into the center, where the feet chute for the press is located, by means of a drag which runs around on the surface of the clay. This drag is pulled by means of long chains, so that it is always resting on the surface of the clay no matter how full the bin may be. On the bottom of the drag are flat steel blades, so arranged that at each revolution of the drag they force the clay toward the center and also mix it up more thoroughly. These mixing bins are a common affair, but the ones at this plant were made only after it was found that the clay coming from the screens direct varied in quality too much to go to the press. The slow mixing process overcomes this. The drag also eliminates one man to feed if only the bin is used.

There are four presses of four molds each. Two of these are Boyd and two Berg, of the usual types. The three pans



The Denver Press Brick Company's Four Dry Presses.

are hardly sufficient to run all the presses, so that all are seldom running at one time. The press room is very large and has a cement floor and large exit doors, so that everything is convenient for rapid trucking.

The kilns are arranged in a letter T, the vertical part running parallel to the main line of the press room and the top or horizontal part stretching out perpendicularly beyond one end of the building. The vertical part is composed of seven clamp kilns of 350,000 capacity each, the top part consisting of four round, down-draft kilns of from 75,000 to 105,000 each. Two small kilns of 5,000 each are also on the yard. All kilns have brick pavements around them and good working space. The clamp kilns are of the usual type. The round, down-draft kilns are of various familiar types, as single and multiple stacks, etc., each one probably built with the hope that it would be better than those preceding it.

The clamp kilns are used for the local red clay, which is left in the kiln after firing and loaded directly to the wagons. The round, down-draft kilns are used for light speckled buffs, etc., and the brick after firing are drawn, sorted, and stored in the usual manner.

All special shapes which can not be stacked face to face are fired in the muffle kilns. The company tried the usual way of firing in protected parts of the regular kilns, but

found the present way very much better. Although more expensive, the loss was so decreased that it proved more economical. One of the muffles is a rectangular kiln, while the other is round and very similar to the usual terra cotta kiln.

The burning of the buff clays has no unusual features, but the local red clay has very marked peculiarities. To start with, the clay fuses to a slag at an unusually slow heat, so it has a very short range where hard brick can be obtained. It dries very slowly. This seems very unusual, considering how sandy the clay is. The writer was informed by Mr. Lindsay that it required four weeks to dry out and water smoke a kiln and one to fire it. This would mean three weeks to set, four to dry, one to fire, one to cool, and perhaps one to draw, or a total of eleven weeks, or nearly three months. This is an unusual length of time and means a great deal of kiln space to keep the plant in operation.

The power plant is first-class. One interesting feature is the 80 h.-p. Corliss engine, which was made in Denver by the Jackson Manufacturing Company. It has been through one fire and is still in first-class condition.

The plant is equipped with an up-to-date machine shop, where all the liners are made, also all the special shaped dies. A local modeler executes the shapes and bronze castings are made from plaster patterns and finished at the plant. This machine shop gets its power from the main plant, but is so arranged that an electric motor can be thrown on and the shop run at night, or overtime, on city power at a low expense.

The output of the plant is dry press brick entirely, but the range of colors and shapes is very good. The red brick are very rich in color. The light brick range in color from nearly pure white to dark flashed brown in both speckled and solid shades. The special shaped brick are of many kinds and of a highly ornamental nature.

During the last year the product was shipped throughout Colorado, also to Kansas, Wyoming, Texas, California, and Nevada. The grade of brick made by this company is, without doubt, one of the best in the State. F. H. RIDDLE.

FIRE'S AWFUL HAVOC.

NO NATION ON EARTH builds as much as we do, but neither does any other nation have to build so much. Our much vaunted rapid growth and phenomenal building booms give a false impression of the real conditions. Nearly 50 per cent. of all our new buildings go simply toward filling up gaps made by fire. In the past twenty-five years we have burned up \$3,500,000,000 worth of property; we have wiped 1,000,000 buildings out of existence in less than 10 years. In Boston, \$1,500,000 is a small yearly loss—in the average European city of that size, \$150,000 would be more than the usual yearly loss. It is a disease.

Millions are spent yearly in handling the disease after it breaks out, but only hundreds of dollars in steps to prevent its outbreaks.

A really fireproof building is not only possible, but really inexpensive and easy to accomplish. All the steel work and structural portions should be protected from rust with cement, and then amply protected from fire by hollow fireproofing tile. The stairways and elevators should be enclosed, and wooden and other combustible finish should be eschewed, and the windows should have metallic or asbestos sash, and be glazed with wire glass. Seventy-three per cent. of all the damage done by fire to buildings other than that in which it originates is attributable to improperly constructed windows. More than 48 per cent. of the entire fire loss of the country is traceable to the lack of window protection, and wired glass is the best means of securing immunity from external attack.

All this and the use of one other material in building, and that has been but little used before—intelligence—and there will be obtained an ideally fireproof building.—Appleton's Magazine.



SALT-GLAZING TILE.

THE first requisite is a clay that will withstand a sufficient heat, and a crowned kiln. The tile are set as usual and treated in every particular as is done without glazing until the tile are brought up to the heat sufficient to secure a good burn, then on the last fires throw into each fire a common small shovelful of salt, passing around the kiln twice, using a shovelful each time for each fire, then quickly close the kiln at the bottom and top, and let it stand for a few hours and the work is done. If the tile fail to glaze it will be on account of insufficient heat, or, if the tile melt down before they take a glaze, then it is an established fact that the clay will not take a salt glaze because it will not stand the requisite heat.

If drain tile are burned to a vitrified body, are straight, ordinarily smooth and uniform, they are good enough for all practical purposes without glazing.

The only claims that can be urged for glazed tile, in contrast with unglazed tile, equally well burned, are: The less resistance of the inner surface to the flow of the water, the less wear of the hands in handling them, and their better appearance. If the clay will take a salt glaze the expense is a small matter, requiring only about two bushels of salt to an ordinary-sized kiln, and a little experience in the process, that is all.

CAPACITY OF DRAIN TILE.

When the number of acres to be drained and the grade of drains is known, to determine the size of tile to be used to drain a given number of acres, using Latham's table for the flow of water through earthen pipes, in part, as a basis, the following estimates of acres are made:

One foot fall in 100 feet, a four-inch tile will drain eight acres, a six-inch twenty acres, an eight-inch fifty-six acres, a ten-inch eighty acres, a twelve-inch 120 acres. One foot fall in 200 feet a four-inch tile will drain six acres, a six-inch eighteen acres, an eight inch thirty acres, a ten-inch tile sixty acres, a twelve-inch 100 acres. One foot fall in 500 feet a four-inch tile drains four acres, a six-inch twelve acres, an eight-inch twenty acres, a ten-inch fifty acres, a twelve-inch eighty acres. Statistics show the maximum rainfall to be about one inch per hour, except during very heavy and uncommon storms. One inch rainfall per hour gives 22,633 gallons per hour for each acre, or 377 gallons per minute per acre.

Experience shows, that, owing to absorption, evaporation and various obstructions, not over fifty or seventy-five per cent. of the rain falling will reach the drain the same hour. Due allowance should be made for this fact in determining the size of pipe required, as severe storms are of usually short duration. The depth of the drains and the open or close character of the earth, soil and subsoil have much to do with the rapidity of flow of water in passing through the earth to the drains.

The laying of the tile evenly jointed with a regular fall also has much to do with the capacity of the drains. The foregoing estimates, compared with Latham's tables, have been reduced from one-fourth to one-third in acreage, for the

reason that tile that are larger than is absolutely necessary to drain a given number of acres are preferred to tile that are too small to do the work well, which is especially true of clays that puddle or run together when filled with water, compacting so that the flow of the water into the drain is practically cut off, and this is not an uncommon trouble. There are areas where the clay will puddle if the line of saturation or level of the water in the earth rises above the line of the drain, so as to stop the efficient working of the drain for a time, and the owners wonder why their drains do not work better. Tile that are too large for normal conditions will take the water as fast as it reaches the drain and prevent the puddling of the earth, above referred to, when tile that are a size or more too small will add to the want of efficiency of the drains.

It is better to err on the side of using tile that are large, rather than tile that are too small.

PUT IT UNDER GROUND.

A correspondent writes: "I have a large open ditch through my farm that is very much in the way, and requires quite a deal of labor to keep it open, besides, weeds, briars, and bushes will grow along the banks. When heavy rains fall the volume of water seems too great to be confined to a tile drain. The ditch is about three feet wide at the bottom and six feet across the top and three or four feet deep." Answer—Put it under ground. A twenty-inch or two-foot tile, if well laid, at a depth of four or five feet, will carry the water of all ordinary rainfalls. If floods of water come the water may in part run over the surface for a short time, but the surface will soon be relieved by the large underdrain, and the work of cultivation can go on. However, you will be surprised at the amount of water that will flow through a well laid twenty-inch drain, or a drain or less size.

It will cost something, but the use of the land and the use of farm machinery in harvesting your crops without hindrance, and the riddance of the weeds and briars, will repay you very soon for the cost of constructing a drain to put the water underground. Again we say, "Put it under ground."

OBJECT LESSON IN DRAINAGE.

TWO OR THREE MILES from Boonville, in Warrick County, Indiana, there are stretches of level white clay lands. The soil runs together and becomes very compact, and when dry is hard and difficult to plow. Much of this land was brought into cultivation twenty-five or thirty years ago, and for a few years was fairly productive, yielding twenty-five or thirty bushels of corn, and from ten to fifteen bushels of wheat per acre, but for years has not yielded so much. Indeed, some of the land has been turned out as unfit for cultivation. A year or more ago a Mr. Hoggatt, of Boonville, purchased three hundred acres of this land at a very low price, and then bought a steam tile ditching machine and put it to work on the land, constructing a thorough system of drainage as much as four feet deep, laying the lateral drains three or four rods apart. The good people looked on with an occasional remark of discouragement: "He is burying his money, sure," or, "That land will be worth nothing after he puts in the tile," "He is bound to bust." His bankers advised him to give up the job and much such advice was freely given, but he had the courage to go on with the work of planting drain tile until he had drained quite an area of the land. A year ago he had a part of the tile-drained land broken and planted in corn. The soil was easily prepared for planting, and the cultivation of the crop was alike easy, and the yield very satisfactory, from fifty to sixty bushels of corn per acre. A few acres was

sown to timothy the fall before, and the yield was marvelous to many of the old settlers.

Mr. Hoggatt is progressing with the work of drainage and will soon complete the thorough drainage of the entire tract. When done, he will have the foundation for a good farm well laid, and a most profitable investment of labor and money, that will return him an annual interest in the increased yield of the crops, over-topping bank and other stocks as an investment. His good neighbors wonder why it is that drainage does so much for that poor land and are hardly willing to give it credit. But, with all, it is an object lesson that will increase in importance as the years go by. The good people will probably be slow to act—the younger generation will most likely profit by it.

In traveling through this state and other states, we see thousands of acres that need such drainage to make the cultivation of such land remunerative. Good farm lands are selling for \$100 per acre, even more in some instances; then why not invest in some of these lands in which there

Written for the CLAY-WORKER.

VITRIFIED BRICK PROVES THE BEST ALL-AROUND PAVING.

FOUR-INCH SHALE BRICK have been found to be the cheapest and best form of paving material used in Cuyahoga County, of which Cleveland is the county seat, according to a careful examination made of different road making materials by R. B. Lea, county engineer. This county is rich in funds and can spend just about what it cares for pavements. The county has 122 miles of its country roads leading into the city splendidly paved with brick and other substances. But of all the tests which have been made four-inch brick seems to have carried off the prize.

An accompanying table clearly shows that in both cost and maintenance brick is cheaper than any other form of paving material. While brick is not so noiseless as some other more perishable materials, it has been found that farm-



A Sixteen-Foot Brick Pavement on West Madison Ave., Several Miles Out From Cleveland. Note the Difference Between the Brick Pavement and the Ordinary Roadway.

are great possibilities in the way of improvement, by tile drainage well done.

It is remarkable that so few of those who are convinced as to the benefits of tile drainage do not have the courage of their convictions to the extent of doing thorough work on even a few acres of their land, to test the wisdom of such an investment of labor and money. They admit that it is probably a good investment, but go no further.

DRAINAGE APHORISMS.

Tile drainage will last as long as the tile last if the work is well done. Lands that suffer most from drouth are benefited most by draining.

In order to have a field of uniform conditions, as to moisture, temperature and fertility, it is indispensable that it should be thoroughly underdrained first and then dressed with manure as the needs of the soil may demand.

ers have no objection to it because their houses for the most part are back from the roadway, where noise does not disturb them.

A splendid work has been done in Cuyahoga County in making passable its main arteries leading into a big city. In the county there are now ninety miles of brick pavements, twenty of macadam, eight of bitulithic, four of asphalt, four of gravel on a macadam base, and twenty miles of plank roads, which are soon to be repaved with brick.

In the first experiments made by the county the brick pavements were constructed only eight feet wide on a six-inch macadam base. The drainage problem was not taken into consideration, and these early pavements have cost the county heavily for maintenance. The present method is to build the roadways fourteen feet wide, so that two vehicles can pass abreast. A four-inch macadam base is being used, and careful drainage is provided by two ditches, one on either side. The road is graded thirty feet wide between these, thus providing a dirt road at one side of the pavement, for it has been found

that the farmers prefer to drive on it when it is passable. The curb on the pavement next the ditch is of Medina stone, while the one next the ditch on the dirt section is of Berea or Amherst sandstone.

The county pursues a strict system of inspection when the roads are building. Daily reports are submitted to the chief engineer, who is thus able to keep a line on paving operations throughout the entire county.

It has been found that brick can be used profitably in Cuyahoga County because of the large number of paving brick yards located there. The county is spending about \$500,000 a year on improving its roads, which are all being permanently paved as money becomes available. This sum includes the 25 per cent. assessable to adjoining property owners. It is estimated that in another three years all the main roads leading into Cleveland will have been paved to the county line. Work on the cross roads will then be started.

An interesting comparison is found in the prices of different paving materials in Cuyahoga County, compiled from bids submitted during the season of 1907. First quality Medina

Perhaps it is because the city pays about nine-tenths of the county taxes, and perhaps it is because the farmers believe that the 25 per cent. of the cost is well expended when they are given smooth, clean, passable roads over which they may haul their produce to the door of the hungry city man, who is willing to pay good prices to the farmer for his stuff.

In all it is planned to add thirteen miles of pavement to the county's already large area during the coming year. Brick will be used exclusively, for it has been found to be cheapest in original construction and most economical in maintenance.

Table Showing Cost of Construction and Maintenance of Different Pavements, Showing Brick to be Most Economical.

Estimated life of pavement, in years:

First Quality Medina....	30	Asphalt	8
Common Medina	25	2-inch Bitulithic	15
4-inch Creosoted Block...	20	2-inch Tar Macadam	15
5-inch Brick	25	Macadam	3
4-inch Brick	23		



A Fourteen-Foot Brick Pavement on the Berea Road Running Out of Cleveland for a Distance of Fifteen Miles.

block has been quoted at \$3.25, as against \$2.85 for common Medina. Four-inch creosoted wood block costs \$3.15. Five-inch vitrified paving brick are quoted at \$1.65, while the four-inch, which is used almost exclusively by the county, is quoted at only \$1.25. Sheet asphalt costs \$1.60, two-inch bitulithic \$1.75, two-inch tar macadam \$1.50, and four-inch macadam wearing surface 50 cents. These prices include labor and material, sand cushion, rolling, grouting, etc., but do not include grading or concrete base.

Extensive plans are being made for the continuation of paving operations in Cuyahoga County during the season of 1908. Fischer, Dille, Canal, Shunpike and Pear roads are all to be paved. The county has already \$275,000 on hand for the work, in addition to the 25 per cent. which must be paid by property owners. Petitions are on file with the county commissioners for the paving of almost every stretch of roadway in the county.

Peculiarly enough this is an instance where the farmers are fully alive to the value of paved roads in the country.

Cost of construction, per square yard:

First Quality Medina..	\$3.25	Asphalt	\$1.60
Common Medina	\$2.85	2-inch Bitulithic	\$1.75
4-inch Creosoted Block..	\$3.15	2-inch Tar Macadam...	\$1.50
5-inch Brick	\$1.65	Macadam	\$0.50
4-inch Brick	\$1.25		

Estimated value of old pavement, per square yard:

First Quality Medina..	\$0.20	Asphalt	\$0.12
Common Medina	\$0.20	2-inch Bitulithic	\$0.15
4-inch Creosoted Block..	\$0.12	2-inch Tar Macadam	\$0.15
5-inch Brick	\$0.22	Macadam	\$0.05
4-inch Brick	\$0.20		

Net cost of construction, per square yard (less old pavement):

First Quality Medina...	\$3.05	Asphalt	\$1.48
Common Medina	\$2.65	2-inch Bitulithic	\$1.60
4-inch Creosoted Block..	\$3.03	2-inch Tar Macadam...	\$1.35
5-inch Brick	\$1.43	Macadam	\$0.45
4-inch Brick	\$1.05		

Net cost per square yard, divided by life of pavement:

First Quality Medina...	\$.102	Asphalt	\$.185
Common Medina	\$.106	2-inch Bitulithic	\$.106
4-inch Creosoted Block...	\$.151	2-inch Tar Macadam...	\$.09
5-inch Brick	\$.057	Macadam	\$.015
4-inch Brick	\$.046		

Annual interest at 6 per cent. on construction, per square yard:

First Quality Medina...	\$.195	Asphalt	\$.096
Common Medina	\$.171	2-inch Bitulithic	\$.105
4-inch Creosoted Block...	\$.189	2-inch Tar Macadam...	\$.09
5-inch Brick	\$.099	Macadam	\$.003
4-inch Brick	\$.075		

Estimated annual cost of repairs and maintenance, per square yard:

First Quality Medina...	\$.030	Asphalt	\$.045
Common Medina	\$.033	2-inch Bitulithic	\$.035
4-inch Creosoted Block...	\$.035	2-inch Tar Macadam...	\$.038
5-inch Brick	\$.035	Macadam	\$.045
4-inch Brick	\$.035		

Total per square yard of net cost, interest and repairs and maintenance:

First Quality Medina...	\$.060	Asphalt	\$.073
Common Medina	\$.061	2-inch Bitulithic	\$.056
4-inch Creosoted Block...	\$.069	2-inch Tar Macadam...	\$.056
5-inch Brick	\$.051	Macadam	\$.063
4-inch Brick	\$.047		

An old farmer wisely remarked that "most people underdrain to get rid of the surface water or water near the surface, but I underdrain to get wet water into my soil."

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE SOUTHLAND.

THE BUILDING ASPECT in Memphis and other cities of the southwest has improved very much during the last fortnight. The contractors and architects here think that April and May will show up with creditable building operations.

H. F. VanDusen, Chairman of the Board of Public Works, at Chattanooga, will shortly let the contract for considerable brick paving work on McCallie avenue, that city.

Ed. R. Ingram is forming a company to manufacture brick near Turner, Kans. Kaw River sand will be used. The brick will be made of sand and lime, hardened by steam.

At the Weir City Brick Works, Weir City, Kans., a new kiln has been completed, which will have a capacity of 120,000 brick.

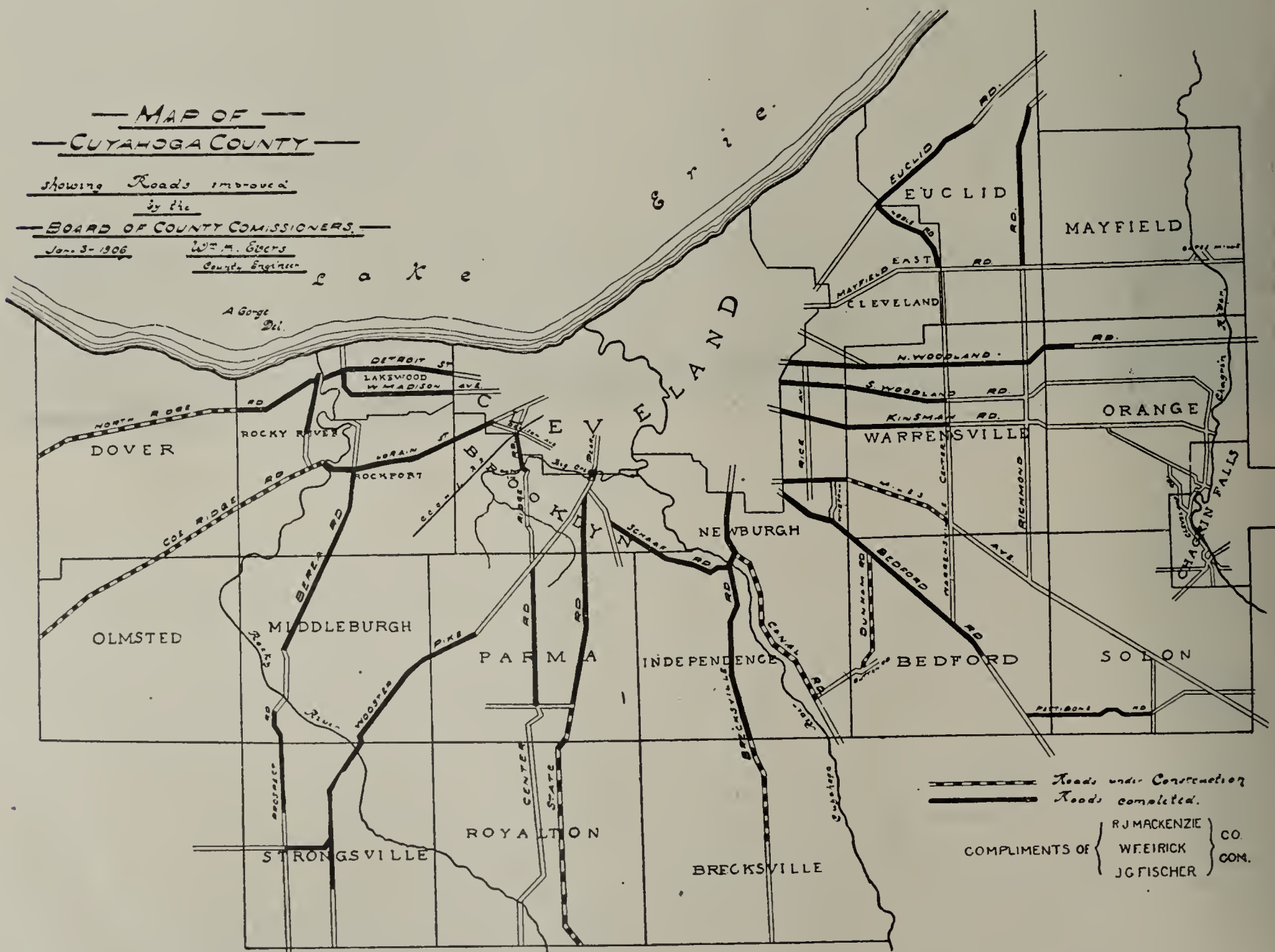
J. L. O'Shea and others at Tucumcari, N. M., are installing a brickmaking plant which will supply that section of New Mexico.

At Downs, Kans., J. H. McFarland has leased the Tom Ray brick property and will begin the work of making brick on April 1.

The Salina Brick Company, of Salina, Kans., is making preparations to put out 4,000,000 brick this season. Last year they furnished brick for the Hub building and other enterprises. This year there is a new high school, a Catholic school building, and other institutions to be furnished.

The J. F. Dale Sand Company, of Chattanooga, Tenn., has been incorporated with \$2,000 capital stock by J. F. Dale, S. W. Thompson, John Nell and others.

TRAVELER.





Dutch Roofing Tiles.—In the Dutch or Holland roofing tiles we have two standard sizes. The largest size is the most in use, and measures 39x26x1.5 centimeters ($15\frac{3}{8}$ x $10\frac{1}{8}$ x $\frac{5}{8}$ inches), while the small size measures 24x24x2 centimeters ($9\frac{3}{8}$ x $9\frac{3}{8}$ x $\frac{3}{4}$ inches). Of the large size, about twelve tiles will occupy one cubic foot in kiln capacity.—Tonind. Z, No. 7, 1908.

Automatic Testing Apparatus for Gas Analysis.—The firm of Julius Pintsch, in Berlin, has just completed a testing machine for the analysis of kiln and other gases. The machinery is very small, but not delicate, and is operated by clockwork. The amount of carbonic acid gas is automatically indicated on a sheet of paper by pen, which moves on a spring as the gas leaves the apparatus. Every two or three minutes a gas analysis can be made, so that in an hour from twenty to thirty analyses can be registered on the paper.—Tonind. Z, No. 12, 1908.

Air Checking of Stoneware.—The air checking of stoneware is mostly to be traced to the clay. When a clay is very fat, it is, as a rule, subject to air checking. A temperature of cone eleven to twelve for the clay in question is too high. The addition of a clay which is more sandy would be advantageous in this respect. In case the glaze is still too hard, the addition of red lead will soften the same for several cones.

In firing the kiln, an excess of air will often also prevent air checking. The cooling is not often the cause of this defect. With large pieces slow cooling should always be practiced.—Keramische Rundschau, No. 4, 1908.

Continuous Kiln Data.—In answer to a question how large a continuous kiln will it take to give a yearly capacity of one million brick, we find the following data: The kiln is not in use in the months of December, January, February and March. The required capacity of such a kiln is sixteen chambers, containing 3,600 brick each. Two chambers are burned every day, which will bring the daily capacity up to 7,200 brick. The firing flue should be 6x7 feet wide. By a cost of \$6.00 per 1,000 for brick, the cost per foot of kiln space will be \$30.00, so that a kiln with 225 feet of flue space will cost about \$2,200. In this estimate is not figured the cost of the stack, which will be about \$800.

It would be better to burn the kiln all winter than to have the same burnt part of the time. Local conditions have much to do to decide this question.—Baukeramik, No. 1, 1908.

Kiln for Burning Grog.—The size of kiln for the burning of grog will be regulated by the quantity to be burnt every day. Small quantities of ten tons per day are best burned in a periodical kiln. A beehive kiln, with the fire-boxes on the side, and with cone shape chimney on top is the cheapest and the easiest to construct. The cost of such a kiln will come to about \$2,000. The amount of fuel which it takes to burn grog depends entirely on the amount of water which the clay contains. A safe estimate, however, is from thirty to thirty-five per cent. of coal for the quantity of burnt material. For the burning of larger quantities the erection of two kilns is more economical. The heat from the one kiln can be used to dry and partly burn the other kiln, and the fuel saving is quite considerable. Recently

the use of a continuous kiln for the burning of grog has been installed on several large fire brick works, and they work with great success. The cost of erection is, of course, much higher, but the capacity can easily be brought to forty tons per day.—Sprechsaal, No. 4, 1908.

The Conductivity of Fire Brick.—Prof. Dr. H. Mehner has agitated the question about the heat conductivity of fire brick to such an extent that the German government will, before long, appropriate some money for an official investigation along this line. The government testing station has been selected to carry out the work, just as soon as the money will be available.—Sprechsaal, No. 2, 1908.

Magnesite Industry in Connection With the American Panic.—The large magnesite companies in Austria are more or less interested in the financial condition of the United States. The Magnesite Works of Veitsch, in which the Harbison-Walker Refractories Company, of Pittsburg, are largely interested as consumer, have reduced their forces considerable. The contract with the Pittsburg people calls for a yearly delivery of 800,000 tons, and runs to 1918. According to a clause in the agreement, the Harbison people have canceled this order, and will only take 400,000 tons this year. The Veitsch Company, which has already made arrangements to open up more mines in the Semmering district, has stopped all development work, and will try to sell their surplus output to outside parties.—Baukeramik No. 1, 1908.

Roofing Tile Glaze.—A roofing tile slip clay, which will mature between Seger cone 09 and 07 does not exist. Seger has pointed out that slip glazes do not mature under cone one, and that for lower temperatures lead or alkali glazes should be used. As it is necessary for alkali glazes to be fritted in order to obtain good results, such glazes are too expensive for roofing tiles. A raw lead glaze, which will mature between Seger cone 09 and 07, is compounded as follows:

Red lead	60 parts
Feldspar	5 parts
White burning clay.....	15 parts
Flint	20 parts

In order to make the glaze green, add from two to five per cent. of oxide of chromium, and also add from five to ten per cent. of oxide of tin, in order to give the glaze more body and opaqueness.

A white engobe could also be used on the roofing tiles first, and afterwards a clear, green glaze, in order to get a green effect on the tiles. However, this method is slow. Twice burning is, however, in each case preferable, as it will give better results and lesser second-class tiles.—Sprechsaal, No. 5, 1908.

Coal Consumption in Continuous Kilns.—In many continuous kilns a flash wall has been built in order to get better results, especially with face brick. An experiment was made with flash walls in an oval continuous kiln with sixteen chambers, each having a capacity of 1,130 cubic feet.

The temperature at which the clay products were burnt was between Seger cones one and three. Slack was used as fuel. The flash wall occupied 475 cubic feet of the available space of the kiln, so that only 655 cubic feet remained for the burning of brick. Each chamber will hold 4,400 face brick, which gives the kiln a total capacity of 74,800 face brick. It took 35.64 tons of coal to burn this kiln of brick, which would give us 0.475 tons of coal per 1,000 brick. In case the flash wall was taken out, the kiln would hold 128,000 brick, or 8,000 brick per chamber capacity. The coal consumption would be a little over .35 tons of coal per 1,000 brick. Taken into consideration that with direct firing the amount of first-class brick was considerably less than with the flash wall protection, we will find that the flash wall is best adapted for face brick in the long run, and also the cheapest method of burning. For common brick the adoption of a flash wall

would not be the proper method, as with that class of brick a slight difference in the color or a little flashed does not matter. For the burning of terra cotta, face brick and the better class of clay products the flash wall will pay for itself in a short period.—Tonind. Z, No. 7, 1908.

Written for THE CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND THE NORTHWEST.

THE DEVELOPMENTS OF THE latter part of the winter and early spring in the building line have not kept pace with the promise shown early in the year in the Twin Cities, and it is the general opinion among the building trades at the present time that work will prove considerably lighter in the aggregate for the season than it was for 1907. There is still a good deal of talk of starting a number of important pieces of work, but investors are reluctant about actually starting operations, and, to date, things have not been as brisk as expected. There are a number of reasons for this condition. First, the late financial stringency has made everybody extremely cautious about investing, and while business is moving along in fair volume, there is little inclination to branch out into new fields. Then,

the two classes get together and arrange a settlement, a healthy revival of operations would undoubtedly be the result, as there is a good deal of work tentatively promised for the season. The fact that this is a general election year is having its effect on all lines of business and naturally building is also affected, although it is other causes which are exerting the greatest influence. It is unfortunate that these troubles should loom up just now, as materials have been reduced in price to such an extent that there is a strong tendency to do considerable building.

In spite of these drawbacks, there will be a number of large buildings erected in both cities during the year. Among those certain of erection in Minneapolis are a brick school in the Kenwood district, and additions to the North and East high schools. The contracts for all of these have been let to J. E. Pilgrim, at \$36,545, \$27,136, and \$30,285 respectively. E. S. Stebbins is the architect.

Another building sure to be erected is a pressed brick lodge building at Thirty-first street and First Avenue, South, for Ark Lodge, A. F. and A. M., for which plans have been prepared by A. L. Dorr, architect, and which will cost about \$25,000. W. M. Kenyon, architect, has completed plans and the contracts will be let shortly on a brick and stone addition to the Farmers and Mechanics Savings Bank building. This will double the size of the building and will cost \$75,000.

In St. Paul, the bids have been received for a four-story



A General View of New Plant of the Ohio Mining and Manufacturing Company in Course of Construction.

the fact that this is general election year adds to the feeling of unrest and increases the conservatism among capitalists, and the general feeling is to postpone. Another factor of great importance in the northwest, and especially in the Twin Cities, is the unsettled labor conditions, which is undoubtedly deterring much heavy building from being started. There is no trouble at the present time, but the outlook is a threatening one, and the prospects for a peaceful settlement are not bright. This naturally greatly impedes heavy work and there is danger that this section will experience a stiff fight before matters are adjusted. The Builders' Exchanges of Minneapolis and St. Paul have not taken any definite action over the question of the open shop, evidently fearing to take radical action, but the matter is being seriously considered, and it is not at all unlikely that such action will be decided on. The Master Builders' Association of Minneapolis has already passed a resolution in favor of the open shop and refused to consider the demands of the painters, paperhangers' and the bricklayers' and stonemasons' unions for an increase in wages. Just what effect this will have, it is hard to conjecture, but the chances seem very strong that it will precipitate a big fight.

Until this question is definitely decided, there will be an inclination to hold off from actually starting on heavy work and the spring, at least, will be comparatively quiet. Should

brick addition to the city and county hospital. It will be 40x150 and will cost \$110,000. C. H. Johnston is the architect. The two Christian Science churches of that city have recently united and the arrangements for erecting a \$100,000 church building have been placed in the hands of a committee headed by H. C. VanMeter. The contract for erecting a brick fire engine house at University avenue and Avon street has been let to Steenberg Bros., at \$20,881.

Kees & Colburn, architects, have prepared preliminary sketches for a large modern hotel, to be erected for J. F. Rogers at the corner of Fourth street and Nicollet avenue, Minneapolis. The building, as proposed, will be sixteen stories high, of the latest fireproof construction throughout, and modern in every particular. It will contain 360 rooms and will cost, together with the site, about a million dollars.

Strategic relation to the raw product field and to the consuming points has given Minneapolis a new sewerpipe factory. The Red Wing Sewerpipe Company has decided to erect a branch factory in Minneapolis, and will expend about \$300,000 on it. The Minneapolis Commercial Club has been negotiating with the company for over a year to secure such a factory. The plant will employ about one hundred men.

The Northwestern Mantel Company, of Minneapolis, has

changed its name to the Northwestern Marble and Tile Company.

Karl A. Koerner, a St. Paul contractor, died on February 29th, at the age of fifty-eight.

Lauer Bros., contractors of St. Paul, have incorporated. Capital, \$100,000.

Arthur C. Clausen has opened an architectural office at 541 Lumber Exchange, Minneapolis.

Glenn L. Saxton, the Minneapolis architect, returned recently from a two months' pleasure trip to California.

Paul Pillatske will be the manager of a new brickyard, which is being built at Barnum, Minn. It will have a capacity of 30,000.

The Richardton (N. D.) Clay Product Company has incorporated. Capital, \$25,000. L. H. Bussen is president.

The Builders' Exchanges of Grand Forks and Fargo, N. D., are making plans for organizing a state builders' exchange.

W. J. Simms, of Glendive, Mont., will open a brick plant at Scranton, N. D.

A. J. Bowen, of Tulsa, Okla., is talking of opening a brickyard at Laurel, Mont.

Bonham Bros., of Rhodes, have leased the brick plant at Cambridge, Iowa.

Written for THE CLAY-WORKER.

TWO FINE BRICK PLANTS AT SHAWNEE, OHIO, OWNED AND OPERATED BY OHIO MINING AND MANUFACTURING COMPANY.



NE OF OHIO'S finest and best known pressed brick manufactories is located at Shawnee, Ohio, where an abundance of fine clay is to be found suitable for the manufacturing of a high grade front brick. The "Indian Brand" Shawnee brick is well known over the country, and possesses an enviable reputation for good quality in architectural beauty and strength. Their front brick in buffs, speckled buffs, greys, speckled greys and flashed are very popular and in much demand.

Their two plants, one but recently constructed, are located on the outskirts of the town of Shawnee, on the B. & O. and Zanesville & Western railroads. The raw material is of a high grade No. 2 fire clay, underlying a rich deposit of coal, which is used for fuel on the plants. The clay deposit extends over the company's entire property, which consists of 640 acres. The vein of clay runs from



A View of Old Plant of Ohio Mining and Manufacturing Company, From a Neighboring Hill.

The Builders' Exchange of Fargo, N. D., has passed a resolution declaring for the open shop.

W. S. Holt proposes to establish a brick manufacturing plant at Sharon, N. D.

The Mason City (Iowa) Drain and Tile Company has placed its new tile factory in operation. It has a daily capacity of 100,000 tile.

A new brickyard will probably be established at Aberdeen, S. D., by F. F. Haynes. It is planned to use natural gas for fuel.

The contract for installing the new power plant in the enamel brick factory at Oskaloosa, Iowa, has been let to the Seevers Manufacturing Company. Cost, \$30,000. The plant has a daily capacity of 75,000.

Fertile Clay and Peat Company, of Mason City, Iowa, has installed a new triple pressure brick machine, with a daily capacity of 60,000.

New machinery is being installed in the Northern Press Brick Company's plant, at Crookston, Minn.

A. C. Groves and others have organized a brick manufacturing company at Harlowtown, Mont. The plant will make two million brick per season.

T. WIN.

7 to 9 feet in thickness, and is made accessible by a 65-foot shaft to the rear of the plant. It is rock like in structure, free from troublesome ingredients, but must be mined by drilling and shooting.

The blasted clay is brought to the surface in end dump cars (holding two tons each), which are run from the top of the shaft out on tracks to a point over the crusher, where the cars are automatically dumped and run back to the shaft for another trip into the mine. The plant is well laid out, so that the clay travels in a regular order through the different processes to the kilns without doubling its tracks. The plant proper is situated in a valley, with a large hill to the rear in which the clay is found. The top of the shaft is at the highest level at the top of the plant, so that the clay can be advanced easily and in a quick, systematic order. One of the illustrations depicts the manner in which the clay is dumped from the car into the crusher below the tracks. The crusher is of the Blake type. From the crusher the clay is emptied into two 9-foot Stevenson dry pans and thence passes over inclined stationary screens through steamers, and finally, into the storage bins. There are ten storage

bins, with a capacity of sixty tons each, or 20,000 brick. Thus there is always a supply of prepared material on hand, which insures the steady operation of the presses and provides for very good mixing and averaging of the raw material. The storage bins are V shaped giant troughs, with a temporary loose-boarded bottom, as shown in one of the accompanying illustrations. Below each bin is a track on which hopper cars are run. When a supply of the stored clay is needed, a board is pulled out from the bottom, thus allowing the clay at that point to slide into the car, giving a supply of well averaged clay. This method of storage gives the raw material time for equal distribution of the moisture.

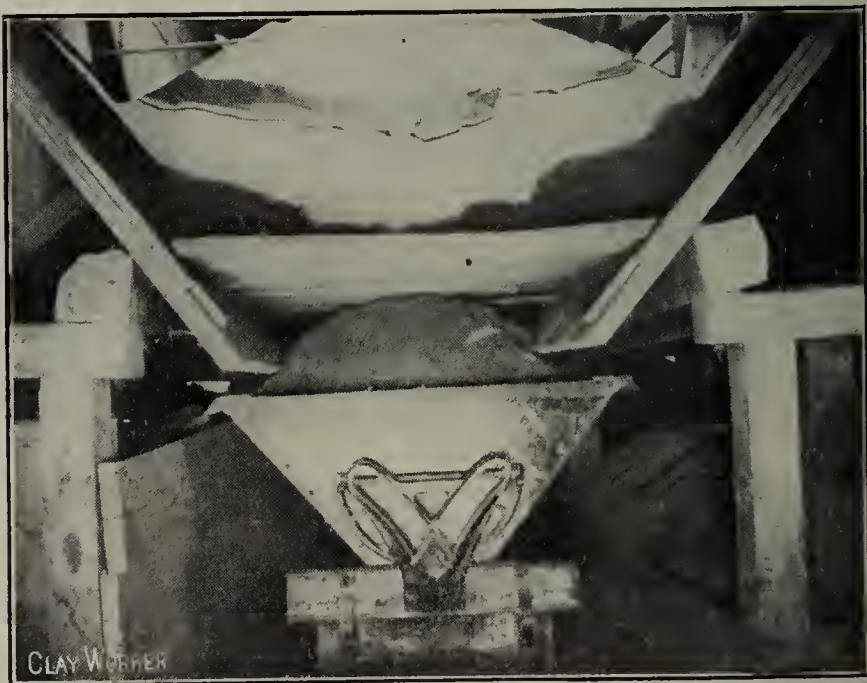
After the hopper cars are filled, they are pushed to the

of over 1,000,000 brick. A system of time firing is closely observed by means of cones and electric pyrometers.

The storage room is located on the either side of depressed tracks. Here there is room for two and a half million brick, and facility for loading twenty-five cars.

The power plant consists of two Corliss engines, one of 350 h. p., the other 125 h. p. Electric power is furnished for lighting, operating four motors and running pumping machinery in the mine. The electric power is obtained from a 150 k. w. generator, belted to the larger engine. A fully equipped machine shop handles all repair work.

The water supply is furnished by their own storage reservoir, located back in the hills above the plant. Ample supply



INTERIOR VIEWS OF OHIO MINING AND MANUFACTURING COMPANY'S PLANT.

- (1) At the top of the shaft of clay mine. (2) Position of car previous to dumping clay into crusher below. (3) Prepared clay being conveyed to storage bins beneath the tracks. (4) End view of one of the storage bins.

elevator boots and emptied. The clay is then conveyed to the feeders over the presses. Five presses in all are used, namely, three Simpson four-mold presses, one U. S. four-mold press, and an Ohio Ceramic Engineering Company two-mold press for fancy shapes.

From the presses to the kilns the green brick are handled partly by trucks, the latter being used only for nearby kilns, while the cars for the distant ones. The cars are of the Standard make. The ware is set in fifteen down-draft kilns, nine of which are round 28-foot multiple stack kilns of 60,000 each, while six are of the multiple stack rectangular type, of 90,000 capacity each, or a total capacity of the fifteen kilns

of rain water is thus obtained.

The plant employs 100 men, not including twenty in the clay mines and twelve in the coal mine.

The New Plant—Electric Driven.

So great is the demand for their brick that the company, under the able superintendency of Mr. S. M. Gould, found it advisable to erect a second plant at the extreme portion of their property, about 1,800 feet distant, and at a higher level from the old plant, where they are manufacturing stiff mud impervious brick. This plant was recently completed and is new and interesting in nearly every feature. It is

very compact and entirely separate from the old except for power. At the head of the constructing force was Mr. Ellsworth Ogden, a graduate of the Ohio State University Ceramic School.

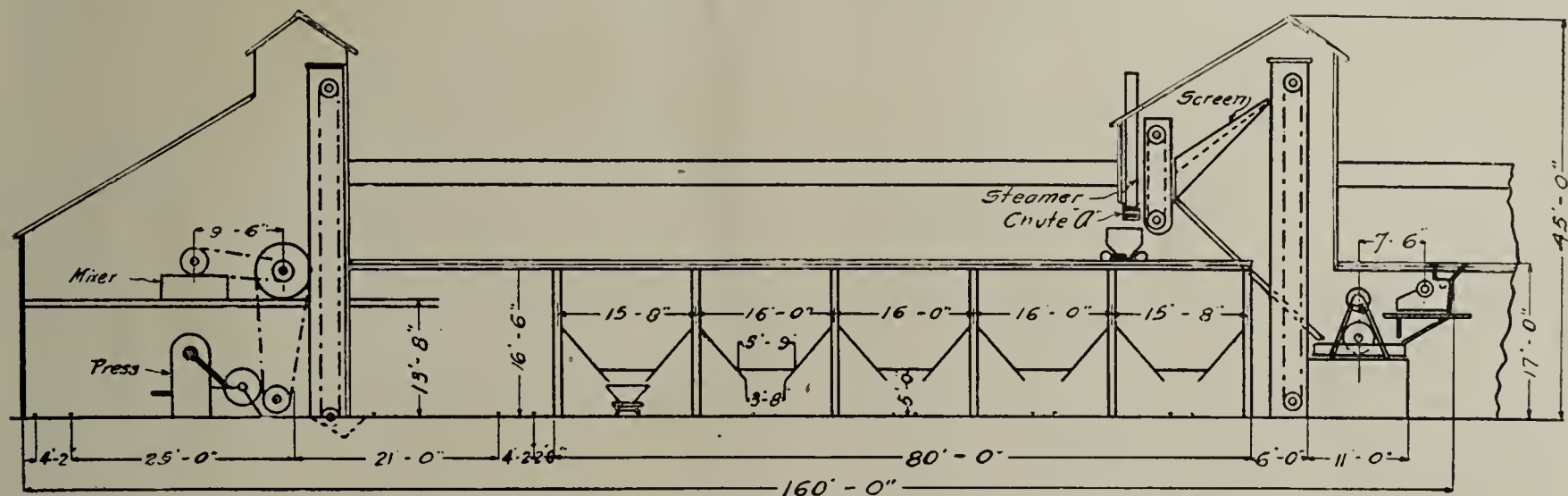
The rear end of the plant was built into the side of a hill of hard rock, different levels being made for natural foundations for the crusher, dry pans, and pug mill. The power of this plant is furnished entirely by the old plant, electricity being employed in all departments, the machinery being motor driven.

The clay is of the same nature as at the older plant, and is mined in the same way; a 10x14 foot shaft to the rear of the plant is almost in direct contact with the crushers. The plant is all below the level of the top of the shaft. The clay travels much in the same order as at the older plant, being crushed and thence dropped to two dry pans, elevated

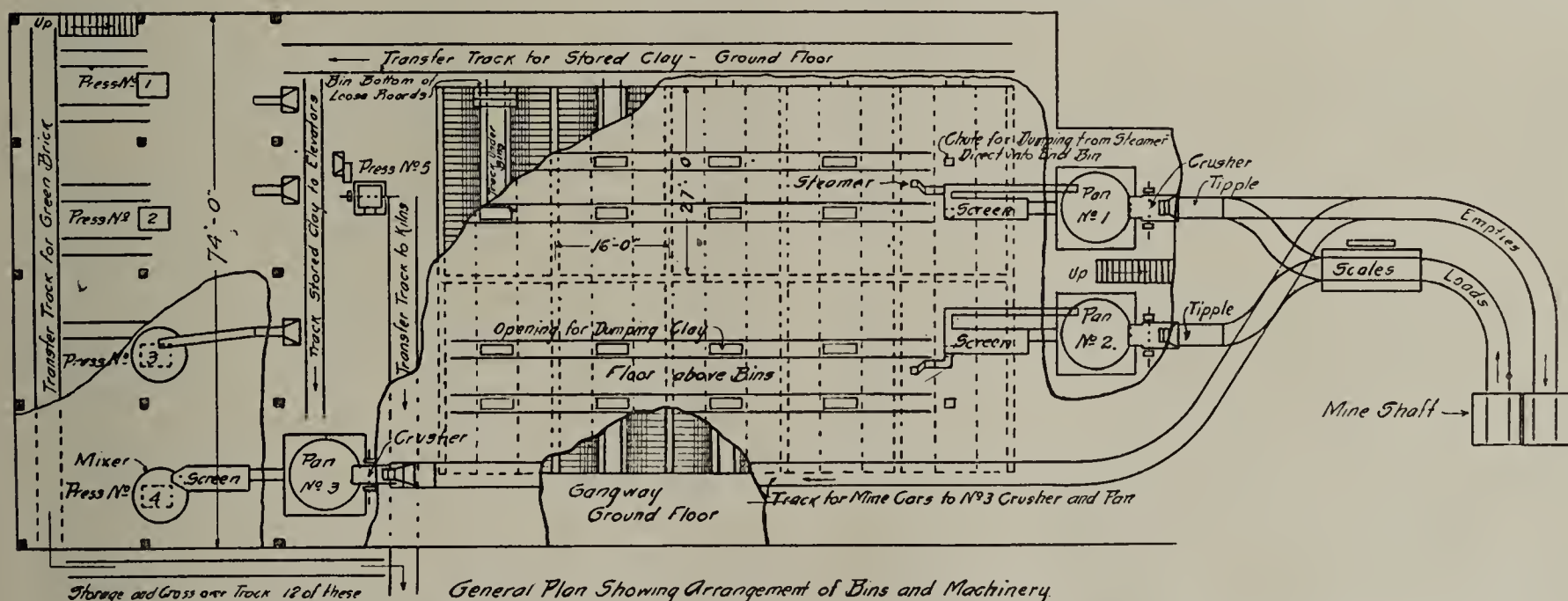
The clay moves forward from mine to stock yard in a regular, systematic manner, with no loss in time or labor. The officers of the company are: Mr. William E. Davies, president; A. Lanfear Norrie, vice president; Oscar Bunke, secretary and treasurer, and S. M. Gould, superintendent.

KAOLIN DEPOSITS OF TEXAS TO BE DEVELOPED.

The kaolin deposits, situated in Edwards County, about 125 miles southwest of Austin, are to be developed on an extensive scale by the Texas Kaolin Company, which is composed of Chicago men. The company has a nominal capital stock of \$350,000, and it has adopted plans for the erection of one of the largest pottery plants in the United States at the deposits. In addition to the manufacturing plant, a plant to refine the crude kaolin, so as to make it almost 100 per cent. pure for shipping purposes will also be erected, ac-



General Section Through the Building Showing Present Arrangement.



General Plan Showing Arrangement of Bins and Machinery.

GENERAL PLAN OHIO MINING AND MANUFACTURING COMPANY'S PLANT, SHAWNEE, OHIO.

to screens, and thence to four bins of 150 tons capacity each. A rotary disc feeder supplies the pug mill with clay. An American Clay Machinery Co.'s pug mill, an auger machine and an automatic cutting table are employed. The brick are repressed on two Bonnot two-mold represses. The brick are taken on cars into a 50,000 capacity dryer, which uses direct heat furnished by a furnace in one side of the dryer. The heat from the furnace passes into a tempering chamber and thence to the tunnels in the same fashion as when waste heat is employed.

A large Youngren continuous ten-chambered kiln is used for burning the ware. It is of the single battery type, the chambers being open at both ends and fired with producer gas. The capacity of this kiln is 80,000.

The company is to be congratulated on this recent installation and the manner of the construction of this model plant.

cording to the statement of W. E. Bradway, president of the company.

These kaolin deposits are situated about forty miles from the nearest railroad point. One of the first steps which the company will take towards developing the industry will be the building of a railroad to give it shipping facilities. The proposed line will pass through a rich agricultural country, which will, it is claimed, afford a heavy local freight traffic.

It is claimed that this deposit of kaolin is one of the highest grade and most extensive yet discovered in this country, and that the finest kinds of pottery can be made therefrom. The men who are interested in its proposed development investigated the conditions thoroughly before going into the enterprise. George G. Pryor, vice president of the company, is said to be a practical pottery manufacturer of long experience. John M. Duryee, a banker of Chicago, is secretary; L. B. Stewart, who is at the head of a Chicago paper

mill concern, is treasurer. Among the other stockholders are: W. N. Sturges, John J. Brown, James E. MacMurray and E. B. Boyd, all men of prominence in financial and business circles of Chicago.

Written for THE CLAY-WORKER.

THE EFFECT OF HEAT UPON CLAYS.

SEVENTH PAPER.

BY A. V. BLEININGER.

Artificial Brick Colors.



WE CAN NOT CLOSE this series of articles without referring briefly to the colors which we may produce in the body or on the surface of our clay wares by artificial means. The use of coloring compounds within the clay bodies is necessarily limited by the cost of the available substances and excepting for such ware as floor and wall tiles and some classes of terra cotta we are practically restricted to the use of iron oxide and manganese oxide (pyrolusite). Finely ground iron ore may, in some cases, be used as a help in obtaining darker colors, but as a rule the results are not as satisfactory as they might be on account of the difficulty of incorporating the oxide intimately with the clay, or rather the cost of doing so. In most cases, unless special care is taken to insure uniform distribution, the color is apt to be irregular.

Wherever the color of the clay is to be improved or enriched it is always best, if possible, to use another clay very high in ferric oxide or clayey or sandy materials, like ochre. The results of such mixtures will be found more satisfactory. In some instances as in flashed brick, the use of granular magnetic oxide may be desirable, since in this case it is not a question of uniformity of color, but of producing the dark specks necessary in flashed brick. Other iron ores, like hematite, may, of course, also be used for this purpose and an addition of two or two and one-half per cent. of such an iron compound will help to produce the dark flashed colors desired.

Manganese oxide, in several grades of fineness is used with No. 2 fire clays to produce the well known gray or speckled brick, usually made by the dry press process. The amount added varies, according to the desired shade, from one to two and one-half per cent. The finer grained oxide will, of course, produce more the effect of a solid color, while the granular kind shows the speckled effect. Two conditions are necessary to produce a good gray, and these are: First, a clay burning to a clean and very light color, which must not be too buff, so as to give a suitable background for the black oxide; second, the burning must be carried on under oxidizing conditions and at as low a temperature as will bring out the black color of the manganese. In regard to the latter it is always the best policy to use a pure grade, since more impure manganese ores will fuse too readily and will cause the formation of a black slag on the surface which will cause the brick to stick together, besides rendering them worthless so far as appearance is concerned. The best grade is usually the cheapest in the end.

In regard to surface colors we have available a somewhat larger variety of effects and colors, since the amount of the coloring material need not be so large in amount, and hence the cost for the better grades of front brick is not prohibitive. Such methods of varying the colors of brick are used more in Europe and it seems to the writer that this subject ought to be taken up more extensively by American manufacturers. We refer to the use of slips or engobes. By

these we mean natural or artificial clay mixtures which are applied onto the surface of the brick made by the stiff clay process in the form of a liquid slip, or as a plastic mass. The object of their use is either to produce a more uniform color, in which case the same clay employed for the bricks themselves is purified by washing and applied, or to produce a color different from that of the body.

It is evident that the slip, whatever be its purpose, must have the same drying and burning shrinkage as the body and must adhere perfectly, burning to a dense surface. There are many clays which, by the addition of perhaps a little fluxing material like Cornwall stone and a very small amount of lime, would be excellent slip clays. The case is simplest, of course, where the same clay from which the ware is made is used as an engobe. This may be practiced where the unwashed clay is not of a satisfactory color and the washed and screened material will produce a uniform and better color effect. In such a case it would probably be still better to use a richer colored natural clay for the slip entirely, which is frequently done in Europe.

If a color like green is desired for a serpentine-like effect in which the coloring substance is chrome oxide, it is evident that the slip clay, besides possessing the necessary shrinkage qualification and burning to a dense layer, must be very light in color, in fact, as white as possible, so as to bring out the maximum coloring effect of the chrome oxide. The green color also is not brought unless the slip is practically vitrified by the addition of Cornwall stone or feldspar and a very small amount of carbonate of lime. This means that this color is not available for red burning clays, but is restricted to the No. 2 fire clays.

The chrome oxide may be prepared and incorporated in the slip mixture by three methods:

1. Some of the clay, Cornwall stone and lime carbonate and all of the chrome oxide are ground together thoroughly in the wet ball mill and calcined in the kiln, the amount of this calcine corresponding to about fifteen per cent. of the whole slip. This burnt product is then crushed and ground together with the balance of the slip constituents.

2. The chrome is added to about thirty per cent. of the slip in a blunger in the form of a soluble compound, like chromium sulphate. By adding ammonia water or carbonate of soda the chromium is precipitated in the form of a fine gelatinous mass intimately blended with the rest of the constituents. After thorough stirring, this slip is pumped into a filter press in which the water is removed and the slip left in the form of a cake. This plastic mass is then cut up and blunged in another blunger with the balance of the slip.

3. The chrome oxide may be at once added to the slip and ground thoroughly with the latter in the wet ball mill. Methods one and two are to be preferred to the third inasmuch as they will result in a far more intimate mixture and better color. All of this work is best done by a man familiar with this work or understanding the chemical principles involved. What has been said of the preparation of the chrome oxide green applies also to the other colors, though the preparation need not be so thorough in the case of the manganese, provided the latter is ground extremely fine. The colors which may be produced in this way on No. 2 fire clays are: White, gray, black, red, buff, yellow, brown, green, and blue, and, of course, many shades obtained by blending these colors or diluting them, with white as the base.

White is produced, as has been indicated before, by a mixture of one or two white burning clays, a kaolin and a plastic light burning clay, Cornwall stone, feldspar, flint, and a small amount of whiting. At about cone 4-5 a good vitrified layer should be produced.

Gray is obtained with pulp manganese in different percentages up to three per cent. Black is prepared from a mix-

ture of manganese and iron oxide and a very small amount of cobalt oxide. For red preferably a clean burning red clay should be employed. Buff and yellow are obtained either from a natural clay such as is found near Sparta, Ohio, or from an artificial mixture of flint, Cornwall stone and ferric hydroxide, which are blunged together thoroughly, calcined in the kiln, and the calcine ground intimately with the balance of the slip. In some cases, if ferric chloride is used, the iron hydroxide may be precipitated with ammonia right in the slip and after blunging the slip may be used without the necessity of calcining the iron.

Brown is produced by intimate blending of a red burning clay with manganese and chrome oxide. Green, as has been described before, is due to chrome oxide. Blue, which is prepared similarly to the chromium color, is obtained from cobalt oxide, from one-half to two per cent. being sufficient for this purpose.

The application of the slips may be accomplished by hand-dipping, mechanical covering, or by spraying. The first method is the most expensive and unsatisfactory one. Mechanical means of applying the slips can undoubtedly be employed as the column of clay leaves the die of the auger machine, and there are several European patents covering such procedures. The problem should not be a difficult one, the main requirements being a reservoir containing the slip which is to be kept agitated and poured over the surface of the column and some kind of a polished slicker for more uniform distribution of the engobe.

Spraying by compressed air may be employed either at the machine or later when the brick are transferred to pallets.

The application of a plastic engobe outside of the die upon a clay bar is used successfully in one instance in the United States, and the method is covered by letters patent. This would seem a most satisfactory means of accomplishing the purpose of engobing, especially as it would enable the manufacturer to apply a thicker layer.

In manufacturing products of this kind repressing is not advisable, and hence the cutting tables would have to be constructed with special care, so as to produce brick exact in shape and free from rough edges. This can be done, as is successfully demonstrated by European practice. Such exact working tables using thin wires can be produced by our machine manufacturers as soon as a demand exists for them. In burning engobed brick, care would have to be taken to burn with oxidizing conditions, and clean white sand would be necessary for sanding them in setting.

Certain color effects may be obtained also by the use of colored sands applied upon the clay column on issuing from the die, a method which is used successfully in several plants. After the sand is distributed over the surface, it is gently pressed into the clay by means of a roller.

The great claim which can be made for structural clay ware is its adaptability in regard to shape and its broad range of color. As the demands of the architects broaden it must be the aim of the clay ware manufacturer to satisfy his requirements, and, in fact, to suggest further possibilities for the outside and inside decoration of our structures, and at the same time keeping within the limits of artistic taste.

Finally, we will give brief consideration to another means of surface coloration, salt glazing, which has found some application in the manufacture of face brick. As is generally known, the glaze is produced by throwing salt into the fire boxes when the temperature has reached the maturing point, that is, near the end of the burn. The best results in salt glazing are never obtained below 1,100 C. The salt thus charged into the kiln through the fire boxes, or sometimes through the crown holes, is at once decomposed by the heat into soda and hydrochloric acid gas. The former unites with the clay to form a glass, the latter escapes from the

kiln as vapor. Although in this process heat is consumed, if the fires have cleaned before salting, no trouble is experienced in maintaining the required temperature during salting. In fact, the writer has observed in one instance a rise of five degrees while the salt was being introduced. The great variety of colors that are obtained are in part due to the conditions prevailing in the kiln. When the gases are reducing in character the glaze becomes usually darker than when oxidizing conditions prevail. However, it seems to be general practice to clear the fires before salting. This also has a tendency to prevent pimpling, that is, the formation of blisters or rough spots on the surface. A better salt glaze is always produced on ware for which the clay has been screened rather fine, and it appears that a great deal of the trouble in salt glazing is due to coarse screening. It hardly need be mentioned that the heat must not be raised too rapidly, although in the burning of sewerpipe there seems to be an inclination that way.

PLEASING SIGNS OF THE TIMES.

AMONG THE MOST pleasing signs of the times are some found now and then, here and there, among the public schools and those who take a progressive interest therein.

Congressman C. R. Davis, of Minnesota, has been industriously working for the passage of an industrial school bill. Mr. Davis's object is to include more industrial training in the high schools. The things most ardently sought for in this bill are not of as much direct interest to brick manufacturers as the trade school idea, pure and simple, but it is one of the pleasing signs that point toward more of the practical being taught in the schools along with the theoretical, and the more we turn to the practical the more real training we will get that will fit the young people for industrial life in all lines.

There is also a decided awakening among the school superintendents in the larger cities to the benefits of manual training for young people, learning the trades. Prof. Marks, Superintendent of the Louisville Public Schools, explained, in a recent address to some of the citizens of one of the school districts, in which he discussed the welfare of the schools of the city, that it was his aim to so far as possible embody manual training and practical industrial teaching in all their school work, so that the graduates when they came from the school might be not only educated mentally, but perfectly fitted to take up some calling, some trade or some profession. He is quite strong on manual training, and it is becoming quite a feature with other school superintendents, too. It isn't complete, of course, and doesn't come anywhere near encompassing the real aim at the present stage, but it is headed the right way, and if it keeps on, there may come a time when the different trades will be thoroughly taught in what is now termed the high school, of our public school system. Then our young men will indeed be turned out with good practical educations, in which training has been properly distributed between mental and physical education.

Meantime, there continues a healthy growth in the independent trade schools, pure and simple, and, with this spread out a little more, and the public high schools following out the manual training idea sufficiently, there will be facilities that will furnish opportunity to the greater part of the young men of our country to become thoroughly trained in some skilled work.

The importance of the trade school to this country has been so thoroughly covered heretofore that it is not necessary to go into details about that; it is simply desired to point out as one of the pleasing signs of the times this widening interest in the trade school and manual training idea, and the steady growth of not only the trade school idea, but trade schools in reality.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



DROSPECTS FOR a brisk building season, commencing with the opening up of the spring, are becoming brighter in this city as every week advances and the building period draws nearer. Many projects of considerable importance are being planned, and the outlook for loans for bona fide building propositions steadily improves. Construction work has already started in a small way in Cleveland, many residences and small apartment buildings being under way. Work is also being lined up for some of the larger projects for this season.

Hunkin Brothers Construction Company have been awarded the contracts for two brick fireproof buildings at the city's farm at Warrensville. One building will cost \$17,000, and be used as a dormitory for the infirm patients. Another structure of brick, plaster and cement will cost \$32,000 and will be used as a dining room and sleeping rooms for aged inmates. Architect Milton J. Dyer, of Cleveland, has been instructed by the city to proceed with the planning of the workhouse department. There is a fund of \$125,000 available already for this work. The prison will be modern throughout, and will be of brick, cement and plaster finish. Twelve acres will be inclosed by a twenty-foot wall as a courtyard for the prisoners.

Work has begun on the new West Side market house. Ten bids were opened recently and the lowest proved to be that of John Grant & Son, of Cleveland, who bid \$218,000 for a buff brick structure with a polished Woodbury granite base and \$179,000 for a four-cut granite base. Some of the labor unions are insisting that sandstone be used instead of granite.

Fire gutted the plant of the Louisville Brick and Tile Company, at Canton, Ohio, despite the efforts of the employes and others to quench the flames by forming a bucket brigade. The loss was \$25,000. The plant, which operates sixteen kilns, will be rebuilt.

Realizing the present inefficiency of the use of concrete, steps are being taken in Cleveland to revise the business with a result that many of the small fry will probably be driven out of business. Among other things, it is proposed to compel inspection of cement block plants. The building inspector says that many houses built of these blocks are in danger of toppling down because many of the blocks are crumbling. Cinders have also been prohibited in concrete mixtures of any kind. It is also proposed to make contractors for concrete buildings employ inspectors at their own expense, who shall report to the city the manner in which each building is erected.

Architect Milton J. Dyer has been commissioned by the city of Cleveland to plan the workhouse group at the city's farm of 2,000 acres, just outside of Cleveland. The buildings will be of brick and tile, some having a plaster finish resembling marble. They will be low and in mission style. Twelve acres will be given over to the group and about it a massive wall will be constructed. The brick will come from plants around Cleveland.

Alleging that by the misrepresentation of Geo. T. Winkler they were induced to buy Geo. B. Merrill's stock in the Cleveland Marble and Tile Company, which afterwards made an assignment, Tracredi Floretti and David J. James have brought suit against Merrill and Winkler. The marble and tile company made an assignment on January 10, 1908. Floretti says he gave Winkler \$1,000 for \$5,000 worth of stock, and James says he gave Winkler \$1,000 for \$5,000 worth of stock which remained.

The horrifying disaster at the Collinwood school, located in a suburb of Cleveland, has caused unusual activity in the repair line. The school board has 150 carpenters at work making changes. One school, the Mayflower, is to be abandoned and a new one is to be built, while a number of wings of old buildings will be replaced with fireproof brick structures.

The school burned in Collinwood is to be replaced at

once with a \$70,000 brick and steel fireproof structure of model design. Plans are being prepared by Architects Searles, Hirsch and Gavin. It is to be built immediately.

The transfer of the Eggers brick plant was recorded during the past month on a foreclosure proceeding instituted by the State Banking and Trust Company. Although the plant was worth much more, it went at a forced sale for \$28,000. It contains thirty-seven acres of land and a modern brick-making equipment. It is expected that the plant will be taken over by a new purchaser and operated again this season.

Recently the historic old Plain Dealer building was burned, two-thirds of it being reduced to ruins. The loss was \$300,000. A new building of terra cotta is to replace the burned section, just as soon as the ruins are cleared away and structural steel can be secured. When the new portion is completed, the front of the building, which contains a few offices, will then be torn down, and the front built in conformity with the rest. The building will cost well onto \$200,000.

One of the biggest building jobs in sight is going to net a nice contract for some terra cotta firm. The firm of Sterling-Welch has arranged to put up a large new building next to the Union Club on Euclid avenue. The entire front of the building it is understood, will be terra cotta, resembling granite. The frontage is sixty-five feet and the building will probably be five stories high. It will be several hundred feet deep, rounding the end of the club house and facing on East Fourteenth street.

A new \$1,000,000 sixteen-story office building of brick, tile, or terra cotta is planned for Euclid avenue and E. 14th street, by a company of Cleveland doctors, of which Dr. C. W. Crile is the head. The structure will house some 400 doctors, who will own most of the company's stock. It is proposed to have an emergency hospital, club rooms, cafe and many other novel features. The courts will be of glazed tile, according to the plans. The promoters of the project hope to start building before July 1.

W. H. Hunt, manager of the Cleveland Hydraulic Press Brick Company, has donated to the Builder's Exchange of Cleveland a number of attractive photographs and prints, gathered during his recent trip to Europe, in which Mr. Hunt made a special study of the question of civic betterment. These photos have been framed and set in an appropriate cabinet. They exemplify to some extent the progress of European cities in solving the problem of grouping buildings and for observing architectural beauty in the laying out of parks and thoroughfares.

Already the paving brick outlook is improving. Over 200 street jobs are to be let by the city, while the county is now considering a number of bids for paving county roads with brick. It is believed on most sides that the cost of brick may advance a little this year over last, but that labor will be more reasonable.

Cleveland has again been honored in the election to the chief office in the gift of the Ohio Builders' Supply Association, of one of its prominent supply men. W. A. Fay was re-elected president of the organization at a recent meeting at Put-in-Bay. Cleveland also captured the secretaryship, Burt J. Graham, of this city, being elected secretary. R. E. Deville, of Toledo, is treasurer.

Another big contract which is likely to be let soon is for light colored impervious brick for the courts of the new county court house. The contract at present calls for the use of Ohio sandstone. It is understood, however, that a majority of the commissioners will change the specifications to include brick instead of stone. Brick is favored because of its light reflecting qualities and its cleanliness. The contract will require many thousands. Some 17,000,000 Kittanning shale brick are being used in the foundations, which are about finished.

BUCKEYE.

WASHED CLAY FROM GEORGIA.

The Georgia Kaolin Company, Macon, Ga., is the first company to place on the market a washed Georgia clay. This clay combines the properties of both kaolin and a ball clay. The evenness of quality can now be guaranteed, which allows it to be used by the most refined branches of the pottery world. Quotations and samples will be cheerfully furnished.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



ACCORDING TO THE figures of the Superintendent of Buildings, this city is holding up its reputation for showing a building increase every month through the winter, in spite of the panic of last fall. The indications now are that building operations here will be up to the figures of last year, and contractors are generally reporting a big volume of business ahead of them. The building permits for March showed a value of \$969,620, and this is an increase of \$241,470 over the same month of last year. Of this total amount, \$320,500 is for brick buildings.

It is not in the building line alone that business is showing an increase. Other lines of business are reporting a good, normal business again, and it is evident that the people are gradually letting loose of their money, instead of continuing to hold it and do without something they wanted, fearing some awful thing was going to happen and they might need it. This holding off feeling has been the only thing to hold business back for some time in this section. Money was plenty enough, but each fellow was waiting for the other one to begin spending.

Judging from the fact that the coal miners and the coal operators have agreed to arbitrate their differences, it is likely that they will not keep the mines closed down long, and that there will not be any let up in building operations in the mining towns. It was at first feared that the coal mines might be shut down for months, and cause hard times in those districts.

According to all reports the railroad shops located at different trade centers in the west will soon all be running again. They have most of them been shut down the greater part of this year, and this will make things drop back to a normal condition at these different points. Down in Sedalia, Mo., the "Katy" shops have already opened, giving employment to their 500 mechanics.

According to the figures of Labor Commissioner Johnson, of Kansas, the brick and tile plants of that state produced during 1907 to the value of \$2,120,496, as compared with \$2,098,077 in 1906. This does not show much of a gain considering the fact that quite a number of new plants were in operation last year which were not started the previous year. The shrinkage in values at the end of the year probably accounts for the showing not being better. According to the same authority, the value of the cement production of the state in 1907 was \$4,756,414, as compared with \$1,844,024 the previous year. This shows the opening up of new plants, and the present year will probably show a corresponding gain. In speaking on this subject of cement production, one brick man remarked that the production would increase steadily until the plants were turning out cement without a profit, for the competition would continue to become more keen from year to year. In speaking on the same subject, Mr. Eadie, of the Eadie Building Supply Company, remarked: "It is my opinion that the fact that it requires such a large investment of capital will hold down the production of cement to a profitable basis, as the country is not likely to be flooded with plants. I think the production of cement is bound to increase the use of brick. As cement cheapens it will continue to take the place of lumber to a greater and greater degree, and cement calls for brick facings, etc., so that as it displaces lumber it will draw on the brick plants for the more attractive faces to add beauty to the substantial cement structures. The production of terra cotta has not decreased the demand for brick, but has stimulated it, and the same will be found to apply to Portland cement."

The Lyle Brick Company, which has been operating one plant throughout the entire winter, and both of them almost the entire time, is reporting a great deal larger demand than it is able to supply, and it is now considering the establishment of another plant. It already owns the site, the shale,

etc., and if the plant is built it is very likely it will be constructed for the production of paving brick.

The Flanagan Brick Company reports being rushed from all sides, the demand being heavier than they can supply with a full force.

The Kaempff Shale Brick Company is working on plans for a brand new plant, to be thoroughly equipped with modern machinery, new kilns, etc., and will soon be ready to place contracts.

The Eadie Building Supply Company reports having increased its business very materially every month this year, over the corresponding months of last year, and express the belief that business will be fine in this line throughout this section of the country through the balance of the year.

According to reports brought in by those who have been visiting the Kansas brickyards, they are all busy, and have plenty of work in sight, those producing pavers being especially rushed with work. Some plants are oversold for the season right now, in both the paving and building brick line.

The Pittsburg plant of the Pittsburg Brick Company is again in operation, and producing in a very satisfactory manner. The plant in Sycamore, Kans., which was recently fitted up to also manufacture tile, is running regularly.

The Buffalo Brick Company, of Buffalo, Kans., which has one of the finest paving brick plants in the west, is now shipping 1,250,000 of its paving blocks to Springfield, Mo., and 1,000,000 to Pine Bluff, Ark., and various smaller deliveries to Kansas City, Mo., on orders placed through their Kansas City agents, the Eadie Building Supply Company. In a recent test made on their paving brick in this city, they stood the rattler test with a loss of only thirteen and one-half per cent., and in a recent comparative test made in St. Louis for Springfield, Mo., the Buffalo brick tested higher than any other competitor.

Several new brick plants are to be constructed in the Kansas gas belt this year.

K. A. W.

PRAISE FOR THE BRADFORD RECUTTING MACHINE.

Pressed brick manufacturers who have been troubled more or less in filling orders for odd and difficult shaped brick should consider the advisability of purchasing the Bradford brick recutting machine. This machine has been tried thoroughly and has been found very satisfactory and a great money saver. It is claimed that one user alone saved over \$900 on one machine the first season and was complimented by the contractors on the uniformity of the brick.

One of Many Satisfied Users.

G. W. Fleming Company, Bradford, Pa.:

Gentlemen—Replying to your recent inquiry as to general satisfaction given by the "Bradford Recutter," beg to advise you that it has given entire satisfaction. We would not attempt to be without it at any reasonable price. We find it not only a great money saver, but find we can do much better and more uniform work, pleasing the customer in every instance. We find, by actual figures, that with the recutter our shapes, etc., cost us less than half of what they formerly did. On a recent order for 40,000, which consisted of about 10,000 different shapes and sizes, order to be filled in sixty days, one man did the work, averaging about 1,000 per day, of which not over four brick were of the same shape or size. Had we not had the recutter we could not have accepted the order.

Thanking you for what you have done for us by placing the recutter and trusting our future relations may be as pleasant as in the past, we beg to remain,

Very truly yours,

THE KUSHEQUA BRICK COMPANY.

Kushequa, McKean County, Pa., March 8, 1908.

The Bradford recutting machine is easily operated and quickly adjusted for various shapes. It is possible to use only one wire with gauges to obtain an angle when only one side of the brick is to be cut. When both sides of the brick are to be cut, both wires are used, set to proper angles

with gauge for location. This machine is made by the G. W. Fleming Company, of Bradford, Pa. See their ad on page 616 of this issue, and write them for their catalog and full particulars.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

HERE IS A decided improvement in the building trade in the northwest. The smaller towns are starting early with building, and the larger towns are making preparations for a good summer trade. The several large projects which have been hanging fire for some time, are all materializing. The new White building, to be erected by the Metropolitan Building Association, has taken out its building permit, and the foundation has been started. This building will be an eleven-story office building. All the steel for the Frye building has been erected, and brickmasons will soon start their work. The largest sewer contract so far let in Seattle was the Green Lake sewer, which will cost over \$80,000 when completed. Brick manufacturers are speculating much in regard to the brick to be used for this sewer.

large paving contract will be let in Centralia shortly, and the company hopes to be able to land this contract.

The Pacific Coast Silica and Clay Company, of Seattle, was recently incorporated. This company has mines at Silica City, in Oregon, about seventy miles from Portland, on the Columbia river. The company claims to have very valuable deposits, and is trying to put its products on the market. They also intend the erection of a large factory for the manufacturing of sewerpipe, architectural terra cotta, and fire brick. George W. Kummer, who is considered the pioneer clayworker on the Pacific northwest coast, and who was manager of the Denny-Renton Clay Company, has been appointed as general manager. Mr. Kummer has about decided to employ the services of several of the men who were his assistants while managing the Denny plant, and in this connection are mentioned A. Maddison and Geo. W. Workman. Mr. Ed. F. Sweeney is president and Mr. Clarence E. Lighton is secretary of the new concern.

W. H. Barnes, with some other town parties, is figuring on establishing a brick plant at Tekoa, Wash. They have found a suitable clay and site, and will start the operation of the plant in the near future.

The Hamilton Brick Company, of Hamilton, Mont., was



Anton Berg.



John Berg.

The demand for common brick has been good the last few weeks, and nearly all plants are operating. The winter has been very open, and operations will not be interfered with any more on account of the weather conditions.

Plans and specifications are now out for the new Government building to be erected in Tacoma. It will be quite an addition to the town and will be in harmony with the large, modern city hall. The large tunnel which the Union Pacific contemplates boring under the city proper, will be made either of brick or concrete.

Building in Portland has been rather slack this month, and no new projects have come through. The contract was let for the Y. W. C. A. building, and construction will commence before long.

The Little Falls Fire Clay Company, of Tacoma, has decided to go into the paving brick business, and has made several tests on different kinds of shale. The shale from the Wilson coal mine, near Centralia, has proven to be the best, and in order to make a satisfactory run, five carloads of this shale were shipped to their factory at Spokane. A

organized by J. O. Lagerquits, F. H. Drinkenberg and Geo. E. Sullenger. They will put in soft mud machinery, and expect to manufacture about half a million brick this season.

At Fernie, B. C., a clay company has been organized for the manufacture of building brick. A. Mutz, president of the Fort Steel Brewing Company, Thomas Todd and E. R. Wrigelsworth are the main owners. The company is incorporated for \$50,000, and will install an up-to-date plant.

Elk City, Idaho, will soon have a brickyard. Several large brick blocks are to be built in that city, and the new brick company will erect a plant accordingly.

Lew Ogan, who has for several years been in California, was recently in Oregon, looking over the clay industries. He has about decided to erect a brick, sewerpipe and terra cotta plant at Astoria. Some very good clay and kaolin is found near this point.

A company has been formed to open a brickyard at Harlowtown, Mont. The plant will have a capacity of 2,000,000 brick for the next season. Mr. Groves, of Harlowtown, is interested with Peter Stansos and S. J. Munroes in the project. The two latter parties are practical brickmakers from Butte, Mont.

SIWASH.

Written for THE CLAY-WORKER.

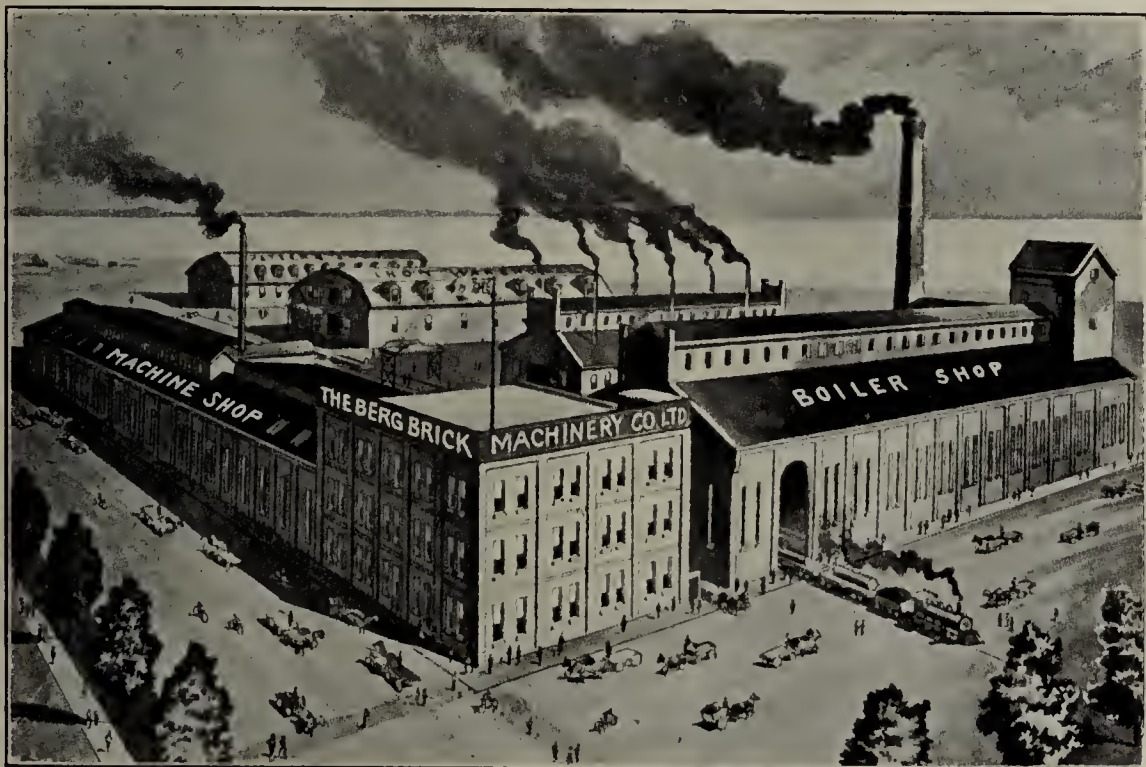
THE CANADIAN HOME OF THE BERG BRICK PRESS.

SO LARGE has been the demand for the Berg brick press that the firm of A. Berg & Sons has been forced to move into a much larger and better adapted factory, through lack of facilities and cramped quarters.

The factory they have recently purchased was formerly owned by the Canadian Ship Building Company, and is situated at the corner of Bathurst and Niagara streets, Toronto, Can. It is one of the largest and best located factories in Canada, and consists of a machine shop, foundry, pattern shop, smith shop and boiler shop, with railway sidings through the building and yard.

The plant is fully equipped and ready to manufacture brick machinery and all brickyard appliances of the highest grade, also steam engines, boilers, gas and gasoline engines, and gas producers. The firm has several inventions and patents, which it will develop at an early date.

The new company is styled, "The Berg Brick Machinery Company, Ltd." They moved into the new factory on the 29th of January and since have ordered considerable stock, expecting to employ from 200 to 300 men in the near future,



Where the Berg Brick Press is Manufactured, Toronto, Ontario.

although when the plant is working to its capacity, it will employ 500.

In the past A. Berg & Sons have had their machinery manufactured partly in the plant they now occupy and partly by the John Inglis Company, Ltd., while their office has always been located in Manning Chambers. They are now contracting all business at their commodious office building at the works.

The Berg Brick Machinery Company, Ltd., contemplate and are negotiating to manufacture mining machinery, which, it is anticipated will work fairly well with brick machinery, engines and boilers.

They are affiliated with some of the wealthiest and best business men in Canada, and have organized their company for one-quarter million dollars. Mr. Berg is the owner and inventor of the celebrated "Berg" press, which is considered one of the best on the market. He has had twenty years' experience and is a mechanical engineer of high standing. Associated with him are his two sons, John and Severn, both valuable assistants in this large business. All with whom A. Berg & Sons have done business wish them every possible success, which they so well deserve in their venture.

During the past three years they have been manufacturing these presses, with all equipments, selling and installing all told, complete outfits for twenty-one plants, the capacity ranging from 20,000 to 60,000 daily, of ten hours' run.

ARCHITECTURAL EXPRESSIONS ON CONCRETE.

During the latter part of February, there was quite a discussion at the meeting of the Engineers' and Architects' Association, of Los Angeles, Cal., on the subject of steel vs. concrete construction, in which it developed as being the consensus of opinion that reinforced concrete is not properly a fireproof material to the extent that it retains its strength after having been subjected to fire. In the discussion there was a story told of some tests made on this point where a set of four concrete columns, which, after being made two years, were cut in a section three feet long and stood a test of 140 tons for an actual area of 170 square inches. One of these columns was treated with four inches of fireproofing and then two others were taken, together with the one fireproofed, put in a furnace, and heated for three hours to a temperature between 1,500 and 1,600 degrees. Water was then applied to one of the piers not fireproof, the other then being allowed to cool off without application of water. The next day these two, one of which had been allowed to gradually cool off, and the fireproof column were all tested. The fireproof column was found to stand practically as well as before, but the two pieces not fireproof had lost practically all of their strength, and there was seemingly no difference between the one to which water had been applied and the one which had been allowed to cool off slowly, because, under a pressure of five tons, they began to crack, and under a total pressure of thirty-seven tons they gave way entirely.

It was naturally contended that if these columns had been a part of a structure, or if concrete in any manner had been made the supporting medium of a building and subjected to fire in this manner, it would have lost its strength and there would have been danger of the building collapsing. So, it seems that while concrete will stand quite a lot of fire, it won't stand well after it has been through a fire, and the architects conversing of this experience say that there is one thing that we have got to get out of our minds, and that is, that reinforced concrete is fireproof to the extent that it retains its strength after being subjected to fire.

DIXIE SCOTT'S NEW OFFICE.

The Scott Manufacturing Company, St. Louis, Mo., are sending out a very pretty post card, advising their friends of the removal of their office on April 1st to suite 1811-1815, Third National Bank building, southwest corner of Broadway and Olive st., that city. The building is a splendid skyscraper, nineteen stories high, and, as Mr. Scott is on the eighteenth floor, he will be able to look down on his neighboring competitors. However, they and all visiting clayworkers are invited to view the city from the same elevation. As they say in Indiana, "The latch string hangs out."

The Watson town Brick and Clay Products Company has been formed at Watson town, Pa., and will be incorporated under the laws of this state. The company is having plans prepared for a modern plant that will be erected this spring, and which will have a capacity of about 25,000 nine-inch brick per day.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



HERE SEEMS TO BE more life to the brick situation than a month ago, although prices have not advanced materially on common brick and many of the plants are still closed down. The large carry-over of common brick from last season makes it problematical when the soft mud brick yards will resume brickmaking. There is a great deal of inferior stuff still on the market, and a resumption of manufacturing at present would only glut the market. A number of the stiff mud plants are in operation and others are preparing to start. The manufacturing of face brick is fairly active, and for some of the best grades of pressed brick there is a good demand at very fair prices.

The continued fair weather favors building operations, and a good deal of brick, terra cotta and ornamental tiling is going into large buildings in this city. Hollow tile for partitions is also being consumed at a good rate in high class buildings.

The building situation is quite encouraging, although a great deal more money is needed for construction purposes than can be secured from the local banks under their present policy. Eastern money will undoubtedly be secured before long, for owners of valuable inside property can not afford to have it remain unproductive much longer. They will, in many cases, pay seven per cent. interest on a ten-year loan in order to secure funds for building purposes. Stanford University funds to the extent of \$10,000,000 will be loaned to persons who are erecting buildings, as fast as the money can be collected for the purpose. Several large eastern insurance companies are also looking favorably upon San Francisco building loans. Nothing but the scarcity of money will prevent a big building boom here this summer and fall, and a good building record will be made for the year at any rate.

Common brick are quoted at about \$8.00 and some dealers are trying to get \$8.50. There is plenty of inquiry.

The California Brick and Pottery Company, John Kidecker, general manager, will start up its plant at Glen Ellen, Cal., May 1. A great deal of hollow tile partition of a superior quality is manufactured by this company.

The California Brick and Clay Manufacturing Company has been running its improved plant at Antioch, Cal., steadily for some time past. The hollow porous partition tile made by this company is being used in the new Custom House, now well under way in this city. The contract for the material amounts to about \$12,000, and the setting cost's considerably more. The material is known as book tiling and has tongue and groove, so as to be fitted together very snugly. The tiles are made porous by a special process and nails can be driven into them.

The plant of the Port Costa Brick Works started up April 1, with enough orders ahead to keep the employes busy for several months. A fine quality of hard common red brick and some superior clinker brick are turned out by this company, for which the United Materials Company, of 10 Third street, San Francisco, has the selling agency.

The Stockton Fire and Enamel Brick Company, which also sells through the United Materials Company, is getting excellent results at its new plant at Stockton, Cal. James Hyslop, who was formerly connected with the Carnegie Brick and Pottery Company, has charge of the clay mixing at this plant. Two additional Hoffman kilns are being installed, with a capacity of 1,000,000 per month. The fire brick which has been turned out recently has given great satisfaction. It has a quartz fronting, which prevents the brick from shrinking when it cools after being exposed to heat. It is

said that the Santa Fe Railroad Company, which has been using some of this fire brick for lining locomotive fire boxes, has gotten 100 per cent. better results than with any other brick.

The Carquinez Brick and Tile Company is filling an order for 6,000,000 shale brick for the new Palace Hotel from its plant at Eckley, Contra Costa County, Cal. O. H. Harrison is president and H. W. Smith secretary of this company, which now has its offices in the Russ building, on Montgomery street. The massive eight-story steel frame of the Palace Hotel is almost completed. The steel is up to the full height on the Market street and New Montgomery street frontages. The site covered by this great structure is 275x344 feet, including the court, which extends up only two stories instead of running clear to the roof, as in the original Palace. The exterior ornamentation of the building will not be extremely elaborate, but expense will not be spared in any material detail of construction and equipment. The building, when occupied, will have cost more than \$3,000,000.

The Bay City Brick Company's stiff mud brick plant at Twenty-Fourth and Corbett avenue, is temporarily closed down, but the company's selling agent, J. A. O'Reilly, of No. 10 Third street, is still filling orders, as there is quite a carry-over of brick from last season. A good quality of shale brick is produced.

The Medford Brick Company, which is composed of C. W. Priddy, C. D. Naylor and G. T. O'Brien, has decided to do away with the slow process of manufacturing brick by hand, and will very soon install a complete equipment of power presses in its yard at Medford, Ore.

A company headed by W. C. Groves, of Harlowtown, Mont., and Peter Stansos and S. J. Munroe, of Butte, will open up a brickyard and plant at the former place with a capacity of 2,000,000 brick a season. Work has been commenced at the site.

At the recent annual meeting of the stockholders of the Pacific Coast Pottery and Terra Cotta Company, held in San Jose, the following directors were elected: A. W. Hastings, W. K. Jenkins, M. Blanchard, R. R. Webb and M. Carter. At the meeting most of the stock, which is all in San Jose, was represented. The following are the officers elected: W. W. Hastings, president; M. Blanchard, vice president; W. K. Jenkins, secretary, and the Garden City Bank and Trust Company, treasurer. This company was organized one year ago and during that time has made rapid progress in business. During the year just closed, the plant of the company was located on S. First street, near Floyd, but its place of business has just been changed to S. Fourth street, where a building 48x80 feet has been completed, and where operations will begin as soon as the machinery ordered from the east arrives. On this ground also stands the oil tanks, barns, and the kiln, one of the finest in the state. The additional machinery, which is now on the way to the coast, will largely be used in the production of sewerpipe. Because of the availability of a very superior grade of clay that this company controls, and because of the high grade machinery just ready to be installed, the stockholders claim that a very excellent product can be manufactured in this county purely from materials that exist here.

Charles T. Hicks, of the Hicks Clay Company, of Drake, Ill., and others have been in Salt Lake, Utah, investigating a large deposit of kaolin in Cedar Valley near that city. It is given out that a company will be organized to work that deposit, and a porcelain and enamel brick factory will be erected in Salt Lake City to use the output.

Theodore Graham, formerly of California, has bought the brick machinery and a ten-acre tract of land at Moscow, Idaho, from W. A. Lauder, and will at once begin the manufacture of brick. He has the contract for furnishing 1,500,000 brick for the Idaho University.

Ezra Sheldon has begun the manufacture of brick at Riverside, Cal.

It is announced that the Pymont Brick Company has arranged to put up a large brickmaking plant at Lincoln,

Cal. A site has been secured adjoining the works of Gladding, McBean & Co., the largest manufacturers of terracotta products on the coast. The fact that the company is offering stock for sale along with its announcement of its intentions has caused some comment.

J. D. Martin, of Palo Alto, Cal., has secured an option on a deposit of fire clay near that place. The option covers over 12,000 acres.

SUNSET.

San Francisco, Cal.

Written for THE CLAY-WORKER.

ST. LOUIS BRICK AND BUILDING NEWS.



ALTHOUGH IT IS a little too early for building operations to begin in earnest, preparations are being made. The brick manufacturing plants are turning out their products in expectation of considerable of a demand for brick, and the brick machinery people are receiving quite a lot of orders for machinery at plants that anticipate a busy spring.

The number of building permits for structures in the residential district continues to increase. Of the former there would seem to be more than enough now in existence to supply the demand for some time to come. Most of the vacancies are in this class of property. Small dwellings are needed, and, up to the present, there have not been enough to supply the demand.

The decrease in the price of building material seems to have stimulated building operations to an abnormal degree. It is to be deplored that most of the property owners who are seeking to improve their holdings should turn to flats. Nearly all the real estate agents now have larger flat rent lists than they can find tenants for.

Building permits for March, according to the report of the Building Commissioner, show a decrease of \$995,169 over March, 1907. Total permits issued in March, 1908, were \$1,964,490, while last year they were \$2,959,659. Of these amounts, \$1,773,234 were for new brick buildings, as compared with \$2,703,620. Brick additions amounting to \$77,543 were built, while in 1908 there were \$137,555. In March, 1907, frame buildings costing \$107,850 were built. Last month there were \$101,467. Frame additions in 1907 were \$10,604, as compared with \$12,276 last month.

The Parker-Russell Mining and Manufacturing Company, of St. Louis, filed a statement recently, to show that it had made an increase in its capital stock from \$150,000 to \$750,000; \$375,000 of the capital is now preferred stock and entitled to six per cent. dividend. The assets of the company are given at \$864,612.64, and the liabilities at \$56,418.04.

The Central Shale Brick Company filed application for articles of incorporation recently, with a capital stock of \$50,000, fully paid. The incorporators are: Charles E. McEwing, who holds 299 shares; W. H. Allen, who holds 298 shares; John D. Woodruff, Joseph R. Hickman, all of St. Louis, and Charles P. Tiley, of Belleville, Ill., who hold one share. The object of the corporation is to manufacture and deal in brick.

The Laclede-Christy Clay Products Company recently sold a nine-acre tract of its ground between Morgan Ford road and Gravois avenue. It will be laid out in building lots.

Following a year of enforced idleness on account of the strike of the carpenters of Belleville, Ill., last May, the opening up of spring weather has brought a season of building operations which promises to be the best the city has ever known. Building contracts amounting to upwards of half a million dollars, which were practically canceled last year on account of the strike, have been renewed. Additional contracts for residences and business buildings to the amount of over \$300,000 have been awarded, according to contractors,

which means work for all the men of the building trades obtainable in Belleville the entire summer, and also means the using of many million of brick.

A number of contractors state that a tacit agreement has been reached with the members of all the building trades unions, under which there will be no strikes and suspensions on account of wage questions and labor conditions.

A large deposit of the white glazing sand, which has made St. Charles County, Mo., the county adjoining St. Louis County, noted in most all centers where pottery is manufactured, has been discovered on the opposite side of the Missouri River from Klondyke, St. Charles County, where a bed is now being operated. Over a thousand carloads of the sand is exported each year.

The new engineering company, the Luce Engineering Company, which has recently moved into new and commodious quarters in the new Third National Bank building, is quite busy. The company is installing brick machinery in several of the largest plants in the country.

W. P. Grath, of the Illinois Supply and Construction Company, says he is receiving many inquiries in regard to his well known Grath Special brick press. It is an ideal press, and he has recently closed contracts for a great many of them. They are giving the best of satisfaction.

The offices of the Scott Manufacturing Company have been moved from the Commonwealth Trust building into the new Third National Bank building. The new offices on the eighteenth floor are handsomely finished. W. A. Scott, the president of the company, reports having done a large business during the past few months, the largest in the history of the company. Their Andrus brick press, the "Press that Scott Builds," has met with great favor with brick manufacturers who have used them. They have also quite a number of orders on hand for future delivery.

The Fernholtz Brick Press Company, report a good demand for the Fernholtz brick press.

Mr. Williams, president of the Williams Patent Crusher and Pulverizer Company, says business has been quite brisk the past few months.

Business is reported quite satisfactory at the plant of the Laclede-Christy Clay Products Company.

George W. Jones, secretary of the Evens & Howard Fire Brick Company, says they are busy as usual.

Anthony Ittner, president of the Anthony Ittner Brick Company, says they are keeping right along manufacturing brick for the demand that he expects will develop the coming spring and summer.

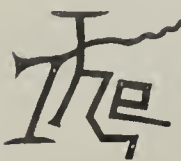
A SAINT.

THE EXCAVATING.

The excavating, or, as commonly called, the digging for small tile, is usually the most expensive portion of the work. The occupation of ditching is usually considered a very bad one, and for that reason it is generally well paid as compared to other labor. The ditchers are usually paid about the same rates as prevail for harvest hands when they are much needed. I do not make the claim that it is easy work to throw dirt out of a ditch, neither do I wish to convey the impression that skill is not necessary, for as a matter of fact, the skilled workman will frequently do more than double the work of the unskilled man and apparently with less exertion, too. The best ditcher is not always the heaviest or strongest man, neither is he likely to be the man who does the most work with his mouth, and he certainly is not the man who under the plea of having gained experience in the "ould country" will not dig a straight ditch or do the work as you wish it done. Very many machines have been invented for the purpose of doing this generally detested work of ditching. Although quite a number have been sold and are apparently doing good work, still they are far from being in general use.—Prof. R. C. Carpenter.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



PROSPECTS IN THE building brick line are not as bright as they have been at some times, present indications being that operations the coming summer will be considerably impeded, unless the financial situation should loosen up in the meantime. Local conditions have been affected somewhat by recent prosecutions under the Valentine law of the brick dealers and other building material concerns, and it is thought that these conditions will wield a depressing influence on the building business the coming summer. The brick men, however, have not been confined to Toledo in their trade, and have, therefore, not felt the bad effects as keenly as the lumber men.

This condition does not prevail so far as paving brick industries are concerned. Present indications point to a business this summer which will far exceed anything in the past. Many municipalities are already letting the contracts for paving work, and numerous contracts have already been closed. The city of Toledo will make several lettings now soon, and numerous other contracts will follow in the near future. The only possible thing which can prevent next season from becoming a record breaker in the matter of street paving, will be the inability to place their municipal bonds.

It is certain that the season will start out with considerably better prices in paving brick than those which prevailed last year at this time. Most of the manufacturers have been shipping out brick all winter and find themselves with depleted stocks at this time. The Logan Brick Manufacturing Company report very encouraging prospects for the opening of the season. Their new style brick, which was placed on the market last summer for the first time, is meeting with considerable favor. It is larger than the ordinary paving brick, and lays but thirty-eight to the cubic yard. Present price quotations on paving brick range from \$12 to \$14.

The city of Toledo recently decided to increase its bonded indebtedness \$390,000, of which \$140,000 will be used to pay the city's proportion of street and sewer improvements contemplated for 1908. The balance will be used to complete the filtration plant now in process of installation. With this, and the money already on hand, it is the intention of the service board to award contracts and get every part of the work under way as soon as possible. This will include all sections of the big conduit from the purification plant to the pumping station and connection with the pumps, the pump house and machinery at the filter, the intake tunnel, and the intake pier.

The Great Western Pottery, at Tiffin, Ohio, which had temporarily closed down some time ago, has resumed work, and is again running with a full force.

It is said that the railways will have trouble on their hands unless the rates on eastbound paving materials are again reduced to where they were before January 1, when an advance was made. The manufacturers threaten to go before the Interstate Commerce Commission with their complaint that the charges are unreasonable, and announce that they will fight to a finish.

W. B. Taylor, of Toledo, will erect a three-story hotel the coming summer on Erie street, at a cost of about \$10,000. It will be constructed of pressed brick, with terra cotta trimmings. The contracts for the work have not yet been let.

John Skeeles, of Canton, was the lowest bidder among the competitors for constructing storm sewers in that city. He was awarded the contract at \$6,440.77.

At the recent annual meeting of the Iron-Clay Brick Com-

pany, of Columbus, all of the old officers were re-elected for the ensuing year. W. D. Brickell is president and treasurer, and J. W. Adams secretary and general manager. The directorate consists of W. D. Brickell, David C. Meehan, T. J. Marriott and A. R. Roff. The report showed a prosperous year, with orders now coming in fast. The plant at Shawnee has been closed down temporarily, but will soon resume operations again.

There is a prospect that street improvements in Toledo will be somewhat delayed because of difficulty in the placing of city bonds. At a recent letting, \$390,000 of four per cent. bonds were offered for sale to the highest bidder. Only two bids were submitted, and both were irregular and could not be accepted. Representatives of bond houses explained that as long as four and one-half per cent. bonds were for sale in New York City it would be difficult to secure purchasers for four per cent. bonds here. An effort is being made to sell the bonds at private sale. In the meantime, street paving and the new filtration plant will be held up until the bonds can be placed.

George Christian Kuhlman, for many years one of the most prominent building contractors in Toledo, died, recently, at the age of eighty years. He had been a resident of Toledo for fifty-five years, having located there on his arrival from Germany in 1853. He leaves a wife, one daughter and four sons, one of whom is Adam R. Kuhlman, vice president of the Toledo Builders' Supply Company.

The Sugar Grove Brick Company has installed a new press and otherwise increased its capacity to a daily output of 50,000 brick. E. W. Swisher is president and C. W. Herb secretary of the concern.

The Colonnade Building Company, of Toledo, has been incorporated and organized, with C. J. Mandler as president. An immense brick building will be erected this summer, extending from Huron to Erie street. The contract for the structure will be let at once, the plans having been completed. An arcade will connect the two street entrances, and will contain twenty-eight shops, fourteen on each side. Above these shops there will be fifty-two office rooms. The project has some of the best financial backing in Toledo. The structure will require perhaps as many building brick as any building to be erected this year.

The Iron-Clay Brick Company is again operating its brick plant at Shawnee, and employing about 150 men. A new wage scale has been signed up with the workmen. No reduction in wages is provided, but a readjustment provision is the principal feature. The company has recently received a number of good orders.

The city of Mansfield will expend about \$20,000 on street paving this summer. Several streets will be reimproved, and some streets will be paved. A number of important sewers will also be constructed. Mansfield has the distinction of having more miles of paved street for its size than any other city in the state.

T. O. D.

REPORT VERY FLATTERING TRADE OUTLOOK.

The Benton Brick Company, at Benton, Ill., recently added to their plant a new White press, for making their high grade red pressed brick from shale. Mr. F. O. Hamilton, president and manager, is enthusiastic over the new machine and the quality of brick they are now making. They have been making dry pressed brick for about four years, but started on a surface clay, having discovered the shale some time after the yard was running. This made so fine a brick that they have had to double their capacity; therefore, put in the new press this winter, which they purchased from the Chicago Brick Machinery Company. Mr. Hamilton reports the outlook for the coming season as very flattering. They have recently bought 600 tons of coal to keep on hand in case of a coal strike, which is threatened in that vicinity.

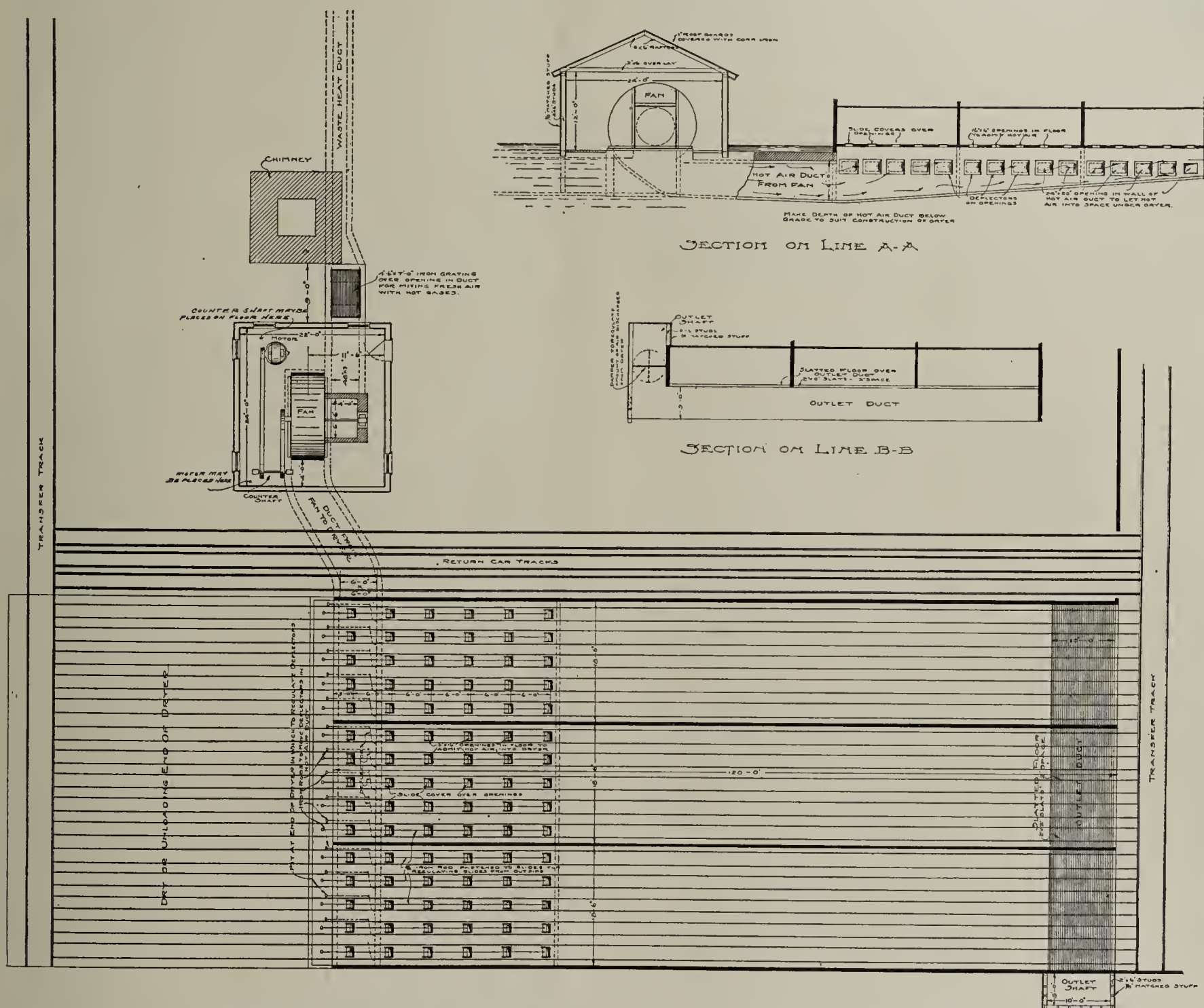
THE MASSACHUSETTS FAN COMPANY'S WASTE HEAT DRYER.

THE FAN BLOWER has solved the problem of utilizing the waste heat from brick kilns. Only under its positive action has it been possible to insure the continuous passage of fresh air through the cooling kilns, and of forcing it, after heating, through the dryer and between the surfaces of the brick. The application of fans to meet these conditions, and the design of the complete installation has represented one of the most important activities of the Massachusetts Fan Company, of Watertown, Mass.

This activity has been born of experience on the part

through the kilns. By a simple arrangement of dampers, the air may be drawn from either source—the kilns or the heater—or may be mixed in any desired proportion. By this means it may be exactly tempered to the requirements of the dryer at any particular time.

All ducts are of concrete, that through which the hot air is forced from the fan being connected with a series of six tapering ducts, which extend some thirty feet up under the dry end of the dryer. In these ducts are numerous outlets, eight inches wide, through which the entering air is well distributed. At the green end of the dryer a grating above a crosswise concrete duct provides ready opportunity for the escape of the moisture laden air, which finally passes



Sketch Illustrating Massachusetts Fan Company's Waste Heat Dryer System.

of its engineering staff—an experience covering a period of years spent in the great brickmaking territory of the middle west. One of the principal offices of this company is maintained at the Rockefeller building, Cleveland, Ohio, under the management of Mr. R. G. Ferguson an engineer of large experience in the drying of brick.

The design of an individual installation is illustrated herewith. Through the underground duct connecting with the kilns the heated air is drawn to the fan, passing beneath a special steam heater, just prior to its entrance. This heater, consisting of eight of the Massachusetts Fan Company's standard sections, serves to make good at any and all times any possible shortage of heat resulting from passing the air

up the shaft at the side of the dryer. An efficient system of raising doors is provided.

With this type of dryer the Massachusetts Fan Company has reduced the cost of drying from sixty cents per thousand to ten cents per thousand, and sometimes less. The kilns have been cooled with great rapidity, the brick have been dried bone dry, and their quality and color vastly improved. The power necessary to drive the fan is practically nothing as compared with the heat required with the old furnace or live steam method. Whenever steam is employed in the heater, the exhaust from the fan engine may be utilized, thus enabling it to perform double duty—first for driving the engine, and second for heating the air.

The positive circulation of the air at a rapid rate across

all surfaces of the brick is the vital element in this rapid and thorough drying. Only by such rapidity of movement by the constant renewal of the air can it moisture absorbing qualities be utilized to the utmost, and only thus can the highest efficiency of the entire system be secured.

Written for THE CLAY-WORKER.

AMONG THE POTTERIES.



HILE THE manufacturing potters of the eastern Ohio district are not doing as much business as a year ago, yet all plants are running about two-thirds of their capacity. Shipments were about one-third less than March of last year, according to information advanced by railroad officials. There has been a steady improvement in trade since February, and there is every indication that during the month of April, business will take on with renewed activity.

The brick and sewer pipe manufacturers are hopeful for a good season, for direct reports have been received that in some sections much municipal improving has been planned, while in the building line many large places are to go up. The manufacturers have been watching the steel market pretty closely, and in this line indications are that business will be brisk within a month or so. More mills are resuming, and this is taken as a good omen.

Members of the National Brotherhood of Operative Potters organization have started to prepare their resolutions which are to be acted upon at the annual brotherhood convention, which is to meet at Atlantic City in July. There will be nothing done this season relative to a wage increase. This proposition was settled for a two-year term last October, at a conference lasting a week in New York.

William Griggs, for many years superintendent of the Taylor, Smith & Taylor Pottery, at Chester, W. Va., has resigned, and will go with a large Trenton (N. J.) pottery company within the next few weeks.

A new decorating kiln has been erected by the Globe Pottery Company, at East Liverpool, Ohio. The old kiln was wrecked by an explosion caused by a flood in the Ohio River in February.

Citizens of Ravia, Okla., want a pottery located there, and through R. T. Wilkinson, of the Commercial Club of that city, efforts are being made to secure one.

Machinery for a new pottery being built at Augusta, Ga., has been ordered from the Patterson Foundry and Machine Company, of East Liverpool, Ohio. The company was formed by Collin McLean, formerly of East Liverpool. Large deposits of clay are within a stone's throw of this new plant.

The Commercial Supply Company, to deal in pottery and any other clay products, has been organized at Chester, W. Va., with Oscar O. Allison cashier of the First National Bank of that place as its president. The company has placed a dozen men on the road.

Business with the East Palestine Pottery Company, at East Palestine, Ohio, is so brisk that the firm has been compelled to operate a number of departments at night. It is currently reported through the western pottery districts that all potteries outside of the immediate East Liverpool district are all busy.

The Pope-Gosser China Company, of Coshocton, Ohio, is operating its plant full. It was this firm which first started to make ware from an American china clay found in Texas.

Employees of the Carrollton (Ohio) Pottery Company gave a banquet recently in honor of the members of the firm. It was a return event, for the workmen were first banqueted by the firm. The company contemplates changing their kilns from coal to gas this month. The factory is running full.

The plant of the Devonshire Brick and Terra Cotta Com-

pany, at Roseville, Ohio, has resumed operations in every department. The plant is making a very high-grade of brick and a good amount of business has already been booked.

Announcement is made that operations have resumed in full at the plant of the Kenilworth Brick Company's works, at Kenilworth, W. Va., which has been closed since early in the year. During the suspension the plant was thoroughly overhauled. The oil house at this works caught fire a few days ago, but the flames were extinguished before any damage resulted to the factory.

The Owen China Company has been incorporated under Ohio laws, with chief offices at Minerva, Ohio. The capital stock is placed at \$125,000. Incorporators are: U. D. Roller, William R. Kurtz, John Starkey, E. M. Jerome and Willard Penwork. The company will operate the plant of the Owen China Company, organized several years ago.

All potteries in the vicinity of Crooksville, Ohio, have taken up the proposition of using gas for kiln fuel instead of coal. A proposition has been made to all the manufacturers in that locality by the Southeastern Gas and Oil Company, by which the pottery manufacturers have the option of securing gas at fifteen cents per thousand cubic feet.

The Kirkwood Pottery Company, of Zanesville, Ohio, has been incorporated with a capital stock of \$15,000. C. S. Myers is at the head of the new concern.

The American Web Tile Sewer Company, of Syracuse, N. Y., with a capital stock of \$100,000 has just been incorporated under New York laws. The incorporators are: Edward P. Cahall, Walter Welsch and William Cahall, all of Syracuse.

The Trenton Potteries Company, of Trenton, N. J., has about perfected arrangements for the production of a new grade of ware which will appeal to the buyers of the Pacific coast districts. One feature will be the lightness of the sanitary articles manufactured. By this proposition the freight charges will be reduced over seventy-five per cent. over present articles.

After a brief holiday, the Globe Pottery Company, East Liverpool, Ohio, has resumed operations in full.

George O. Anderson has resigned the position of chief clerk to the general manager of the East Liverpool Traction and Light Company, to become manager of the Anderson Porcelain Works, which was started by his father, T. F. Anderson, a pioneer in the brick and sewerpipe line. Their plant is at East Liverpool, Ohio.

Additional clay presses have been installed in the plant of the Taylor, Smith & Taylor pottery, Chester, W. Va. An additional kiln was also added to the pottery, which is being operated at present to its capacity.

Experiments, which have extended over a space of several years, have been terminated successfully by the Goodwin Pottery Company, at East Liverpool, Ohio, in the manufacture of semi-vitreous hotel china. The work was under the direction of general manager John Goodwin, who has announced the firm will go into this line upon an extensive scale at an early date.

The plant of the Bradshaw China Company, at Niles, Ohio, after an idleness extending from last fall, has once more resumed operations.

OMEGA.

"WATERPROOF" BRICK IN DEMAND IN PENNSYLVANIA.

What is claimed to be the largest single order for waterproof brick that has ever been placed, was awarded the latter part of last month to the Harbison-Walker Refractories Company, Farmers' Bank building, Pittsburg. The brick will be used in the construction of the new building for the Carnegie Technical Schools in this city, and the order calls for the delivery of 2,500,000 brick, deliveries on which are to be started at once. It has been estimated that it will require at least 250 cars to ship this order from the Templeton (Pa.) works, where the brick will be made. This is a new plant, that was but recently completed, and which was especially designed and equipped for the manufacture of this class of building brick, which are known as "front brick," for which there is a heavy demand in Pittsburg and vicinity, and which is rapidly growing popular throughout the entire east.

Written for THE CLAY-WORKER.

DOES IT PAY TO ADVERTISE?



WHILE YOU SIT AROUND and read the special bargains and other offers in the newspapers, displayed and paid for as advertising, or while you look through your favorite trade paper to see what's new in the way of machinery and how many different kinds of machines may be offered for any given class of work, did

it ever occur to you that you might find therein an answer to the question, does it pay to advertise your own product? Whether or not it pays the brick man, for example, to advertise his product depends partly on where he advertises, partly on how he advertises and partly on the product itself.

It has been demonstrated time and again that by certain advertising one can sell even gold brick, but the sales are generally limited to one time to one party. If a man has a poor and inferior article to advertise, the gold brick class of advertising probably pays best, but if one has a really meritorious article it simply discredits the article and really handicaps its continuous sales to resort to gold brick methods in advertising. Advertising is said to be a science, but sometimes we are prone to think that if people would quit aiming at the idea of being scientific about it and simply be natural awhile, they might get better results. Were it practical to do so, and in so far as it is practical, one should probably advertise an article just as one would talk about it if discussing it personally with the prospective purchaser. It is a fact, however, that many a man who can talk convincingly about his stuff when a customer calls, falls short of getting this same convincing talk in his advertising. Advertising should arouse interest and bring conviction, or to state in another way, must both attract and hold attention. Freakish advertising doesn't hold or concentrate attention on merits and on that which it is desired to call attention to, and sometimes that which is convincing fails to be attractive. Probably what we need is not so much science, as a little more serious thought given to advertising in a plain and straightforward manner, to bring better results and build up a better respect for the advertised article. Next to how to advertise, or before it, possibly, comes the question of where to advertise, and that naturally depends on where you expect to market your product. If the majority of it is to be marketed locally among the mass of building people, advertise in local papers and do it both intelligently and persistently. Don't be contented with just carrying a "card," but make a feature of good advertising, and give it the same careful attention you do the factory end of your business. Where you can do so, too, it is conducive to both interest and conviction to give some figures as well as facts and explain not merely what brick costs per thousand and how many thousand it takes to build so many cubic feet of wall, but go into the matter a little more comprehensively and give some figures on the cost of erecting houses of a certain size and shape.

One of the serious handicaps to the more extensive use of brick as a building material is in the general idea clinging to the public mind, that a brick house is something so expensive that none but the rich can afford it. This is something of a fallacy, too, that it is up to the brick men to give facts and figures that will dispel it, and a mighty good place to do this is in your advertising in the local papers. If you will keep this properly in mind and other points of the same nature, and use your advertising space properly, your business itself should in time furnish a satisfactory answer to the question of whether or not it pays to advertise. When that which you have to sell is not by any means confined to the local trade, when your product is one of wide distribution rather than dependent on home requirements, the problem of advertising, to some, becomes more complicated, because it involves the question of what medium will likely reach the greatest number of people whom

it is desired to interest. Without going into this feature extensively it is desired to call attention to one point which may be overlooked, and that is that, when a man reaches that point where he expects to be in the market for any kind of quantity of brick not available in his home town the first place he naturally turns to for information is to the trade paper covering the brick industry. If a man wants anything in the same category, as the man who is in the market for barrels, he scans the cooperage paper for the names of firms having barrels for sale. A peculiar thing about it all is that too frequently a man seeking information of this kind in the advertising pages of a trade paper is disappointed in the results. The explanation is easy to find: the cooper, because he reasons that the cooperage papers go to coopers only, reaches the natural but erroneous conclusion that it wouldn't pay to advertise barrels in a cooperage paper. He forgets that that very man who is coming into the market that he is anxious to get in touch with will hunt up a cooperage paper to find out where he can buy barrels. If a man wants to buy brick he hunts up a paper devoted to the clayworking industry, and it is the same thing about all other articles. When he first comes into the market he turns to the paper devoted to that trade, and if more consideration is given to this fact by those who have advertising in mind as a means of increasing their business, it may be found that here, too, after a time they may learn the lesson that a good place to advertise clay products for general distribution is in the paper devoted to the clayworking industry, even though it is extensively read by clayworkers themselves, some of whom may be producers of the articles advertised.

Written for THE CLAY-WORKER.

HERE AND THERE IN NEW JERSEY.

IF NEWARK is any indication of the situation in New Jersey, brickmakers will act conservatively this season. Building permits issued in that city, the largest and most rapid growing in New Jersey, run from \$50,000 to \$125,000 a week less than last year at this time. There is sale for neither brick, cement blocks, nor lumber. The effect of this is that trade in brick promises to be anything but good all through the season. In some degree the entire district of New Jersey surrounding New York is affected a good deal the same. Depression which hurt business so severely in New York has exerted its baleful influence to some extent in New Jersey, and trade in brick has suffered accordingly. It is hoped that spring will bring better conditions.

The same observation applies to Paterson. Building there is at a standstill. The big silk mills are either idle or running upon short time and short-handed. All business throughout the city feels the effect of this condition, and the market for brick and other building material is affected somewhat in consequence.

In that great commuting district which borders the North River, operations will be more lively because of the opening of the tunnels. Aside from that, the situation presents no features which are any improvement over what was stated a month ago. The awakening hasn't come with the spring flowers, so far as demand is concerned. Perhaps it will come a little later.

On the Hackensack, brickmakers are beginning to bestir themselves, and are putting their plants in order preparatory for the coming season of manufacture. The pumps have been going in the pits for the past two weeks, and some are free from water. Others will be shortly. The weather has been poor, rather wet, and on some days the rain has fallen in sheets, and work has lagged in consequence.

Shipments have begun. Several schooners have already gone down the river with early spring deliveries, but it is said that the demand for this class of goods is comparatively light. Makers are looking forward to a fair season, but will not hurry about beginning operations. They look for more demand and perhaps better prices.

The brickmakers around Perth Amboy are getting ready for the coming season, but are not hurrying preparations. They prefer to await developments rather than make extensive plans now.

A. L. B.

Written for THE CLAY-WORKER.

WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS.



THE MARKED IMPROVEMENT during the past month in general building conditions throughout this part of the state has also been responsible for greatly increased activity in brick manufacturing circles, and practically all of the manufacturers in this vicinity report that they have been favored with most encouraging increases in the number of inquiries and orders. This is particularly true in the case of common and pressed building brick and vitrified paving brick. In a large number of the towns and cities in this part of the state, arrangements have been completed for paving streets and roads, and many orders have already been placed, while orders for several million more pavers will be given out this month.

Manufacturers of sewer pipe and other terra cotta ware also report an encouraging increase in business, and that the outlook is far brighter than even the most sanguine had expected it to be several months ago.

Refractory fire brick manufacturers continue to enjoy good business, as new linings are being ordered regularly for the blast furnaces, stoves and open hearth furnaces that have been closed down on account of the depression in the pig iron and steel business. These manufacturers are practically all taking advantage of this depression to repair and reline their stacks, and are placing orders for reserve linings, which are always carried in stock in case of emergency.

The fireproofing end of the business remains practically unchanged, and no great increase is looked for for another month at least. Local orders are comparatively small, the bulk of the business being received from other sections of the country, where building is more active.

The Harbison-Walker Refractories Company, Farmers' Bank building, Pittsburg, has received a number of good orders from the Carnegie Steel Company during the past month, which call for the delivery of refractory brick and special shapes to the various Pittsburg, Sharon and Youngstown plants of the company. These brick will be used in relining furnaces.

John Sheppard, one of the pioneer brick manufacturers of the Pittsburg district, died at his home in Tarentum, Pa., on April 4, aged seventy-six years. He was born near Cresson, Pa., and in 1854 moved to Braddock, Pa., where he lived for many years. In 1860, he built his original brick plant in that city, and started in the manufacture of common brick. He was soon forced to increase the capacity of the plant, however, and additional kilns were built on the present site of the leading business houses of that city. He retired from the brick manufacturing business about fifteen years ago, after thirty-five year of active work in that line. He is survived by nine children.

The Union Trust Company, of Pittsburg, Pa., trustee in bankruptcy for the Reese-Hammond Fire Brick Company, which formerly owned and operated large fire brick plants at Bolivar, Westmoreland County, Pa., will offer the entire holdings, including these plants, clay mines, coal mines, buildings, stock, etc., for sale on the premises at Bolivar, Pa., on Thursday, May 14, at 10 a. m. The company owns approximately 1,000 acres of fine clay and coal lands in the immediate vicinity of its several plants, a large portion of which has been opened. The plants are equipped with the most modern and improved brickmaking machinery, and are in the best of condition, ready to be placed in immediate operation. The company was formerly one of the leading manufacturers of vitrified and refractory brick in the Pittsburg district, but, several years ago, financial difficulties arose, from which the concern was never able to recover.

The annual meeting of the stockholders of the Reynoldsville Brick and Tile Company was held on April 17, at the offices of the works in Winslow Township, near Reynoldsville, Jefferson County, Pa., and the old board of directors and officers re-elected. The annual reports of the company showed

that the past year has been a particularly successful one, and that the concern still has a large volume of uncompleted business on its books for execution this spring. Clyde C. Murray is secretary.

At Lock Haven, Pa., the big plant of the Clinton County Clay Company, which has been closed down on account of the general business depression for some time past, has been started, and is now running to full capacity on sewerpipe. There is a heavy demand for sewerpipe of all sizes in the vicinity of the plant, and the capacity is booked for several months to come. A steady summer's run seems to be assured.

A special meeting of the stockholders of the Charleroi Brick Company has been called for June 2, and will be held at the offices of the company, at Charleroi, Pa. The object of the meeting is to call for a general vote for or against the increase of indebtedness of the company. Some improvements are needed, and an addition is favored in order to increase the capacity of the plant. W. G. Bowman is secretary of the concern.

At the meeting of the directors of the Harbison-Walker Refractories Company, held in the general offices in Pittsburg last month, H. W. Croft, formerly vice president, was elected president, to succeed the late Samuel C. Walker; Hay Walker, purchasing agent, was elected vice president, to succeed Mr. Croft, and William Walker was elected to the place on the board of directors made vacant by the death of S. C. Walker.

The Pittsburg sales office of the Mt. Union Silica Brick Company, which was formerly conducted in the Park building, has been closed, and this office has been moved to the general offices at the works at Mt. Union, Pa., where the two departments have been combined. The plant, which had been closed down for some repairs, has been started again, and is running almost to capacity.

General Manager U. J. Matson, of the DuBois & Butler Brick Co., of DuBois, Pa., has secured the contract for the brick required for paving 15,000 square yards of improved state road from Reynoldsville, Pa., to the Jefferson County line. The road will be built by the State Highway Department, which favors brick roads wherever practicable, tests having shown them superior to macadam for either light or heavy hauling.

The Pennsylvania Fire Brick Company, Beech Creek, Pa., has discovered a large vein of fine coal on one of their clay tracts in Clinton County and will immediately make arrangements to mine the coal, which will be used as fuel in firing the kilns at the big plant there. The coal covers a large area, and will be hauled to the plant on the clay tramway.

After having been idle for about a year, the works of the J. V. Rose Brick Company, at Sharon, Pa., will be started about May 1, and will give employment to about 100 men. The concern has received a number of good orders for delivery in June and July, and will be able to run continuously for the remainder of the summer.

The Wynn Fire Brick Company, Blue Ball, Clinton County, Pa., has been awarded a fine contract for brick, to be delivered to the United States Navy Yard, at Mare Island, California. The brick were tested by the government officials, and passed so successfully that contract of sufficient size to keep the entire plant running to capacity was placed.

The plant of the Lawrence Sand-Lime Brick Company, located in Union Township, Lawrence County, Pa., was sold at sheriff's sale on March 20 to J. H. Hughes, of New Castle, Pa., for \$3,278. The company was incorporated about four years ago, and a plant costing about \$30,000 erected. The concern failed some time ago, however, and Lee M. Gordon was placed in charge as receiver. The new owner will operate the plant.

The contract for all brick and fire clay to be used during the coming year by the Department of Public Works, Pittsburg, Pa., has been awarded to Booth & Flinn Co., Ltd., and the D. J. Kennedy Company, both of Pittsburg.

The Latrobe Brick Company, Latrobe, Pa., has received another large order for brick, to be shipped to several contractors at Greensburg, Pa. The order calls for the delivery of 4,000,000 paving brick, which will be laid this summer on the streets of that city. The plant will resume at once, and

will be kept running to capacity on this business alone until late in the summer at least. It has been closed down for three months.

The stockholders of the Queen's Run Fire Brick Company held a special meeting the latter part of March at the general offices of the company at Lock Haven, Pa., and unanimously agreed to increase the capital stock of the concern by \$125,000, all of which will be used this summer in the erection of another fine plant for the manufacture of high-class fire brick. This plant will be erected a short distance from the present plant at Queen's Run, and will be one of the largest and most modern in the Clinton County clay belt. The plant will be in close proximity to the extensive coal and clay beds already owned and opened by the company, so that every advantage for the economical manufacture and burning of high grade brick will be enjoyed. Work of construction will be started at once, and the plant completed and placed in operation by early fall.

A party of capitalists of Butler, Pa., headed by Harry L. Graham, has purchased a large tract of clay land near Freeport, Pa., and will have plans prepared at once for the erection of a large brick plant. The surveys have been completed, and will start within the next month.

A. SMOKER.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICK MANUFACTURERS.



BUILDING OPERATIONS are few in number, and, were it not for the solid old residences and practical business houses that have been in existence for a long time, one would feel inclined to doubt the actual fact that this is Philadelphia. There are some building operations, but most of these are left over from last year. Builders are chary of venture, and all seem waiting for some real and sensible basis of hope ere investing capital. Of course, the handful of men with speculative propensities who jump in on a chance may win out, but the body of onlookers are awaiting developments, meanwhile holding their money safe and sound. Without a doubt, this is one of the most trying times the brick manufacturers have had. The prosperity of the past few years makes the present business collapse the more unbearable. Several of the brickyards have closed down.

John Hanarty & Son, Fifty-eighth and South streets, have exhausted all the clay on their land, the ground has been sold for building operations, and they have gone out of business.

The Equitable Brick Manufacturing Company is serving brick for several building operations, one of thirty two and three-story houses at Fifty-sixth and Walnut streets; another of twenty-five two and three-story houses at Fifty-seventh and Cedar avenue, and an apartment house at Thirty-ninth and Locust street requiring 350,000 brick. Besides these, there are two or three small operations. The Kimballs are always sanguine, and even now, they smile, talk automobiles, and laughingly assert that they haven't time for business.

The Philadelphia Brick Company, Twenty-fifth and Passunk avenue, confess that business is more slack than they have known for years. They are working on two building operations at present, one of six or seven houses at Twenty-sixth and Brown streets, and another operation at Broad and Chancellor streets.

The Lenten Brick Company, also at Twenty-fifth and Passunk avenue, simply says: "Nothing at all doing, and nothing will be doing for some time." All business is awaiting the nomination, all hoping for the right man as chief executive. In the meantime, this yard is supplying brick for the new hospital building for the Woman's Hospital, at Twenty-second and College avenue. The operation calls for 500,000 brick, probably more, ere they have completed the building. They are also serving brick for the school house, Twelfth and Fitzwater streets; a warehouse at Fourth and Callohill, calling

for from 1,000,000 to 2,000,000 brick, and finally, an operation at Montgomery and Wilkey streets. The yard is running simply to keep running, and, as Mr. Paschall says, "When these operations are all served and the kiln filled with brick, they will rest until things look brighter."

Chambers Brothers, Fifty-second and Media, have shipped machines to Texas, Pennsylvania, Iowa and Sweden. The first named was the largest end-cut machine, with a special paving brick cutter, shipped to the Thurber Brick Company. An entire outfit was shipped to Sweden, another to Clearfield, Pa., and a large machine to Brecht Brothers, Des Moines, for paving brick. While working but four days in the week, now, Mr. Chambers is sanguine of the near future. The manufacturers of paving brick are not feeling the strain of business as the brick manufacturers are.

T. B. McAvoy & Sons are extremely busy; the only trouble they are experiencing is that of keeping up with their orders. They are sold out away ahead, and their typical cheerfulness is unruffled. T. B. McAvoy is enjoying the best of health, and is, as John McAvoy expresses it, "Growing younger every day." We congratulate him heartily.

Mr. Plummer, of the Main Belting Company, reports good times; from their experience and present outlook, he thinks the brick business will soon pick up and resume its normal state. Their report of this year's work, as compared with that of several years, is that this is their third best year. Under the conditions, this is certainly a hopeful state of things. As compared with last year, this is almost as good, and that is no cause for discouragement.

Wm. Conway's yard is not busy; they are supplying brick for operations, but not doing much as the word goes.

Carroll's yard has been shut down since March the first. They have seven or eight million brick on hand, but have ceased manufacturing until things look brighter. They are working on some small operations, meanwhile.

M. E. LOCKINGTON.

IMPORTS OF EARTHEN, STONE AND CHINAWARE.

According to the report of the Treasurer of the Bureau of Statistics, of the Department of Commerce and Labor, the total importation of earthen, stone and chinaware in 1907, which includes china, porcelain, parian and bisque, amounted to \$14,219,648. According to these figures, there has been in the past three years a steady increase of approximately \$1,000,000 a year in our importations, and the item is heavy enough that it looks like there is room for considerable home expansion in some of these lines. Germany is the leading country from which we import, and the total imports from there in 1907 were \$5,505,580. The United Kingdom came next, with \$3,274,034, and France third, with a total of \$2,167,896. Strange as it may seem, the only other country shipping over a million dollars worth of this kind of ware was Japan, which shipped us \$1,756,340 worth. Against this, we exported just a little over one million dollars worth, the bulk of which was earthen and stoneware, the chinaware item amounting to only \$108,911, out of a total for the year 1907 of \$1,131,641. It is interesting to note in this connection that the next item appearing in the table under earthenware is eggs, which footed up a total of \$1,719,433, or half a million in excess of the exports in earthenware, stone and chinaware.

We did a little export business in fire brick, but the export business in building brick last year, at least, was decidedly limited. The Bureau of Statistics shows exports of brick in 1907 as follows: Building brick to the value of \$185,192; fire brick, \$631,779. The exports of building brick in 1905 and 1906, both were in excess of 1907, and fire brick has been running along at about the same figure for a number of years. It looks like there is room to expand both the exports of fire brick and building brick, especially the better qualities of pressed brick, and hollow block.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Cement Bridge Collapses.

Editor THE CLAY-WORKER:

We are inclosing you a little clipping that we cut from this morning's Ohio State Journal, in regard to the collapsing of a bridge at Bellefontaine, Ohio.

"The large cement bridge, recently constructed on the Bellefontaine-Lima extension of the Ohio Electric Railway, which spans Tucker's run, northwest of Bellefontaine, collapsed this morning. The bridge was considered the product of skilful engineering and cost several thousand dollars."

We thought it would be of interest to you, as well as the clay ware manufacturers.

Yours truly,
THE J. D. FATE COMPANY.

Plymouth, Ohio, April 2, 1908.

Promote Burned Clay Products.

Editor THE CLAY-WORKER:

In the March "Clay-Worker," page 413, the article written by F. W. Fitzpatrick, "Clay Product vs. Cement Fireproofing" was described in a very forceful manner. The clay ware manufacturers should get a "hustle" on and should be more active in showing the true worth of clay ware, compared with other building materials.

I think THE CLAY-WORKER has a key to the situation; namely, being in the publishing business and well versed in the art of clayworking. THE CLAY-WORKER should take this article of Mr. Fitzpatrick and other good information published at different times and print in pamphlet form, to sell to the manufacturers, who, in turn, can pass them to consumers, contractors and builders.

Hightstown, N. J.

B. H. REED & BROS.

Words of Praise for the Pioneers in Clayworking.

Editor THE CLAY-WORKER:

Dear Sir—Having been a constant reader of your journal for the last twenty years, allow me to congratulate you on the wonderful results that have been attained in the development of the clay industry during these years. To you, Mr. Randall, Mr. Gates, Mr. Purington, Prof. Orton, and a host of others, is due the great achievements that have been attained. You people have been the great field marshals in this great instructive campaign. It must be a source of great pleasure to all the old pioneers in this business, to see their dreams and hopes of years come true. We have perfected and given to the world in architectural terra cotta and paving material, two materials that are destined to become universally used in the years to come. Granite, stone, wood, asphalt, and the different compositions will be relegated to the rear; burnt clay has paved its place at the head of the column. We extend to these old pioneers in the clay business a hearty greeting; you have made a grand and glorious fight and have come out victorious. Terra cotta is being used in nearly all the large buildings on the exterior and interior, and has proven to be the most indestructible material in use. The same is true of brick as a paving

material up to their present state of perfection. We have encountered many serious difficulties and troubles, our hair has grown white laboring to have our dreams and hopes fulfilled, and now, after a lapse of twenty-five years, we can look back on our achievements with pride. We have perfected and given to the world two materials that will prove a lasting boon and blessing to the coming ages. Nothing gives me more pleasure than to meet and grasp the hand of one of these old pioneers in the clay industry, and say to him: "Brother, you have wrought well, may peace, happiness, and contentment, be the lot of your declining years."

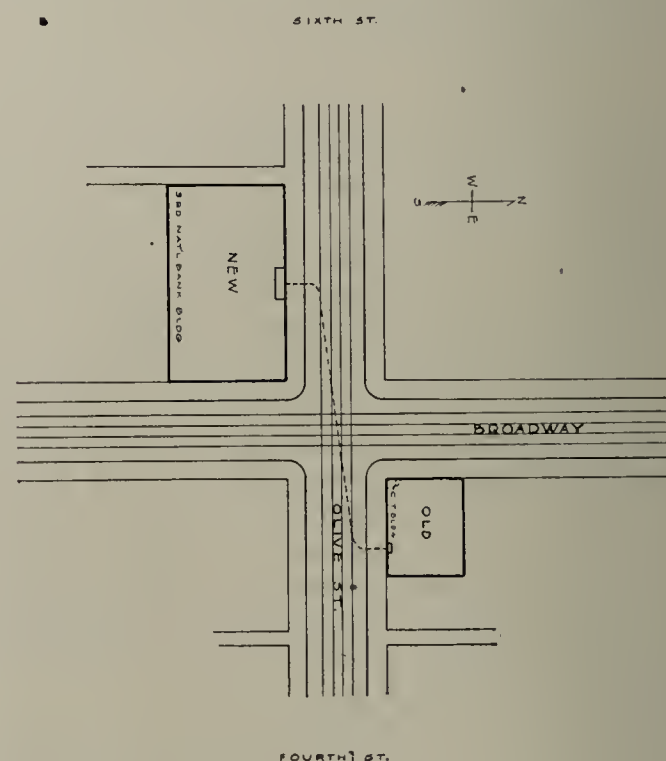
ROSS RUE.

The Effects of Spring.

Dear Randall:

We have lately moved our offices from the Commonwealth Trust building, taking a somewhat southwesterly direction, to the Third National Bank building, across the street. One of our draughtsmen has illustrated it thus:

We expect to have a spring opening for the local fraternity, but O. F. C. and spring onions, when delivered to the eighteenth floor come high, and we could not foot that bill



A Moving Picture.

and the moving man's bill both in the same month. However, business is good, and one good turn deserves another.

Yours cordially,

LUCE ENGINEERING COMPANY,

St. Louis, April 10, 1908. Peter B. Gibson, Secretary.

CONVENTION ECHOES.

An Old-Timer Reviews the Columbus Convention.

Editor THE CLAY-WORKER:

It is with much pleasure that I refer to our Columbus convention, which, I think, was the best and largest in attendance that we have ever had. The papers read before the convention were very instructive, and the description of the plants by use of the kinetoscope was very convenient; it was very much better to sit in the convention and see the illustrations of the various plants, than to travel over them at this time of the year.

The display made of the various machines of clayworking appliances was very convincing of the improvements being developed in these modern times.

The "Ceramic" was a very successful meeting, showing

great advancement, with a large increase of membership. It has now taken a position that is recognized as one of the leading scientific associations of the world, and it must be very gratifying to Prof. Orton to see such development under his own supervision. It is certainly very creditable to the university to turn out such a class of young men, to undertake the responsibilities of working clays and building up manufacturing establishments for the benefit of the coming enterprises. The deportment of these young gentlemen was very noticable, and shows that Prof. Orton and his assistant, Prof. Purdy, are stamping character on these young men by their association with them at the Columbus university.

I heard a very great compliment paid to the members of the convention by the hotel proprietor, who stated that such a large gathering of gentlemen he had never met before, as there was not one known to conduct himself only as a gentleman in every sense of its meaning. Now, as Columbus is a city of conventions, I think the clayworkers of this country should feel proud of such a compliment.

It was a great disappointment not to meet the Horace Greely of our association, Mr. W. D. Gates, nor our worthy and highly respected pioneer, Mr. D. V. Purington.

Hoping that we may all live to meet at our convention of 1909, I remain,

Yours very truly,

ALFRED YATES.

Shawmut, Elk County, Pa., March 16, 1908.

The Report of the N. B. M. A. Convention Pleases an Absentee.
My Dear Randall:

Don't you know, the writer felt by intuition that he would miss something good, in being unable to attend the N. B. M. A. Convention at Columbus, Ohio, and when he read the proceedings in THE CLAY-WORKER, then he positively knew that he had failed to attend the best meeting yet, as the program fairly bristled with good A No. 1 papers, the reading of which will undoubtedly prove of advantage to all progressive brickmakers.

Take, for instance, in a group, the following three papers: "Some Tests of Brick," by James E. Howard; "The Life of Portland Cement," by G. G. Wheat and A. J. Wheat, and "The Survival of the Fittest," by E. C. Kimbell. There are most assuredly good arguments and points for the brickmaker in these three papers. As an evidence of progressive spirit, the following two papers are certainly worthy of recognition: "Electricity as a Power for Clayworkers," by Lambert Haigh, and "Setting Brick by Machinery," by W. G. Buckles.

The burning proposition is covered very well indeed by two papers: "The Advantages of Forced Draft Over Natural Draft in Burning Up-draft Kilns," by Joe P. Fulcher; "The Balance Sheet of a Down-draft Kiln," by A. V. Bleininger, and two discussions, "The Burning Question," and "Burning Brick with Coke." The terra cotta proposition is also well looked after in two papers: "The Use of Hollow Tile in Dwelling Construction," by J. E. Mecusker, and "The Definition and Application of Terra Cotta," by S. Geijsbeek. Two papers worthy of attentive consideration, as they go hand in hand, are: "The Market Side of the Brick Business," by M. E. Dunwody, and "Our Inland Waterways and Their Influence on the Clay Business," by J. W. Robb. The two papers, entitled: "The Outlook," by Victor Cushwa and C. N. Adams were of interest to the writer, as well as the paper, "Factory Output," by Walter Hull. The writer is especially sorry to have failed to be present at the illustrated lecture on "Clay Industries of Central Ohio," by Prof. Edward Orton, Jr., as he is acquainted with the larger number of plants shown and described, and, although a "Missourian" by birth, he has a warm spot for the "Ohioan," in that he resided for a number of years in central Ohio. But one item of the greatest interest to the writer was the subject and discussion: "Trade Schools for American Boys." It is just about as W.

Siwart Smith says: "You can sell your brick, but you can not get bricklayers enough to lay them." See February CLAY-WORKER, page 240. After the writer had read the last half of page 239, CLAY-WORKER, he being St. Louis born, felt highly elated at Anthony Ittner's success, after seventeen years' hard endeavor and work to establish a trade school in St. Louis, and, finding he had enlisted the good will of David Rankin, Jr., he just could not help it—he gave a hip, hip, hurrah for the trinity—Anthony Ittner, Dave Rankin, Jr., and the trade school.

Warrior, Ala.

Yours sincerely,

JULIUS J. KOCH.

Glass House Refractories Shipped to Germany.

Publishers THE CLAY-WORKER:

We would like to have you make mention in your next issue of the fact that we have just shipped a carload of our "Corundite" refractory material to Rheinahr Glasfabrik, Sinzig, Germany, to be used in the construction of a glass furnace. We believe this is the first American glass house refractories which has ever been shipped to Germany, and we look upon it as a very strong testimonial, when the fact is considered that Germany has enjoyed the reputation of producing the finest glass furnace refractories in the world. This shipment went forward on the 6th inst., via Boston and Antwerp, Belgium.

Yours truly,

MASSILLON STONE AND FIRE BRICK COMPANY.

Massillon, Ohio, April 10, 1908.

TRADE LITERATURE.

THE MASSACHUSETTS FAN COMPANY—This firm recently mailed to the trade a neat eight-page leaflet, setting forth the merits of their steel plate, ball-bearing fans. Illustrations are shown of the fans, exhausters, ball-bearing cups, and inside views of the fans. The company has established a reputation for fans of good quality and strength, and will be pleased to tell the readers of THE CLAY-WORKER all about them.

"A MODERN TILE FACTORY—From Clay to Tiles," is a beautiful catalogue mailed us recently by the American Encaustic Tiling Company, perhaps the largest and most widely known encaustic tile plant in the world. This is a most interesting catalogue, taking the reader to every point of their large factory, illustrating the different points of interest by words and pictures. Their plant at Zanesville is an enormous one, and an ideal up-to-date factory. We have no doubt but what every clayworker would be well pleased to possess one of these catalogues.

GLADDING, McBEAN & CO., of San Francisco, Cal., have published recently their price list No. 35, a booklet of sixty-six pages, with fine illustrations of vitrified salt-glazed pipe, drain tile, the Miller automatic siphon, the Rhoads-Miller automatic siphon, laundry trays and sinks, terra cotta thimbles, flue linings, chimney pipes, caps and tops, flower pots, urns, vases, fire brick, tile, pressed brick, brick and tile mantels, fireproofing materials, etc., giving the price and estimates of each. This is very complete and a handy reference book; to possess one write them direct.

CLAYS OF MISSISSIPPI is the title of Bulletin No. 2 of the Mississippi Geological Survey, recently issued, which we are pleased to file on our exchange table. This volume contains 255 pages of descriptive matter, by William U. Logan, on the brick clays and clay industries of northern Mississippi. The eighty-one illustrations include special views of the various kinds of clay deposits, clayworking machinery and brickyard sketches. The subject matter is divided very conveniently into nine chapters, being respectively on origin and classification of clays, chemical properties, physical properties, processes of clay manufacture, fuel,

properties of brick, imperfections of brick, geology of Mississippi clays, and the clays and clay industries of northern Mississippi by counties. A copy of this bulletin can be had for the asking. Write the Mississippi State Geological Survey.

AUDEL'S GAS ENGINE MANUAL—This is a red covered book of 469 pages, in which is given at length a practical treatise relating to the theory and management of gas, gasoline and oil engines. It is elaborately illustrated, and well printed. It gives the historical development of a number of engines, tells of the laws of permanent gases, and points out the theoretical working principles and actual working cycles in the first four chapters. The book is divided into twenty-seven chapters in all, and includes much valuable information, such as articles on fuels and combustion, producer gas systems, design and construction, installation and operation, testing, nature and use of lubricants, and hints on management and suggestions for emergencies. The closing chapter gives some useful rules and tables, which the clayworker will find of value to him. The cost price of this book is \$2.00. Write THE CLAY-WORKER, or Theo. Audel & Co., Publishers, 63 Fifth avenue, New York.

POWER ECONOMY IN THE BRICK PLANT.

Fuel economy in developing power to operate the machinery of a brick plant may frequently depend more on the proportionate size of the boiler and engine than on the scientific purposes of combustion, etc. Take the boiler that has to be fired hard to develop steam enough for an engine, and such a boiler will easily burn twice the fuel necessary to develop the same amount of steam out of a boiler of double the proportion. This is a point that is more frequently overlooked among the smaller plants than among the larger ones, and especially where portable boilers are used. In the construction of portable boilers, size and weight are sacrificed as much as possible for portability, so that they may be readily moved about from place to place. As a result, the average portable boiler has two common faults, from an economic standpoint. One is, that it is too small for its engine, that is, too small to steam it without hard firing, and, consequently, wastes fuel. Another one is, that the firing is direct, and the draft straight through the boiler and out the stack, so that a large percentage of the heat which might be generated through the use of coal or wood goes up the stack. There are people who argue from a scientific standpoint that the portable boiler, properly equipped, may develop steam as economically as the stationary boiler, but to properly equip a boiler means to practically convert it into a stationary boiler, and, for this reason, where fuel is an object, it is generally a mistake for the small brick manufacturer to resort to the use of the portable boiler to drive his plant. It would be better to take a stationary boiler, even if it has to be moved after a few years, and have it of ample proportions, say in the ratio of 40 h.-p. boiler to a 25 h.-p. engine, that is, when the boiler has no other duty than driving the engine. When it is used for other purposes, too, it should be larger in proportion to the additional drain on its steam producing capacity. It may seem a little difficult to figure out, but it is a fact, nevertheless, that the larger boiler, one that will steam an engine easily, can be fired with half the fuel that it takes for the average portable boiler, in which it is necessary to fire hard to keep up steam. Not only that, but the boiler will last longer, will give less trouble from leaking flues, and other things of that kind. This is a point in fuel economy that doesn't require any expensive, scientific analysis, can be readily understood by anyone, and might well be taken home and applied by many brick manufacturers where their fuel costs them anything.

OBITUARY.

Wm. H. Brush, of Buffalo, N. Y., Succumbs to Heart Trouble.

Again the members of the N. B. M. A. are called upon to mourn the death of one of the old-time faithful members, Wm. H. Brush, of Buffalo, for many years an active worker in the association, died of heart failure at his home, April 8, 1908. In the early history of the National Association, Mr. Brush was a familiar figure at all the yearly meetings. He was not a talking member, his voice was seldom heard in the deliberative sessions, but his genial personality made him a favorite with all members. Having grown up in the business, he was thoroughly informed on every phase of brickmaking, and was ever ready to impart information to any and all who sought him, hence he was always popular among the button-hole delegation. He was elected president at the tenth convention, held in Buffalo in 1897. He has been in poor health for some years, and on that account had to give up attending the conventions.

Mr. Brush was a member of the firm of Brush Brothers, brick manufacturers, whose yards are located in Bailey avenue, Buffalo. He was also president of the Jewettville Pressed and Paving Brick Company, with yards at Jewettville,

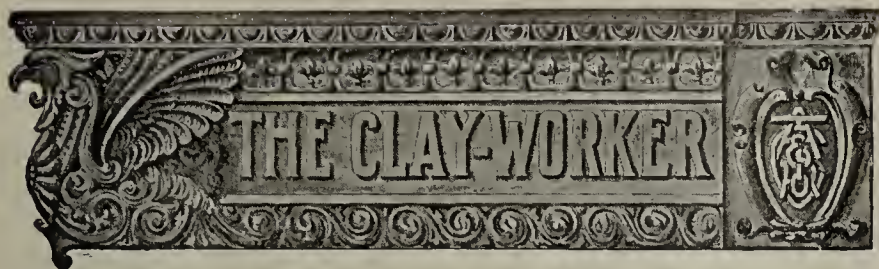


William H. Brush.

N. Y., and of the Queen City Brick Company, formerly the Buffalo Brick Manufacturers' Association. He was born in Colden, N. Y., sixty-three years ago. He was a nephew of Alexander Brush, who served two terms as mayor of Buffalo. He is survived by his wife, one son, Alexander D., two daughters, H. Elizabeth and Gertrude W. Brush, and two brothers, Stephen C. and Warren H. Brush.

DURABLE MORTAR COLORS.

Probably nowhere does the old adage, "No test like time" hold good more strongly than it does with mortar colors. The "Red Brick" brand, manufactured by the Ricketson Mineral Paint Works, Milwaukee, Wis., has made good under this test to a remarkable degree. In the twenty years these colors have been on the market, there is yet to be recorded a single case of cracking or fading. This excellence is due, first, to the remarkable purity of the ores used. Second, to the specially devised separators which extract all but the absolutely permanent oxides. Third, to the unusual fineness of the grinding. The absolute purity and great fineness of these colors makes them mix easier, and go much farther than less carefully prepared brands.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

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APRIL, 1908

No. 4.

CURRENT COMMENT.

Trouble is a good tonic, if taken right.

* * *

April showers bring May flowers, and sometimes spoil costly Easter bonnets.

* * *

Every man has his ideals, but most of us don't mix enough of them in with our everyday practical affairs.

* * *

As a remark on paving, it may be said it is not safe to pave your way in this world with nothing but promises—unless you make the promises good.

* * *

The signs of spring are bright in the building line. With the April showers of contracts, the building interests are expected to blossom into full bloom in May.

* * *

When a man gets so far away from his conscience that he needs long distance telephone connection to hear it, it indicates that he is ready for a divorce from his self respect.

* * *

Probably none of us are as good as we think we are, and they say no man is better than his thoughts, but we all have the consolation of knowing that we are better than our enemies think we are.

* * *

If they stop the free distribution of seeds, and discontinue the printing of unmade speeches in the Congressional Record, some of our congressmen will have to turn to sending out calendars or carrying advertisements in their home papers to keep themselves before their constituents, or else go back home and make a personal canvass in the old-fashioned way. It seems a pity to be hard on the congressmen, but

there are plenty of other people willing to go to Congress and shoulder the burdens.

* * *

Prosperity, like money, may spoil some people, but it is not likely to spoil those who have earned it, and that is what the clayworkers have done.

* * *

This reform movement that is putting the lid on Sundays may be a little hard on the saloon men, but think of the money it is earning for workmen's wives—on the old theory that a penny saved is a penny earned. And, really, many a man is also better off physically and mentally by it.

* * *

According to press reports, something like \$10,000,000 worth of property went up in smoke in a few hours in Chelsea, and, besides that, there was untold suffering, hundreds of families left homeless and miserable, all of which might have been prevented by a more liberal use of brick in building homes now a pile of ashes.

* * *

How long will it take us to learn the lesson of prevention? What manner of structures will rise on the ruins of the burned district in the months to come. How many of those who rebuild will heed the lesson and build fireproof homes? Will the brick manufacturers of New England inform these prospective builders of the advantages that common building brick afford, and of the real economy that will result from their use, and the beautiful effects that may be wrought; and permanent, time and element defying homes that may be built if building brick are used wisely and well? Will all these features be brought to the attention of these prospective builders? Time alone will tell.

PROMOTING WAVE POWER.

The subject of wave power is one that has received attention at different times throughout a great many years, and every once in a while it is trotted out in the limelight in connection with some new invention calculated to utilize the power of the ocean waves. It is a great subject, and figures big in the aggregate, and some day somebody will probably develop an idea that will be practical on a large scale. After this is done, if somebody else will devise a way to utilize, for beneficial purposes, the financial, political and reform waves that sweep over the country now and then, carrying with them disturbance and sometimes disaster, it would be getting closer home to and doing more good for a greater number of people.

THE BUILDING OUTLOOK.

The building outlook in some respects is better than it has been for years, and were it not for the fact that this is a presidential campaign year, there is not much doubt but what things would be booming pretty soon. It seems difficult, however, for the country to get over the habit of slowing down when campaign year comes, and this year, the disposition to do so is more marked than usual because of last fall's panic, which has made people rather timid, and those that are not timid are more conservative. Still, notwithstanding this strong conservative disposition, reports from the architects tell of quite a lot of new work in prospect, and, as everything in the line of material and help is in favor of building now, the outlook is decidedly good for quite a heavy volume of building. The coming of spring earlier than usual this year has had a good effect, and in some parts of the south country building operations are already moving along quite briskly, and both the real estate men and building contractors are getting pretty busy. So,

even with the handicap of it being campaign year, it looks like there are, with cheaper building material and more help available, and all such favorable influences, enough good things in sight to make an excellent year in point of volume of work.

SCHOOL-TAUGHT BRICKLAYING.

There are cheering reports heard from those who are attending the trade schools for bricklayers that should encourage the rapid extension of this modern trade school idea. One man, who has sent his son three hundred miles to attend a school in St. Louis, says he is highly elated over the progress his boy is making, and he was especially enthusiastic about the manner of teaching, which gave promise of turning out bricklayers of higher order than the old school. In the modern trade school, boys are taught not only the art of laying brick itself, but they are taught enough of architecture that they can not only draw plans, but can read and understand the plans of architects, and, as a result, they are qualified to do brick work much more intelligently than those who have been taught by the rule of thumb, so to speak, and have never studied architecture nor plan reading. In short, the trade school promises to turn out not only enthusiastic bricklayers, but men trained to a higher understanding of the business, who will not only improve the calling, but will have better knowledge of the relation of architecture to bricklaying, and, by being able to do work enough better, should give prestige to and thus encourage the more extensive use of brick and clay products. The further we get into this trade school idea, the more good things we see about it, and a few more enthusiastic reports like this from people who have sons attending trade schools should very rapidly extend it.

A STATISTICAL SERMON ON FIREPROOF BUILDING.

Now that the boards of underwriters of different cities are casting up the statistics of the annual fire losses, there is an evidence of plenty of sermons in figures on the need of more safeguarding against fire losses by building with brick and other fireproof material. An instance in point is furnished by reports from the city of Louisville, Ky., which shows a total fire loss for the year 1907 of \$956,000. This is almost a round million of fire loss in a city of approximately 250,000 inhabitants, and the insurance men say that the same state of affairs prevails in most of the other large cities. That is that the fire loss for 1907 was generally in excess of that for 1906. The 1906 fire loss in Louisville was \$395,953, which was only a little more than one-third of the loss in 1907. The loss in Louisville during 1907 apportioned by months is reported as follows: January, \$15,206; February, \$13,031; March, \$9,395; April, \$91,324; May, \$10,689; June, \$135,906; July, \$51,190; August, \$139,606; September, \$66,217; October, \$46,399; November, \$150,830, and December, \$230,509.

A study of these losses is particularly interesting because they represent what might be termed regular fire losses, and do not include special great calamities like those of recent date at Baltimore and San Francisco, and, consequently, they stand out prominently as what might be expected in the ordinary course of events, with a method of construction that is hazardous.

Added to this figure of nearly a million of dollars for fire loss, there is also an expense to the city for the maintenance of a fire department, the apportionment for which this year is estimated at \$356,124.60. This makes the annual fire bill for Louisville over a million and a quarter. One might go into elaborate details and illustrate how much better it would be to spend this extra million or more per year in

making buildings fireproof, instead of spending it to pay for buildings that are lost, and thus in time practically eliminate the fire loss, and the need for maintaining a fire department of such extensive magnitude. But what is the use talking about it, any man can see it for himself, and these figures stand out as a strong sermon for more attention to the subject of building out of fireproof material. With Louisville and practically all others furnishing such sermons in the reports of the annual fire losses, it should furnish a good argument for the manufacturers of brick and other clay products used in fireproof construction, to assist materially in pushing the sale of these products where the subject of good building is up for consideration.

NATIONAL PAVING BRICK MANUFACTURERS AFTER A FREIGHT REDUCTION.

Owing to the advance in freight rates on paving brick having been advanced on the first of April, the National Paving Brick Manufacturers' Association has decided to file a complaint with the Interstate Commerce Commission against a number of the railroads in the Pittsburg district. John F. Lent, of Pittsburg, Pa., traffic manager of the association, in speaking on the matter, said: "An advance of from ten to thirty cents per ton from the various paving brick districts has been made by the railroads operating what is known as the middle states territory in the rates on paving brick. This territory comprises the district east of Buffalo and Pittsburg to the Atlantic coast, and north of Virginia to Canada. The date agreed upon by the railroads when this advance should become effective was April 1, although some of the roads have not yet filed the new tariffs. These advances in rates obtain not only on eastbound shipments, but north and southbound shipments as well. The manufacturers of paving brick in this district have taken contracts, which, with the advance in rates, will necessitate the loss of many thousands of dollars, as they have to allow the freight. A vigorous resistance will be made, and I am now preparing a complaint on behalf of the interests I represent, and this will be filed with the Interstate Commerce Commission in a very short time. Nearly all of the large eastern roads will be made defendants to the action."

Mr. Lent represents paving brick manufacturers whose output is about ninety-five per cent. of the entire production of paving brick in the United States. When the contemplated action is taken, practically all of the roads converging in Pittsburg will be involved.

SECOND CLASS MAIL MATTER.

Speaking of postal affairs, there come times, probably too frequently, when what is known as the second class mail matter privilege is abused, and, as a result of this, the postal department at times feels constrained to inflict rather stringent regulations on all second class matter. The original idea is to cut out all such matter as ought not to go at second class rates, and there has been in the past lots of it which should have been cut out. It seems rather difficult to frame laws which would shut out the objectionable without working a hardship on the best class of literature in the country, among them the trade papers. The trade press has, as a whole, done more towards the up-building of this country and the promoting of modern ideas and progress than any other class of literature, and to do this and carry out the work thoroughly, even the best of the trade papers, no matter what their age, must at times force their circulation by distributing sample copies quite freely; and to curtail this privilege not only works a hardship on the legitimate trade papers, as well as others, but it also works a hardship on the people themselves, for with this sample copy business the people get the benefit of the papers in the end, and we believe the

benefit from these is greater than that which would accrue from trimming off of the trade papers' mailing lists for the sake of extending the parcel post.

In other words, if the parcel post is to be extended at the expense of the better class of trade publications we protest. Also it is an unfair hardship to make the legitimate industries suffer for the sake of shutting out other papers and other matter which has no right to be entitled to second class rates. There ought, however, to be a way to figure this out, so that all may be fairly treated, and yet none suffer a hardship, and we hope the postoffice department will eventually be able to find this way.

TRADE NOTES.

The American Sewerpipe Company, Bessemer building, Pittsburg, Pa., has announced that the plant at Sharon, Pa., is to be permanently abandoned. Since it was purchased by the present owners several years ago, it has never been operated, and will be dismantled and the entire equipment shipped to one of the company's plants in Ohio.

The annual meeting of the Courtney Fire Brick Company will be held at the company's offices, at Monongahela, Pa., the latter part of this month, and routine business, including the annual election, will be transacted. The company is operating the plant steadily, and no improvements are planned nor required for the coming year. K. C. Scott is secretary.

It is rumored that a new drain tile plant is to be built at Orestes, Ind., by Cal Baum and Alva Williamson, of Sweetser, and Fred Baum and J. W. Baum, of Orestes. The plant will be thoroughly up-to-date, equipped with every labor-saving device, and will make a specialty of large tile. Madden & Co., Rushville, Ind., have been given a contract for the machinery.

Ed. Barr, well known to brick manufacturers throughout the northwest, and until recently connected with the North Iowa Brick and Tile Company, of Mason City, Iowa, now represents Madden & Co., of Rushville, Ind., manufacturers of the well known Hoosier brick and tile machinery. Clayworkers of Iowa and adjoining states can secure his services in planning new plants and re-equipping old factories. He is a master hand in the installation and management of clay machinery.

Written for THE CLAY-WORKER.

THE BIRTH OF THE EASTER LILY.

A beautiful legend comes to us from way across the sea,
When Easter had its birth, and whence it came to you and me,
It tells how patiently that cruel, heavy cross Christ bore
To Calvary, and what a sweet appealing smile he wore,

As, toiling on thro' jeering crowds, he struggled with his load
Beyond the town, o'er rough and unused ways, where was no road.
And not an eye looked kindly into His, and not a face
Smiled sympathy for Him—who sought the Crucifixion place!

No word of consolation, or of love, or hope, or cheer
Was spoken; not one tender word was whispered in his ear!
No helping hand reached forth to ease the crushing load.
No friend in all that throng stood forth and said, "I trust thee
to the end."

So, toiling on, unaided, and with back bent low with strain;
Unshod—his weary, bleeding feet traversed the way in pain.
Till, crossing a small, dank and useless bog that lay across the way,
His aching feet sank, grateful, in the black and clinging clay.

Then, pausing for a moment, there, He felt the cool earth press
And clasp and soothe his burning feet, in tender mute caress.
When, looking down in smiling gratitude upon the clay,
He said, "No more, despised and useless art thou, from this day;

From out thy loyal heart shall spring a symbol white and rare,
And beautiful, graceful and stately, and so wondrous fair,
That all mankind will hold it as an emblem of the pure
And chaste and true and spotless, and of love that can endure."

The moist clay thrilled, expectantly, throughout its quivering mass,
Till, lo! the time was ripened, and the blessing came to pass.
On that first Easter morning—which God's children ever knew,
From out these footprints in that clay, an Easter lily grew.

MARGARET ANDREWS OLDHAM.

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ESTABLISHED COMPANIES, as well as beginners, find our services profitable. We correct faults of manufacture and keep plants up-to-date. Engagements for special service, or by the year.

THE RICHARDSON-LOVEJOY
ENGINEERING CO.

[See page 614.]

WANTED, FOR SALE, ETC.

FOR SALE—One 2-mold Simpson dry press. One eight-foot iron frame dry pan. One No. 6 Brewer brick and tile machine, with all necessary dies and cutters. One tile elevator, one clay elevator, one clay disintegrator. O. W. DUNLAP, 2 3 L. Bloomington, Ill.

DRY PRESSES FOR SALE.

One 2-mold U. S. brick press. One 2-mold Boyd brick press. One 4-mold brick press of standard make. One 3-mold Andrus brick press. Dry pan, pulverizer, screen and transmission. One set of plates for 7-foot wet pan. 250 horse power Corliss engine and boilers.

B-K BRICK CO.
9-11 d Denver, Colo.

For Sale, Wanted, Etc., Ads Continued on
Pages 602, 603 and 604.

ORDER **THE BEST!**

The C. W. Raymond Company,

**The Largest Exclusive Builders of
Clay Working Machinery in the World.**

DAYTON, OHIO, U. S. A.

"999" Special Brick Machine.
 "999" Brick Machine.
 "777" Brick Machine.
 "555" Brick Machine.
 No. 2 Brick Machine.
 No. 3 Brick Machine.
 Combination Brick Machines.
 "Niagara" Hollow Ware Machine
 Soft Mud Machines.
 No. 1 Auto Cutter.
 No. 2 Auto Cutter.
 Semi Auto Cutter.
 End Auto Cutter.
 Triumph Cutter.
 Novelty Cutter.
 9ft. Heavy Duty Dry Pan.
 9ft. Standard Dry Pan.
 7ft. Dry Pan.
 5ft. Dry Pan.
 8, 7 & 5ft. Wet Pans.
 Duplex Wet Pans.
 Box Frame Pug Mills.
 Standard Pug Mills.
 Single Geared Pug Mills.
 Four Roll Crushers.
 Peerless Smooth Roll Crushers.
 Disintegrators.
 Victor Repress.
 Hand Represses.
 Dry Presses.
 Clay Steamers.
 Clay Mixers.
 Radiated Heat Dryer.
 Waste Heat Dryer.
 Open Air Dryer.
 Dryer Cars.
 Dumping Cars.
 Gear and Friction Hoists.
 Supplies.
 And
 Everything for all Brickmakers.

200%

More Radiating Surface Than Any "Hot Air" Dryer Made.

Ask for Exhibit 2077.

The C. W. Raymond Co.,
Dayton, Ohio, U. S. A.



THE RAYMOND RADIATED HEAT DRYER.

**We issue the following publications which may be
obtained upon application to our
Publicity Department:**

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CATALOG OF DRAWINGS AND SPECIFICATIONS

Exhibits

- 40. Heavy Duty Dry Pan.
- 41. Standard Dry Pan.
- 42. No. 2 Rotary Automatic Cutting Table.
- 43. Eight-ft. Wet Pan.
- 44. "999" Brick Machine.
- 45. Perfection Hand Represses.
- 46. Conveyors.
- 47. Four Roll Combination Crusher.
- 49. Niagara Hollow Ware Machine.
- 50. Combination Brick Machine.
- 52. Victor Repress.
- 53. Bevel Geared Pug Mills and Clay Granulators.
- 55. Clay Elevators.
- 56. Portable Track.
- 60. Roofing Tile Designs.
- 61. Dry Press Machinery.
- 63. Raymond System of Open Air Drying.

Exhibits

- 69. Peerless Smooth Roll Crusher.
- 70. No. 3 Daytonian Brick Machine.
- 71. Standard Pug Mills.
- 73. Single Geared Pug Mills.
- 2077. Radiated Heat Drier.
- 2078. Soft Mud Machines.
- 2079. Belt Cup Elevator.
- 2080. "555" Brick Machine.
- 2081. Automatic Wet Pan Emptier.
- 2082. Piano Wire Screen. (New design.)
- 2083. No. 1 Rotary Automatic Cutter.
- 2084. Dryer Cars.
- 2085. Hand Dry Press.
- 2086. End Cutting Table.
- 2087. "777" Brick Machine.
- 2088. Hoisting Apparatus.

THE C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

WRITTEN FOR THE CLAY-WORKER.

THE CHICAGO SITUATION.



SIGNS OF ENCOURAGEMENT for the coming season are plastered all over the building situation in Chicago just now, thick as a certain wall-safe company plasters its ads over every building it invades—a hunch to burglars and sneak thieves where to look for valuables after the building is occupied. So the present indications are veritable invitations to the architect, the contractor and the material man to get burglarious and hasten to separate the builder from his money, leaving in exchange a good-looking, serviceable domicile, office building, apartment house, store, warehouse or factory, which will represent a safer, saner and shrewder investment than the average man with money is likely to make.

The building movement, which was trending toward a healthful activity last month, is gradually, but surely, broadening and increasing its gait. Last month the tendencies of most of the buildings planned were toward small expenditure, and indeed conditions in the money market warranted little more. It was difficult to get building loans for more than \$10,000 or \$12,000, and many of the trade were inclined to believe there would be few jobs of any size, comparatively speaking, during the season.

Now, however, the outlook is considerably changed. There has been a steady increase in the number of small buildings planned, it is true, but a close scrutiny of the applications for building permits will also demonstrate conclusively that the speculative builder has again stuck his head out of the cyclone cellar. He has noted no vestige of the storm clouds which frightened his soul last November and December; the skies overhead seem clear, and, to his unspeakable surprise, he finds that the solid ground has not been blown out from where he was wont to set his feet before he ducked into the wind cavern. It is still there to be built upon, and, having been built upon, to trade upon and make money.

There is really no symptom more encouraging than this reappearance of our speculative friend. The works of his creation are not always things of beauty; they are not always welcome additions to a community; they are not always lasting as the pyramids, nor fragrant—in their after years—as the petals of an antique rose; they are built to sell, and to house impecunious tenants who are trying to dodge the raise in rents in order to meet the raise in salt pork and onions. Nevertheless, these same “works” of these same speculators use up the brick, and they are in demand.

In Lake View and Ravenswood, and the territory west and north, there is evidence of new activity in apartment house building—not all of it of speculative character, either. There is an active inquiry for property along the line of the Northwestern Elevated road extension, practically all the way to the city limits, and this, as is only natural, is accompanied by a surprising activity in building, clearly indicated by the fact that recently in one day alone, fifty-seven permits for buildings were taken out. The benefit of the new “L” road extension is being felt all the way to Lawrence avenue, while Edgewater and Rogers’ Park are being particularly benefitted. It has been known for some time that the road was to be built, but it was not until actual work was begun that the buying and building movement really started. The new road is responsible for a sharp rental inquiry for flat and residence property in the district, and while it is to a considerable extent, doubtless, the cause of rent advances, the rent advances in their turn will be followed by more building on the part of investors who hope to help reap the harvest, and on the part of others who think to make money out of the demand for lesser rent than is charged for the majority of the buildings, and who purpose to put up cheaper structures to go for cheaper

rentals. Another reason for the activity is to be found in the comparatively small amount of flat building that has been done in that territory in the last two years. A boom was due.

There is much building going on throughout the whole city. The new subdivision made by cutting up the old Washington Park race track, the scene of many a brilliant derby event, is the scene of great constructive activity. Apartment houses of the smaller order for the most part are springing up like mushrooms, now that the warm weather has really arrived, and nowhere does the town strike one as being at all dead from the point of view of building. There is comparatively little doing in the downtown district as yet, it is true, although even in this field there is more encouragement than there was last month. Beside the new twenty-one story LaSalle Hotel, the material contracts for which will soon be announced, another hotel is projected, and several good-sized buildings are in process of construction.

The county is going to be a good customer of the building contractors, architects and building material men again this year. The great new county building at Washington, Clark and Randolph streets, is already being used, and now comes the plan for a huge infirmary, in which the county’s poor invalids and feeble minded will be cared for. A bond issue of \$2,000,000 for this project was approved by popular vote at the election on April 7, and Holabird & Roche have been instructed to draw the plans for the new buildings.

The buildings will be erected on 225 acres of ground near Blue Island, which were recently purchased by the board of county commissioners. An enormous amount of brick and probably a good deal of terra cotta, together with much tile, will be used in constructing these buildings, and this will help the season along very agreeably.

Chicago builders and material men are rejoicing quietly over the showing made by Chicago, as against the other cities of the country for last month. With a loss of only eighteen per cent. in building business from the record of last year, she heads the list of the cities. Moreover, the figures show that the number of buildings for which permits were taken out last month was greater than the number taken out in March, 1907, which shows that the condition here is close to normal after all. The building department records for the first week in April show up better than for the corresponding month last year, although for the second week there was a slight lapse again.

An extensive addition, costing approximately \$200,000, is to be made to the Bush Temple, the popular stock company theater of the North Side. It will have a frontage of 52 feet and a depth of 150 feet, covering two lots. Bush Temple is an imposing structure of white enamel glazed exterior, and the addition is planned to be of the same finish. It will be fireproof and probably ten stories high. The ground floor will be devoted to stores and the upper floors to offices.

A considerable number of small investors are putting their money into the smaller theaters of the scenic variety. They are to be found in elaborate detail in the downtown district, and in something like profusion all over the city. In the outlying district, almost every block of one-story brick stores figures a theater in its plans.

Edgewater is to have one of the most up-to-date residential apartment buildings in the city. It will be built in the style of the Elizabethan mansions, and will be called the Manor House. It will contain only six apartments, but each will have twelve rooms, including three bathrooms, and will rent for \$200 a month. The buildings will be located on the southeast corner of Kenmore and Bryn Mawr avenues, and will cost \$95,000. J. E. Pridmore is the architect.

SCRIP.

Charles T. Hicks, president and general manager of the Hicks Clay Company, Drake, Ill., is interested in a movement to establish an immense plant at Salt Lake City, Utah, to manufacture enamel brick and porcelain ware. A company will be organized to control the immense kaolin deposits in that territory, and work on the plant will be started in the near future. Mr. Hicks will probably have management of the new concern.

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THE PORTSMOUTH

"LONG LIFE"

Pans, Screens, Presses, Dies, Wheelbarrows,
Sewer Castings, Paving Castings
and Municipal Castings of All Kinds.

"SIMPSON BROS."

Brick Dies, Molds and Piano Wire Screens are Positively

THE VERY BEST

and therefore are the most economical.

THE PORTSMOUTH MACHINE & CASTING CO.,

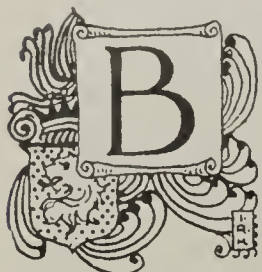
LET US FIGURE WITH YOU.

PORTSMOUTH, OHIO.

Mention The Clay-Worker.

Written for THE CLAY-WORKER.

BRICK NEWS OF NEW YORK AND VICINITY.



BUSINESS IS NOT PROMISING just at present. Perhaps it is better than last month, but the fact remains that trade in brick is not likely to be as active as it was last year. Much will depend upon the public and semi-public works. Building contracts are the smallest in years. No big operations are planned for this summer, excepting those which are already under way. New contracts are light, and there is no indication that they will be better this season. In fact, it is almost too late to say much about large contracts now. They are usually taken up earlier in the season. Depression has hit the building trade hard. Capitalists who have heretofore been investing in building operations, are acting very conservatively in everything this season. In building, they are even more conservative than usual. What the result will be it is impossible to say, but just at present it is rather discouraging to those whose business depends upon what these capitalists do.

Up the Hudson some work is being done about the yards, and barges and schooners are coming down the river with the early spring deliveries. There are plenty of brick to satisfy all requirements, consequently makers will not be in a particular hurry to get under way. Where pits need pumping the work is done, and such changes and repairs as are necessary are being made, but aside from that, operations are not going forward very extensively. Nearly all makers prefer to wait for future developments before making any important move. The supply left over from last fall was liberal; how it compares with previous years has not been given out, but that it was heavier than manufacturers cared to see, is evident from their method of dealing with it. For the present, at least, they will not make any particular effort to increase the supply or add to their output.

It isn't quite right to say that the depression in business, which hit New York so much harder than the rest of the country, is wholly to blame for the difficulties which are besetting brickmakers. The past few years have seen the development of some of the greatest building operations the country has ever known. The McAdoo terminal system has taken enormous quantities of brick. Those are all done and the buildings will be occupied May 1. The Singer building, which consumed many brick, is finished. The tunnels, which required vast quantities, are all finished. And so one might enumerate many of the extensive operations which have required brick by the million that have been finished during the year, and now there is nothing to take their place. The effect is to reduce demand and create the impression that business has gone to pieces. Previous to that, the city of Paterson was burned, and millions of brick were required there for reconstruction. That is all finished, and, fortunately, there has been no other great fire or other casualty to cause an increased demand. These influences, combined with the conservatism engendered by the business disturbance of last October, has caused a reduction in demand which is telling seriously upon the trade as a whole. Makers realize that they must adjust themselves to the conditions, which are governed by a reduced demand, and they are planning their work accordingly.

When asked about prices, one large dealer said that the price was a question of negotiation between buyer and seller. It is impossible to say that any figure will be maintained. It is a question of selling at something, he declared. Undoubtedly it will wake some time later, but the football games which upstart State officials are playing with solvent national banks will scarcely increase the stability of the market in anything, much less in such coarse products as brick, which can be done without. Its chief assistant, now, is the constant agitation against the destruction of the forests. That is an argument which can be used to advantage, and the fact that brick are relatively cheap, while the shortage in lumber is steadily increasing the prices on all sorts of building ma-

terial made from timber, should be taken advantage of by brickmakers in urging their product upon consumers.

Wisdom in paving is something that New York City officials seem destined to never learn. Where the asphalt has given out under the heavy wear they are replacing it with asphalt, notwithstanding the experience of the past few years. It has been pointed out by experts, and it has worked out in practice year after year, that asphalt is only good for residence streets, where the traffic is light and heavy trucks are entirely wanting. Notwithstanding this, however, the officials go on laying asphalt where the traffic is heaviest, and then, in a few weeks, it is all cut up, and the street is dangerous. About the only way to make asphalt stand up under the enormously heavy traffic of the average New York street is to repave it nearly every month. It will last about a month after finishing.

Wood blocks do better, but they are not satisfactory. They wear, but they are slippery, and truckmen and those who own trucks for their own business are constantly complaining because their horses can not haul heavy loads over the wood streets. The surface is too slippery. The proportion which a horse can haul under such conditions is smaller than where the street is rough and affords a safe foothold for the horses' feet. The loss is many thousands a year, but that makes no difference. The requirements or the desires of citizens or business men do not weigh against a preconceived opinion, or against the desires of one who may be profiting by the laying of a particular variety of pavement.

BURTON.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.

IT IS EARLY yet for this section of the country. The snow has barely gone. In some localities it hasn't yet entirely disappeared, and brickmakers are scarcely beginning to think about their business. It is certain, though, that the output will be greatly reduced this season, as compared with the last two or three. The situation is not all that could be desired, everything considered, the closed mills and the depressed condition of business in practically all lines is sufficient testimony of what may be expected. Building operations will be reduced to a minimum. The market for brick naturally suffers, and capitalists, who, ordinarily, have money to embark in such enterprises, are now unwilling to undertake anything which doesn't promise immediate improvement, or, at least, immediate return on the money invested. They can no longer wait for the returns which come with years of use.

With the business conditions more or less depressing, these conditions will certainly govern all the season through. There is no desire or inclination to go ahead with anything. On the contrary, the effect of the present conditions will be to make the business anything but active this season. Of course, the fact that lumber is becoming scarce and high will have its influence, but, aside from that, the outlook does not seem especially good. Makers are reluctant to say anything, which may be taken as partial evidence, at least, that the depression in business is more or less seriously affecting the brick situation in New England.

About Boston not much news is obtainable. Manufacturers do not know of any great project likely to come out within the next month or so, or of any negotiation of sufficient importance to attract attention. The month opened very quietly, and indications of improvement are not as marked nor as numerous as might be expected in the spring. Producers and dealers who did half as much business during February and March as they did during the corresponding period last year, felt that they had reason to congratulate themselves. The fortunate few who actually exceeded the fifty per cent. limit are celebrating their good fortune with some degree of jubilation. Prices are nominally as follows: Up and down S. S. brick, f. o. b. yards in Massachusetts and New Hampshire, \$7.25 to \$7.75; up and down W. S., \$9.00 to \$9.25; New Hampshire selected W. S., f. o. b. cars New Hampshire, \$11.00 to \$12.00; Massachusetts face brick, \$20.00 to \$21.00.

The situation in the brick market depends always upon the quantity wanted by consumers, not upon some theoretical idea which may or may not develop. It is, therefore, somewhat early to undertake a prediction regarding business in any particular town.

HIRAM.

NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to *The Clay-Worker* who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With *The Clay-Worker*, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

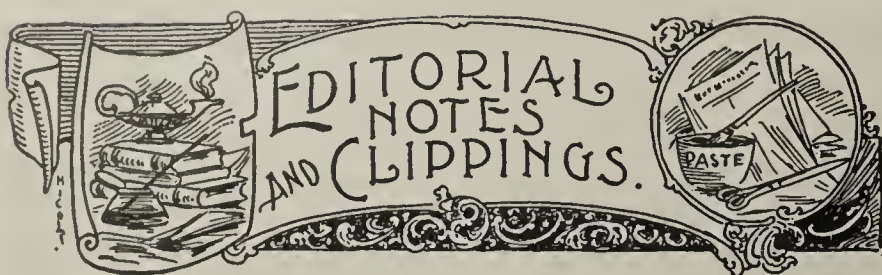
The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

*Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to *The Clay-Worker* to aid us in the matter by remitting promptly in advance, as the Government requires.*



C. E. Phillips expects to start a small brick plant at Groton, S. D.

R. M. Weber, of Mt. Vernon, Ill., will establish a brick-making plant at Victoria, Texas.

John C. Vick is organizing a company at Bryan, Texas, to establish a brick manufacturing plant.

James Wolf, of Ft. Benton, Mont., contemplates starting a brickmaking plant at Culbertson, Mont.

A. H. Finnegan, of Green Bay, Mich., has moved to Vulcan, Mich., where he will take the management of the Turner brickyard.

U. S. G. Williams has bought ten acres of ground near Mt. Pleasant, Iowa, on which he will erect a brick and tile plant in the near future.

Plans are being made to double the output of the Omaha Brick, Paint and Tile Company, Omaha, Neb., by the installation of additional machinery.

T. F. Mardis, a pioneer brick and tile manufacturer of Winterset, Iowa, died at his home in that town, April 7th. He leaves a wife, two sons and two daughters.

The Russ Brothers have purchased George Mowatt's half interest in the brickyard at Chewelah, Wash., and will operate it under the firm name of Russ Brothers Brick Company.

The entire plant of the Stonington (Miss.) Brick Company was destroyed by fire recently. The loss exceeded the insurance by \$7,000. The plant will, in all probability, be rebuilt.

W. L. McKissick & Co., are building a brickmaking plant at Carlisle, Iowa, which they say will be one of the most complete in that part of the country. The plant will cost in the neighborhood of \$50,000.

James H. Ireland, M. M. Sundt and Wm. G. Haydon, all of East Les Vegas, N. M., have incorporated under the name of the Les Vegas Brick Company. A plant will be built at once for the manufacture of brick.

Articles of incorporation have been filed by the Milldale Brick Company, of Milldale, Conn. Charles H. Clark is president, Frank Noble, vice-president, E. S. Todd, secretary and treasurer. The main office of the company will be in Southington, Conn.

Loss to the amount of \$5,000 was caused at the plant of the Granite Brick Company, Glens Falls, N. Y., by a fire which destroyed the sheds and part of the main building. The loss is fully covered by insurance. Plans were made at once for the rebuilding of the burning.

The First Avenue Brick and Tile Company, Evansville, Ind., are rushed with work. Orders are coming in, in daily increasing numbers. They are furnishing the brick for the Evansville and Southern Indiana traction substation at Darmstadt; the Indiana Stove Company's new warehouse, the new dining room at Woodmere and the I. O. O. F. building at Griffin, Ind.

The W. A. Underhill Brick Company announce the removal of their offices from 1 Madison avenue, to the fourth floor of the new Terminal building, 103 Park avenue, corner Forty-first street, New York City. The company manufactures the W. A. U. (Collabaugh) front brick at their plant, Croton-on-Hudson. Visitors will be welcomed at the new quarters the same as heretofore.

Charles J. Gill, Harry R. Gill and Charles O. Grafton have purchased the interest of W. H. Gill, of the firm of Gill Brothers, of Muncie, Ind., and have incorporated under the name of the Gill Clay Pot Company. Following are the officers of the company: Charles J. Gill, president; Harry R. Gill, vice-president; Charles O. Grafton, secretary-treasurer. The business of the company starts off in a satisfactory manner, having sufficient orders on hand to insure a steady run at full capacity in both the tank block and pot making de-

partments, besides glass house supplies. The company will manufacture a general line of high class fire clay products.

The Calveras Brick and Tile Company, at Calveras, Texas, will put in additional machinery in order to increase their daily output.

R. R. Beazley has been appointed receiver for the Mansfield Brick Works, at Rockmart, Ga., and will start same in operation at once.

The Sciotoville Fire Brick Works, Sciotoville, Ohio, is installing a system at its plant for the purpose of burning the ware with natural gas.

On March 4th, Mr. A. R. Campbell, for a number of years chief chemist for the Atlantic Terra Cotta Company, Tottenville, N. Y., resigned his position.

The Inland Clay Products Company, of Spokane, Wash., has been incorporated, with \$100,000 capital stock. Among those interested are: Charles H. Patton, E. H. Thatcher and A. R. Patton.

George F. Martin, of Cynthiana, Ind., has sold his interest in the brick plant with which he was connected and has purchased a tract of clay land, and is going into the brick business on his own account.

The Placer Brick Company has been organized to manufacture brick at Goldfield, Nevada. The incorporators are: Charles A. Gehrman, Frederick Hanss and W. S. Sirbeek, and the capital stock is \$100,000.

The plant of the Lake View Brick Company, Lake View, Ohio, owned by H. Gifford and others, was sold recently to H. G. Monen and others, of Toledo. The new owners have assumed possession and contemplate making a number of extensive improvements.

The plant of the Beatrice Brick Company, at Beatrice, Neb., which has been closed down since last fall, will resume operations in the very near future. Robert Klose, the superintendent, states that they have sufficient orders on hand to keep them busy for some months to come.

John R. True, vice-president and treasurer of the Northwestern Terra Cotta Company, died at his home in Chicago, Ill., April 6. Mr. True was born in Clinton, Maine, in 1853, and had been identified with the Northwestern Terra Cotta Company for many years.

W. P. Terrell, superintendent of the machine department of the Prairie View State Normal and Industrial College, Prairie View, Texas, writes that they are now manufacturing soft mud brick at that point, but expect to improve their methods, and will be glad to receive catalogs, etc., of improved machinery and appliances.

F. W. Dennis, the kiln builder, of Norfolk, Va., is at present at West Point, Miss., where he is remodeling the kilns of the West Point Brick and Manufacturing Company. He has a number of improvements in his kiln, and will be glad to have the Southern brick manufacturers who are interested, inspect the kilns at West Point. The improvements can be installed in his old kilns at very little cost.

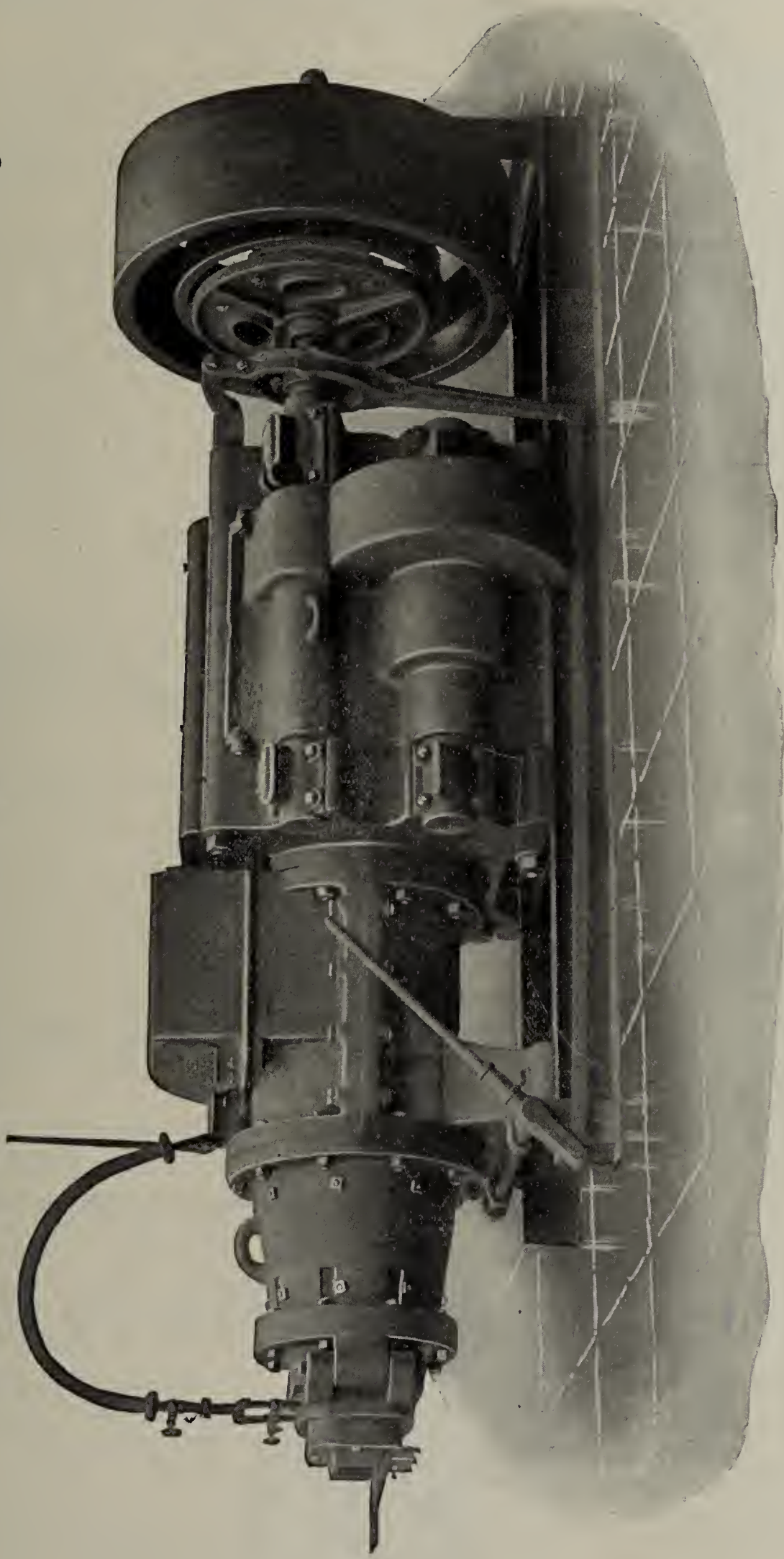
The Selma Brick and Supply Company has been incorporated at Selma, Ala., and will take over the property and assume control of the business of both the Selma Brick Company and the Kahn Brick Company, of Selma. The company will improve both these plants. The incorporators are: Nathan Kahn, Leon Siegle, F. M. Stullwell, J. S. Lamar and Herman Rosenbaum.

R. A. Brown's Sons, Concord, N. C., are making a number of improvements at their brick plant, including the installation of a brick machine of 70,000 daily capacity, and a conveyor to carry the brick from kiln to car, and then load them on the car. The improvements will enable them to double the capacity of their plant. The season has opened up well, and the prospects are good for a busy summer.

The Evens & Howard Fire Brick Company, St. Louis, Mo., filed suit for \$8,190 on five counts against Frederick E. Bausch and his mother, Mrs. Emelie Bender Bausch, formerly a teacher in the Columbia Public School, who resigned her position recently to manage valuable pottery clay mines west of St. Louis, of which she had become possessed. The clay mines are located near Hanlèy and Eager roads. The fire brick company charges that Bausch and his mother have encroached upon its land and have taken out or made

(Continued on Page 600.)

Modern Stiff Mud Brick Machinery.



We've been building Brick Machinery a good many years and have, naturally been brought into contact with a variety of clays and conditions and have been able to produce machinery more and more nearly adapted to the requirements of our customers. Our motto in this work has been "Prove all things and hold fast to that which is good." Consequently the features in our products which have not been found good have been discarded and improvements from time to time have been substituted.

Let us get acquainted with your troubles or your wants, and if we cannot do you good we will tell you so. We build Brick Machines in many sizes and patterns.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

(See ads on pages 638 and 639.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

worthless, by causing it to cave in, and become mixed with surface soil, 5,460 tons of valuable pottery clay.

The Missoula Brick and Tile Company, of Missoula, Mont., has been incorporated by W. E. Carey and others, with \$10,000 capital stock.

Frank Magnuson and John Hedine have purchased forty acres of fine clay land at Twin Valley, Minn., on which they will establish a modern brickmaking plant.

The new brick plant of A. G. Emmer, New Iberia, La., has begun operations, and is now turning out a first-class grade of brick at the rate of 30,000 per day.

The plant of Burke Bros., Little Rock, Ark., has been leased to George Ogan, of Danville, Ill., who will operate it for Burke Bros., who are large paving contractors.

The Falls Brick and Tile Company, Sheboygan, Wis., has purchased an 80 h. p. steam engine and 100 h. p. boiler for their brickyard, and will discard their two gasoline engines.

W. J. Gerber, Louisville, Ky., writes that he wants to purchase a sewer pipe plant, and will be pleased to correspond with interested parties. Mr. Gerber's address is 934 W. Market street.

The Clarendon Clay and Mining Company, which owns extensive deposits of white clay at Clarendon, Vt., will begin work early in May. The clay is used in the finishing of writing paper, and there is always a good demand for it.

The plant of the Boulder Shale Brick Company, Boulder, Colo., has been purchased by Ralph M. Brann, W. T. Dumbleton and Guernsey Walker, who will operate it under the name of the Adamant Brick Company. The plant, which has been closed for a couple of months, will be put in operation at once by the new owners.

Mitchell, S. D., is to have a new brickmaking plant. G. L. Hampton and Irving Dunn have organized a company, to be known as the Mitchell Brick and Tile Works. The concern has been incorporated for \$50,000 capital stock and will build a plant capable of turning out from 40,000 to 50,000 brick per day, and it is the intention to operate the plant to its full capacity practically from the start. Between forty and fifty men will be employed in the factory.

The George F. Weaver & Sons Brick Co., Utica, N. Y., have purchased the brickyard adjoining their property and are making a number of improvements. They have been leasing this plant for a number of years. With the improvement to be made, it will not give them a yearly capacity of 20,000,000. A steam shovel has been installed and other improvements will be made as quickly as possible. The new property includes a thirty-acre tract of fine clay land.

The brickyard formerly owned by the Cheney Brick, Tile and Manufacturing Company, Cheney, Wash., will open in a short time for the manufacture of brick, after being idle for three years. The property passed into the hands of mortgagees. It was originally a stock company. The property has been in litigation for some time. J. Thompson, of Wilbur, of whom the machinery was purchased, recently secured a judgment against the company, and at present holds a lien on the machinery. C. A. Ratcliffe, the mortgagee,

has the property in charge, and within a few days will have a force of twenty men at work making brick.

The Wassall Brick Company, of Glouster, Ohio, has been incorporated, with \$50,000 capital stock, by E. A., R. E., W. E., and S. H. Lewis and W. B. Gallaher.

A boiler exploded at the Paw Paw (Ill.) Tile Works April 13, killing Arthur and Frank Boiers, and seriously injuring Louis Burnett, Earl Marks and Leslie Elliott.

The Mt. Bethel Brick Company, of Somerville, N. J., has been capitalized at \$25,000, with Edward D. Cronin, Fred Knowlton and Russell H. Osgood as incorporators.

Charles Mitchell, R. R. No. 8, Mt. Vernon, Ill., has in contemplation the establishment of a small brick and tile factory at that place, and will be pleased to receive catalogs of brick and tile machinery.

Fire at the plant of the Baltimore Brick Company, Washington road and the B. & O. tracks, Baltimore, Md., damaged the office, carriage sheds, and the residence of the manager causing a loss of about \$1,000.

The Indiana Clay Products Company, of Indianapolis, Ind., has been incorporated, with \$50,000 capital stock. The directors are: Daniel Foley, William E. Hayward, Amos B. Keppert, Fred L. Gemmer and Joseph W. Zartman. The plant will be at Jasonville and will be modern in every particular. Paving brick will be the chief product of the new company.

Charles Henry Melcher, a retired brickmaker and member of the Philadelphia Bar, died at his home in Philadelphia, Pa., from heart disease, aged seventy years. As a young man he studied law, and after a short practice entered into the brickmaking business with his father. He is survived by two daughters and three grandchildren.

One of the largest and most modernly equipped brickyards on Puget Sound is that of the F. H. Goss Brick Company, which has recently been completed at North Thirty-eighth and Puget streets, Tacoma, Wash. The plant represents an investment of \$60,000, and has a present daily capacity of 60,000 brick, with machinery on hand capable of increasing the capacity to 100,000 brick per day, or 25,000,000 brick annually.

W. B. Crane has filed suit in the Superior Court against the proprietors of the Southern California Pottery and Fire Clay Works, Los Angeles, Cal. He asks for an injunction to restrain the owners from continuing the use of the premises for manufacturing purposes. He asks for damages in the sum of \$10,000, which, he says, is the amount of his loss because of the alleged damage to property which he owns, sleepless nights because of offensive noises, and soot and inability to secure tenants for his houses.

CLEARFIELD BRICK MANUFACTURING CO., CLEARFIELD, PA.

Works at Krebs, Clearfield Co., Pa.

FIRE CLAY PAVING BRICK.

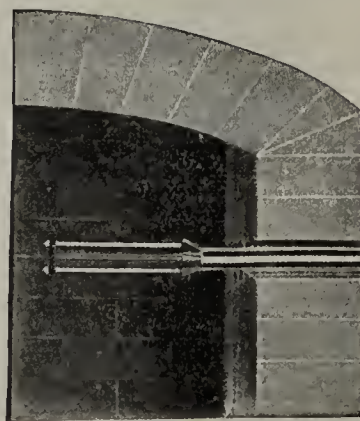
Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

**Pittsburgh Kiln Construction Co.,
West Elizabeth, Pa.**

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

**EDWARD
BROWN
& SON,
311
Walnut St.,
Philadelphia,
Pa.**

LEVIATHAN
ELEVATING
TRANSMITTING
CONVEYING
BELTING

The Brick concerns, who have investigated, say that we make the best belt for transmitting power or conveying material under the severe conditions of the trade.

"We find it gives better service and lasts from two to three times longer than the other belts we have been using; these were rubber, leather and cotton duck."

"We recommend your Leviathan belt, especially for brick plants where there is much dust to contend with."

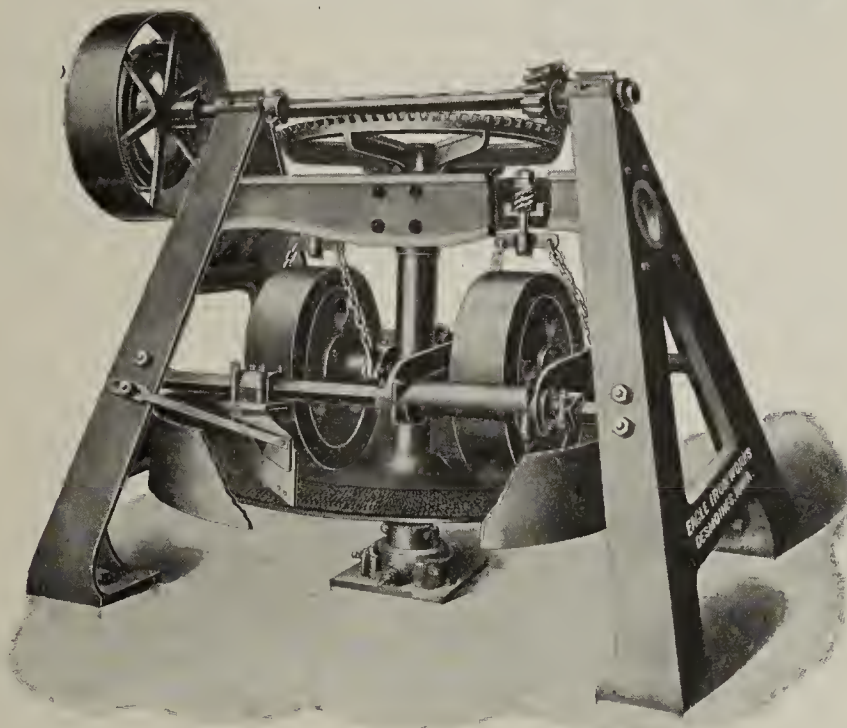
A folder containing many more convincing expressions has just been prepared. Write for it.

MAIN BELTING COMPANY,

1224 Carpenter Street, Philadelphia.
59 Market Street, Chicago.

Independent and Suspended Mullers

the distinguishing
feature of our **DRY PANS.**



Other valuable features which our catalogue fully describes.

EAGLE IRON WORKS,
Des Moines, Iowa.

A Tile and Brick Plant without chimney, constructed by

JACOB BUHRER

which produces yearly, in two Kilns and two Dryers, 20 to 23 million pieces of all kinds of goods, also glazed tiles. Two ventilators furnish the draught for the Kilns and Dryer.



~~~~~ Jacob Buhrer's Technical Bureau, ~~~~~ CONSTANCE, GERMANY.

Buhrer commenced to work in his father's brickyard in April 1838, when he was 10 years old, and established in 1860 his Technical Bureau.

Buhrer undertakes the construction of Kilns, and of kilns with dryers, in which brick and tiles are dried with the waste heat of the kilns. The kilns, which are provided with heat collectors, utilize the waste heat to the utmost extent.

In Buhrer's Shortened Kiln (miscalled the Zig-Zag Kiln) there can be burned very fine tiles, glazed and unglazed.

Buhrer's Kilns and Dryers are also very suitable for burning ordinary bricks and face bricks. Bricks and tiles, made by the plastic process, of clays of normal qualities, may be dried in 1½ to 4 days, and can be drawn from the kiln, well burned, in 4 days more.

Buhrer shows by his new burning process how the production of kilns of other systems may be increased from 50 to 100% by means of his ventilator, the output being of first-class quality, with a small consumption of fuel. With the waste heat thus produced in the kiln, up to 50% and more of the required goods may be dried in Buhrer's dryer.

Buhrer also puts up lime kilns. Fat lime, containing 98 to 99% pure lime, is burned with 14% coal. These kilns can also be used for burning Portland cement.

Buhrer's methods of construction have a bearing upon all the work done in the yard, and the works, mostly large, he has built, are working with great economy.

Buhrer's largest works, without chimney, are used by the most successful men in the ceramic industry.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE—Outfit for making wire-cut brick. Only used a short time. Trucks, wheel barrows, etc. Will sell cheap. Address A. H. S.,
4 1 cm Care Clay-Worker.

WANTED—Second-hand machinery for soft and stiff mud common building brick plant. Address

THOS. A. DUNN,
7-8 Welles bldg.,
4 1 dm Wilkesbarre, Pa.

FOR SALE—One Boyd four-mold dry press, good condition, made for Martin patent pipe dryer. Champion rock crusher, practically new. Address

OHIO CERAMIC ENGINEERING CO.,
4 1 L Cleveland, Ohio

FOR SALE.

Brick machine, 15,000 per day capacity. Price, \$50. 4,000 pallets. Twenty-five brick molds, \$1 each. Will sell separate. Reason for selling, wish to retire.
2 3 cm WM. MAERZ, Fulton, Mo.

WANTED—Man capable of superintending construction of brick plant, at my expense. After same is constructed, what will you make brick loaded for market for per thousand, I to furnish clay, fuel and machinery. Address

JOS. WINKLE,
5606 Bartmer ave.,
4 1 c ST. LOUIS, MO.

WANTED—Situation as superintendent by a brickmaker of fifteen years' experience. Knows how to run the yard, handle men, and make a plant pay. Address

D. W. D.,
1315 Madison st.,
4 1 c Kansas City, Mo.

FOR RENT—Stiff mud yard, 20,000 capacity. All clay burns a good red color. Machinery and kilns all ready for business. Wallace brick machine, Freese cutting table, Bechtel's drying system. Rent, \$60.00 per month. Address

E. E. BALLARD,
1702 Midland ave.,
4 1 d Syracuse, N. Y.

BRICK PLANT FOR SALE OR LEASE.

Complete, up-to-date plant. Steam dryer. Inexhaustible supply of finest clay for all purposes. On Long Island Sound. Good shipping facilities. Will make most reasonable terms to right parties. Address

CLAY WORKS, Box 2,
4 1 c Northport, L. I., N. Y.

FOR SALE—Brickyard covering fourteen acres of land; has four down-draft kilns. An ideal soft mud machine and pallets for six days' work. This yard is located in the outskirts of a city of 10,000 inhabitants, with a McKinley interurban railroad on one side of it, and within a short distance of three other railroads. Original cost, \$8,000. If sold at once, will sell for \$4,000. Address

IRA C. GIBONS,
4 3 cm Princeton, Ill.

WANTED—First class brick setters, one pug mill man, one dry pan man, and one table man. Standard wages. Address

BURKE BRICK CO.,
4 3 c Ft. Smith, Ark.

WANTED—One good second-hand steam shovel; capacity, one-half to one yard. State price and general condition. Address

SAXTON VITRIFIED BRICK CO.,
4 1 d Saxton, Pa.

FOR SALE—Brick plant with modern machinery in perfect condition (only used six months.) Daily capacity, 30,000. Freese cutting table; Raymond machines. Apply

BRICK,
4 3 cm Care Clay-Worker.

WANTED—Position as ceramist in clay-working concern, by a graduate of New Jersey school, who now holds position as manager of glazing department in terra cotta plant. Address

BOX 113,
4 1 cm Care Clay-Worker.

FOR SALE—One Murray shingle and promenade tile auger machine, with cutting and off-bearing table for same. Complete and in good order. Will sell for one-half of regular price. Address

MURRAY,
4 1 L Care Clay-Worker.

FOR SALE—One Williams No. 5 patent pulverizer, hopper opening 52x16 inches, weight, 120,000 pounds. Used less than three months. In perfect condition. Will sell at a bargain. Address

EVENS & HOWARD FIRE BRICK CO.,
4 1 L St. Louis, Mo.

FOR SALE—Brick and tile plant in a growing town surrounded with good territory. Good demand and good freight rates. Reason for selling, present owner not a practical brickmaker. Snap for the right man. Address

HAZEL BRICK AND TILE WORKS,
4 1 cm Hazel, Ky.

WANTED—Position as assistant superintendent or any other work about a brick plant, by a German brickmaker. Understand machinery, engines, and how to make repairs. Am sober and industrious. No. 1 references. Address

OTTO POMMER,
4 1 50p Campville, Fla

CLAY LAND FOR SALE, CHEAP.

Inexhaustible supply, high grade shale for fine face brick and pavers. Great location for plant. Right on railroad; good labor. Would be nearest plant to an enterprise that will use 30,000,000 brick. Address

J. A. STEINER,
N. Fourth st.,
4 1 c Sunbury, Pa.

WANTED.

Clayworkers who are having troubles of any sort in the operating features of their plant, whether in the making, drying or burning, to know that my experience of twenty-five years enables me to give valuable practical advice that will prevent further loss and trouble, if skill and knowledge as a practical worker and chemist can accomplish that purpose. Terms reasonable and contracts made contingent upon success. Address

J. J. KOCH,
5 tf L 3325 Caroline st., St. Louis, Mo.

WANTED—Position as assistant burner; used to up and down-draft kilns, also continuous. Good references. Address

JOSEPH,
4 1 cm Care Clay-Worker.

FOR SALE.

One Potts Mold Sander, in good working order, also dry racks (Mock System) for 70,000 brick. The above can be had very cheap.

A. FRIES & SONS,
2 3 d Connerville, Ind.

FOR SALE.

One Bensing Automatic End-Cut Brick Table, with belt delivery, gearing and shafting for driving same, for sale cheap, and not badly worn. For particulars address

DALLAS COUNTY BRICK & TILE WORKS,
3 tf d Adel, Iowa.

MANAGER will contract to operate paving brick or sewer pipe works on salary plus percentage basis. Former failure of factory to make good not considered an objection if proposition is fundamentally a good one.

3 tf L MANAGER, Care Clay-Worker.

SUPERINTENDENT, experienced in manufacture of Sewer Pipe and Paving Brick, successful in correcting manufacturing difficulties, wants full charge of factory or factories, exclusive of selling end of business. Familiar with cost and record keeping systems and general accounting. Good references.

3 tf L SYSTEM, Care Clay-Worker.

WANTED.

A position as superintendent by a responsible man, who is thoroughly familiar with all the details of a brick plant, and capable of handling all kinds of help. Can give the best of references as to ability, etc. Address

"N. H."
2 tf d Care Clay-Worker.

FOR SALE—Cheap, one Fritz improved duplex belt-power clay pump, with double 3x5 inch pumps. Write for photo, with description and price. Address

GEO. J. FRITZ FOUNDRY AND MACHINE CO.,
4 1 1pm 2008 S. Third st., St. Louis, Mo.

WANTED—By large clayworking machinery manufacturer, a man thoroughly conversant with clayworking, and also experienced in office work for sales department. In replying, state experience, salary expected, and give reference. No one but first class man need apply. Address

"R,"
4 1 L Care Clay-Worker.

FOR SALE CHEAP.

Racks and pallets for approximately 600,000 brick, one 14x20 Atlas automatic engine, good as new, one 60x16 H. T. boiler, Potts Iron Brick Machine, disintegrator, granulator, trucks, turntable, etc.

Complete outfit for two machine yard. Sold in whole or in part

For prices, address
THE COLLINGWOOD BRICK CO.,
Toledo, Ohio.

FOR SALE

AT A DECIDED BARGAIN,

The best brick plant located in the northwest. It is fitted up with modern machinery, including Penfield Brick Machine, Potts disintegrator, Benson side cutter, Bechtel system of trucking, good kilns and drier sheds, machine shop, barns, boarding house for employes. Good reason for selling.

A. L. MARTIN,
613 Hennepin Ave.,
1 tf d Minneapolis, Minn.

FOR SALE—Several thousand steel flanged pallets, 34x10 inches. In good condition. Can be purchased at a bargain. Address
THE CLEVELAND CAR CO.,
4 tf L West Park, Ohio.

FOR SALE—Twenty thousand pallets, with racks for same, four trucks, three clay carts, shafting and belting. Address
J. H. MCGREGOR BRICK CO.,
4 3 dm Bloomington, Ill.

FOR SALE—Brick plant, well equipped, good market and prices; very profitable business. Will require \$20,000 to handle. Address
BOX 475,
3 2 d Portland, Ore.

FOR SALE.
One 9-foot dry pan, iron frame.
One revolving screen.
THE T. B. TOWNSEND BRICK AND
CONTRACTING CO.,
4 tf d Zanesville, Ohio.

WANTED.
To find a market for a large deposit of kaolin. We have other valuable clay for queensware, pottery, terra cotta, and high-class brick. Address
CHAMBER OF COMMERCE,
Room 1176,
3 2 dm Astoria, Ore.

WANTED.
Position by an experienced superintendent. Understand soft mud, stiff mud, and dry press machinery; up and down-draft and continuous kilns. Have used coal, wood, gas and oil as fuel. Can handle labor to the best advantage, and know all about dryers. Am strictly sober and can give good references. Address FRED,
4 1 c Care Clay-Worker.

CAN HELP YOU WITH YOUR TROUBLES.
Press brick and roofing tile manufacturers, who are having trouble, either in the manufacture of their products in the machinery department, or kiln department, can have same remedied and rectified by addressing W. P. GRATH, Press Brick and Roofing Tile Expert, 513 Holland bldg., St. Louis, Mo. Terms reasonable.
4 1 L

FOR SALE—Owing to the ill health of the proprietor, we desire to dispose of our soft mud brick plant, having a daily capacity of 15,000 building brick. Potts machine, mold sander, 60-h.-p. boiler, and 40-h.-p. Houston-Stanwood engine, and the usual yard supplies, including 30,000 pallets, all in good condition. Will sell equipment and lease clay property. Good local market at \$7.50 per thousand. Address
MATHIAS SCHOELCH,
3 3 d Shelbyville, Ind.

WANTED—Contract to dig clay on brickyard with capacity of 50,000 or more per day, with No. 0 Thew steam shovel. Address
THOS. JOHNSON,
4 1 cm Addison, Mich.

WANTED—A dry pan man, who understands taking care of that machinery. Will pay \$2.50 a day, but only practical man need apply. Give references. Address
BURKE BROS.,
3 2 d Ft. Smith, Ark.

FOR SALE—About 125 single deck iron cars for drying brick. Used very slightly, and good as new. Will sell part or all of them. For full particulars, address
BOX 304,
4 1 dm Liberty, Mo.

FOR SALE.
One steam power and one h. p. soft clay machines.
One feed water boiler heater.
A number of dryer cars.
Two second-hand dump carts, practically as good as new.
All of the above in first-class condition. Address,
THE HORTON MANUFACTURING CO.,
6 tf L Painesville, Ohio.

FOR SALE AT A DECIDED BARGAIN.
A stiff mud brick plant, with 26 acres of land and inexhaustible supply of shale, located on the B. & O. R. R. Buildings and machinery in first class condition. Two boilers, 100 h. p. and 125 h. p.; one 150 h. p. Russell engine. Bonnot Company's make of machinery, including one 60,000 capacity brick machine, 12-foot pug mill, hand cutter and 9-foot iron frame dry pan. Line shafting, pulleys and belting in first class condition. Ten double deck steel dryer cars, and five track hot air tunnel dryer. Two Wilson down-draft square brick kilns, capacity, 110,000 each; 1,300 feet of side track to kilns and boilers. Will ship samples of brick if desired. Will be sold cheap to an early purchaser. Address
THE SOMERSET BRICK CO.,
4 1 cm Somerset, Ohio.

FOR SALE.
Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick, and gives valuable recipes. "The Clayworker's Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. "Vitrified Paving Brick," \$1.00; tells all about the best materials for and methods of manufacturing paving brick. All or any of these books mailed postage prepaid, on receipt of price. Write for list of other valuable books for clayworkers. Address,
T. A. RANDALL & CO.,
Indianapolis, Ind.

BUSINESS CHANCE.

On account of death of president and manager, young man thoroughly posted in the manufacture of sand-lime brick can get into business with little or no capital. Address E. W. F.,
3 2 d 265 Pleasant, St. Paul, Minn.

FOR SALE.

One 30 h. p. boiler and 25 h. p. engine; makers, Leffel Water Wheel Co.; one extra heavy Quaker brick machine, belts, shaftings and conveyors for same; one Quaker sander; one Quaker or Wellington 5 leaf dump table; three Wellington mule trucks used 5 days; three Raymond single deck, ten pallet trucks, nine brick trucks; 20,000 five-eighths, three board top and three cleat white pine pallets; 15,000 33 1-2 inch by 10 inch, 5,000 32 1-2 by 10 inch pallets, made by Mershon, Schuette, Parker & Co., Saginaw, Mich., and racks for same, consisting of white pine posts and cleats. These racks are double posts. Rooves and dashes for same and enough grate bars and kiln doors for 36 arches. The plant has been used five years and is in A No. 1 condition. Any person buying this plant living within a radius of 200 miles will be paid his fare both ways. A. GRUBE & SON,
4 1 dm Springfield, Ohio.

FOR SALE—ENGINES AND BOILERS.

—Engines—

Corliss and Automatic—20x42 Allis, 18x42 Hamilton, 18x36 Wright, 16x32 Buckeye, 14x24 Atlas; also 12x30, 10x30, 13x16, 13 1/2x15, 12x18, 12x14, 12 1/2x12, 10x10, etc., etc.
Throttling—18x26 H., S. & G., 18x24 Erie City, 16x20 Chandler & Taylor, 14x24 Atlas, 14x14 Vertical, 12x18, 11x16, 10x16, 10x12, 10x10 Vertical, 9x12, 8x16, 8x12, etc., etc.

—Boilers—

Horizontal Tubular—84x18, 78x16, 72x18, 72x16, 66x16, 60x16, 60x14, 54x16, 54x15, 48x14, etc., etc.
Fire Box—60, 50, 40, 35, 30, 25, 20, 16, 14, 12 and 10 horse power, etc., etc.
Vertical—55, 35, 30, 20, and 15 horse power, etc., etc. Pumps, heaters, tanks, saw mill and general machinery.
THE RANDLE MACHINERY CO.,
1735 Powers st.,
3 tf d Cincinnati, Ohio.

DO YOU NEED MODELS or MOULDS?

We can furnish you with them for any line of clay products, ornamental or plain. Plaster-blocks and cases made to order. First class work guaranteed.

IRONTON CLAY SPECIALTY CO.,
Ironton, Ohio.

Continued on page 604.

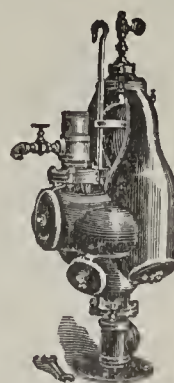
The Spring Rains

will leave your clay pits full of mud and water.

The Pulsometer Steam Pump

will drain them, no matter how muddy or gritty the water. It requires no engine, belt, oil or packing; only a steam pipe from the boiler, and operates equally well suspended as set stationary. Over 25,000 now in use. Send for catalogue.

PULSOMETER STEAM PUMP COMPANY, 14 Battery Place, New York.



FOR SALE—Well equipped brick and tile plant. Four 24 foot down draft kilns under roof. Dry sheds for 300,000 brick, new mill and automatic tables. Ten acres ground, large barn, inside city limits. Demand exceeds capacity. Plant practically new.
OAKES BROS.,
2 3 cm Iowa City, Iowa.

IF YOU WANT TO BUY, SELL OR EXCHANGE

Any kind of business or real estate anywhere at any price, write
FRANK P. CLEVELAND,
Real Estate Expert,
965 Adams Express Bldg.,
4 tf d Chicago, Ill.

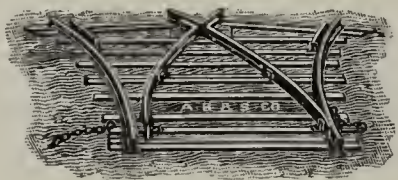
FOR SALE.

No. 1 Thew Shovel in first-class condition.
6 "Little Giant" Traction Shovels.
2 land dredges 1 yd. x 1 1/4 yd.
Locomotives, cars and rails for up-to-date clayworkers.
We buy and sell.

THE MALES CO.,
26 Cortland Street, New York, N. Y.,
1508 First Nat'l Bank Bldg., Cincinnati, O.

FOR SALE—The undersigned are dismantling and closing out the machinery of the best equipped industrial plant in Northern Illinois, and will dispose of the following at about one-half the price of new: One Chambers "B" brick machine; one Chambers "C" machine; two Chambers pug mills; one brick repress; one 200 h. p. Atlas Automatic engine; one 80 h. p. Atlas automatic engine; one 12 h. p. simple engine; three large boilers; one 15 h. p. Electric locomotive; one seven foot exhaust fan; one 30-ton ref. Wolf ice machine. Pumps, shafting, etc. for complete plant.

ANTHONY & BUCHANAN,
2 3 cm Kewanee, Ill.



SWITCHES FOR SALE.

Right and left hand one, two and three way switches of various gauges, radius and weight rail, at special prices.

THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

(See additional ads under Table of Contents.)



They Never Fade

Twenty Long Years

of time and weather have tried out Ricketson's famous Red Brick brand

COLOR

For Mortar, Brick, Cement, Stone, etc. Proved to be absolutely permanent. Red, Brown, Buff, Purple and Black.

Ricketson's Mineral Paint Works,
MILWAUKEE, WIS.

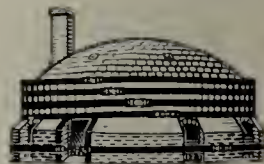


The Best and Cheapest

BAND LUG

on the market.

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CANADIAN TRADE.
Wooden Brick Pallets.

WRITE US

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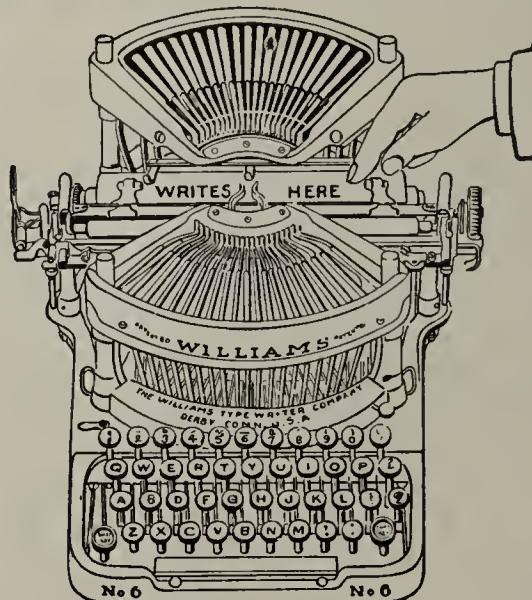
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Saves the beginner time when learning.

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New Number Six Visible Writer



Saves time, energy, worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.

Old machines of any make taken in trade.

The Williams is sold under a positive guarantee and on easy terms.

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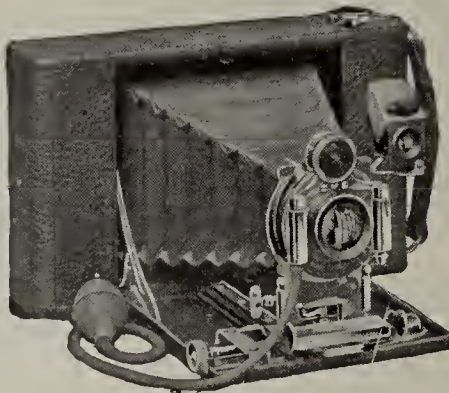
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Home Office and Factory,
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Old Machines Taken in Trade.

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For Pictures 4 x 5.

No. 4

Folding

Hawk-Eye.

No. 4 Folding Hawk-Eye for pictures, 4 x 5, represents the highest attainment in film camera construction; opens horizontally; has rack and pinion for fine focusing; rising and sliding front. Uses daylight loading N. C. film.

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Eastman Kodak Co.,

Catalogue on Request.

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MANUFACTURERS OF
MUSIC WIRE NEEDLE WIRE

NEW BRUNSWICK, N. J.

We manufacture BRICK AND TILE CUTTING WIRE, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.

C. A. SHOOP, Pres.

N. R. WITHERS, Sec. and Treas.

H. L. JACOBS, Gen. Mgr.

SUFFOLK CLAY COMPANY,

MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

Marion Machine, Foundry & Supply Co., Marion, Indiana:

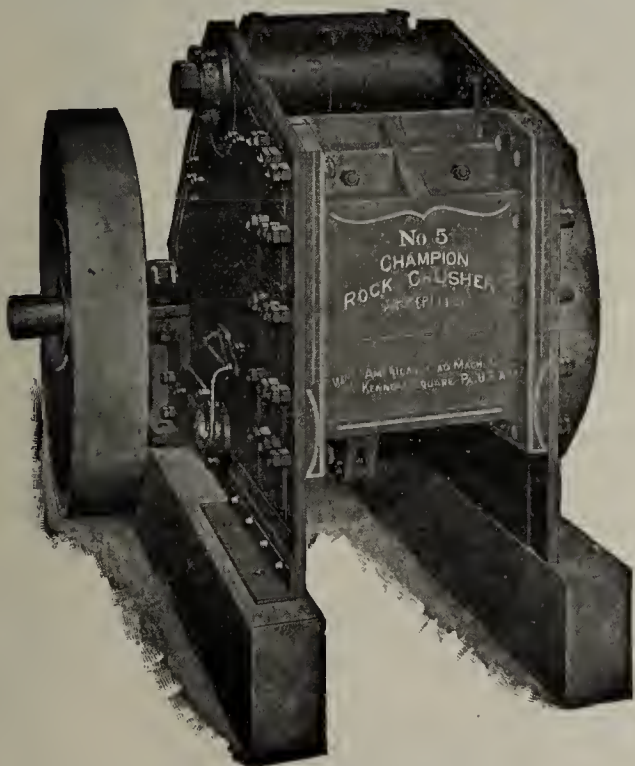
Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

Very truly yours,

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H. L. Jacobs, Gen. Mgr.

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NO. 5, 11x26 CHAMPION CRUSHER.

It Looks Good
on paper.

It Looks Better

crushing shale, fire clay,
rock and other hard material.

THE CHAMPION CRUSHER

is expensive, *to do without*, because it saves you money.

Catalogue is free on application. Address

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Established by the Legislature
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Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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ITS DEPARTMENT OF CLAYWORKING AND CERAMICS, established in 1894, was the pioneer of its kind in America, and has been from the first successfully training men to overcome the technical problems of clay manufacture.

Tuition is free. Laboratory fees are nominal. Faculty of over one hundred instructors. Equipment very extensive.

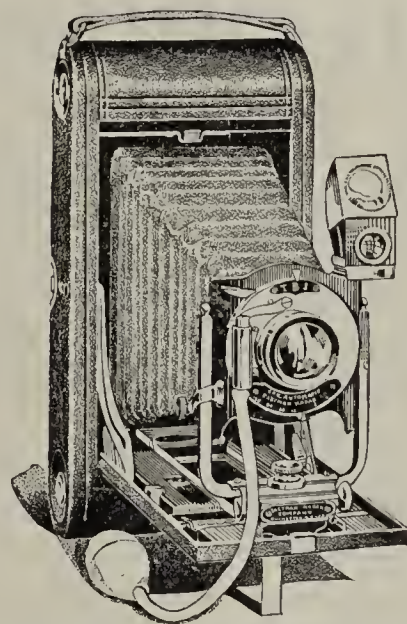
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TAKE A KODAK WITH YOU.

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KODAK SYSTEM.

Its daylight all the way.

Kodaks \$5.00 to \$105.00.

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Correspondence solicited.

Samples and estimates cheerfully furnished
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Manufacturers of

**Red Oxides for Brick-
makers' Use.**

**Eclipse
Mortar Colors,
Red, Brown, Buff, Black.**

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All Mineralogists Know
Clinton Hematite Red
is the highest grade
Oxide of Iron.

Be sure you get the genuine, with the "Little
Yellow Side Label" on each package.

MADE ONLY BY
Clinton Metallic Paint Co.,
CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712.

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NEW YORK.

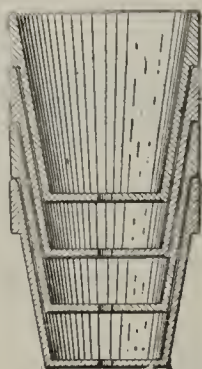
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Precipitated  Carbonate
of Barytes

The only preventative for scum and discolor-
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tralizing the Sulphate of Lime in the Clay and
Water.

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Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

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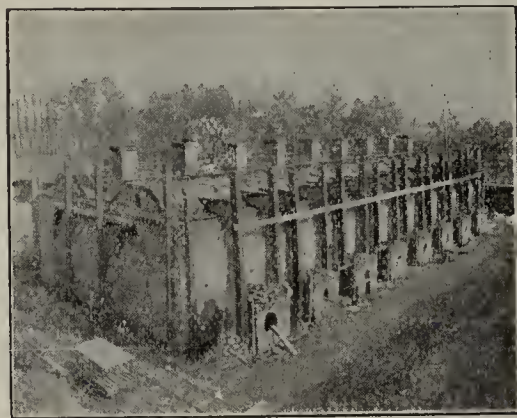
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Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.



Double Up and Down Draft Kiln.

1st. They can be built as cheaply and are more
durable than old style up draft Dutch kilns.

2nd. I can change your old style up draft kilns
into my type down draft.

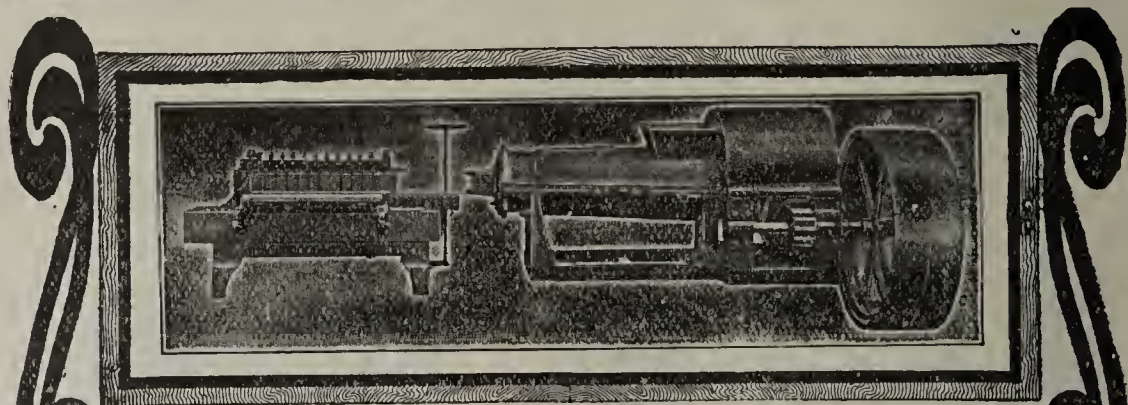
3rd. My type kiln needs no roof, consequently
saves lumber, reduces fire risk, saves labor of re-
moving and replacing kiln roof each burn.

4th. Less skill required in burning; draft un-
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desired point; practically burns all hard brick.

In conclusion, you cannot afford to ignore these
statements, as their truth is easily verified
through investigation, these kilns being no exper-
iment, but being in use by many intelligent, prac-
tical and successful brickmakers, whose names I
shall be pleased to furnish you, whose plants are
easy of access and whose statements cannot be
biased by personal interest.

Wood burning kilns changed to coal burning.
Brick plants installed and put in operation.
Write for booklet. Correspondence solicited.

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THE PIONEER. Kells Brick and Tile Machine

has been the synonym of excellence in the Brick and Clay-
working industry for the past thirty years.

It has had few rivals and no superiors. Improved from
year to year to gain increased

Strength, Simplicity, Durability, Efficiency and Quality
of finished product, until it has reached the highest state of
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Our new handbook will give you the detailed informa-
tion desired.

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ADRIAN, MICH.

COX'S Special Drawn Coil Wire is
Unsurpassed for Strength and Durability.

Brick and Tile Cutting Wires

GEO. S. COX, East Liverpool, Ohio.

For End-Cut, Side-Cut
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Satisfaction guaranteed.
Send for samples and prices.



HELIROID SCREW CONVEYOR is heavier, stronger and better made than any other. Requires fewer repairs—no lapped and riveted joints to come apart—flight all one piece. We are the only people who actually roll a continuous flight conveyor by either the hot or cold rolling process. All other steel conveyors have sectional flights. Our No. 28 Catalogue explains the difference. Elevating, Conveying and Power-Transmitting Machinery.

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White Pine Pallets

For Brick, Roofing Tile,
And Sewer Pipe Boards.

The Best Are the Cheapest.

Send Specifications and Get Prices.

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TRIPLE PRESSURE BRICK PRESS

The strongest and most efficient Brick
Machine made, and the only Press that
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We build and equip complete

SAND-LIME BRICK PLANTS,

SHALE AND CLAY BRICK PLANTS.

Ross-Keller Triple Pressure Brick Machine Co.,

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\$2.00

THE CLAY-WORKER
ONE YEAR (IN ADVANCE)

\$2.00

MANGANESE

FOR ALL USES.

LUMP, GRAIN AND GROUND

60-70% 70-80% 80-90% OXIDE.

CLAY WORKERS GOODS A SPECIALTY.

SAMPLES AND PRICES ON INQUIRY.

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SUCCESSORS TO KENDALL & FLICK.

TAPLIN, RICE & CO.,
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Sewer Pipe and Clay-
Working Machinery.

ESTABLISHED 1862.

*The Anton Vogt
Down Draft Kiln*

and the

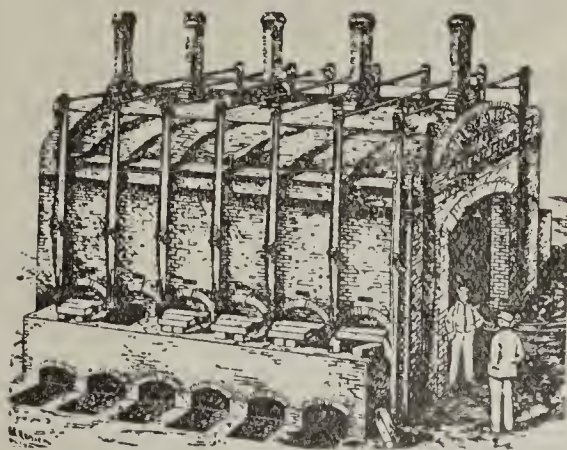
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Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,

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For Economy of Fuel and Percentage of Hard Burned Brick,

This kiln will give satisfaction. Constructed to burn without smoke and give an even distribution of heat, producing uniform burns.

Hot air dryer. Continuous and muffle kiln.

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Or Eastern Terra Cotta, Brick and Tile Co.,
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IF YOU ARE HAVING TROUBLE

With your machine, or your drying or kiln burning, send for an expert who will soon put you right and teach your employes how to do it. Will go East as far as Montana and South as far as Mexico. Address the Brick Machine and Kiln Burning Expert,

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Terms
reasonable.

First-class
references.

If you have trouble with Clay, Machinery or Kilns, then consult

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Special attention paid to dry clay press processes and down-draft kilns.

Contracts made contingent upon success.



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Are the Best for

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**Fire Brick for
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Sewer and Culvert Pipe. Locomotive Tile.
Furnace and Boiler Tile. Fire Brick and Cupola Blocks.
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Sanitary Earthenware. All kinds of Fire Clay Products.

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Brand of

FIRE BRICK

Awarded Gold Medal at St. Louis for
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\$2.00 THE CLAY-WORKER \$2.00
ONE YEAR, (IN ADVANCE)

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

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MINERS AND GRINDERS.

If you intend to build or rebuild your brick plant acquaint yourself with the

Chmelewski Patent Kiln

That's just the thing you need to get prosperous.
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Sole Agent in the U. S. A. and Canada.

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The Improved Flue System.

The most profitable kiln on the market
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All Hard Brick.

Kiln and Yard Rights, with Plans, Specifications, etc., sold at very reasonable rates. Booklet, estimates and full information cheerfully furnished.

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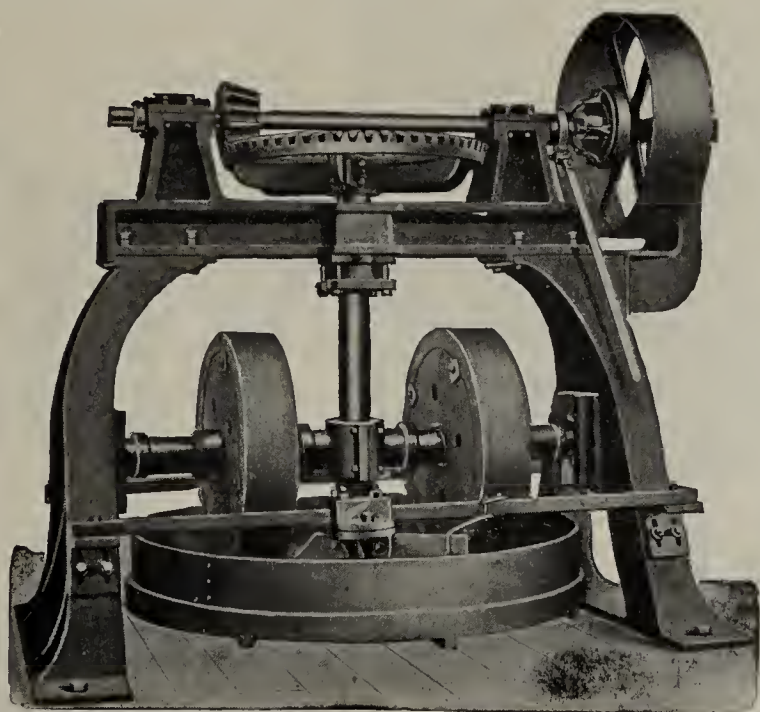
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Builders of
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Dry and Wet
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for Brick, Terra Cotta,
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Refractories, etc.
Also
Rock and Ore Crushers.

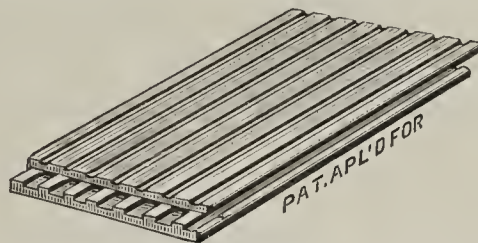


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kind of Clay or Material to be
ground and capacity desired.

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\$2—The CLAY-WORKER One Year in Advance—\$2.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for
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Hips, etc., in metal or plaster.

Special Roller and Auger Presses for
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Stiff Mud Machinery for smaller capa-
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Trades use the

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Plants Designed and Construction Superintended.
Dryers for Any Clay Product.
Kilns of Every Type.
Faults of Manufacture Corrected.
Modernizing for More Economical Operation.



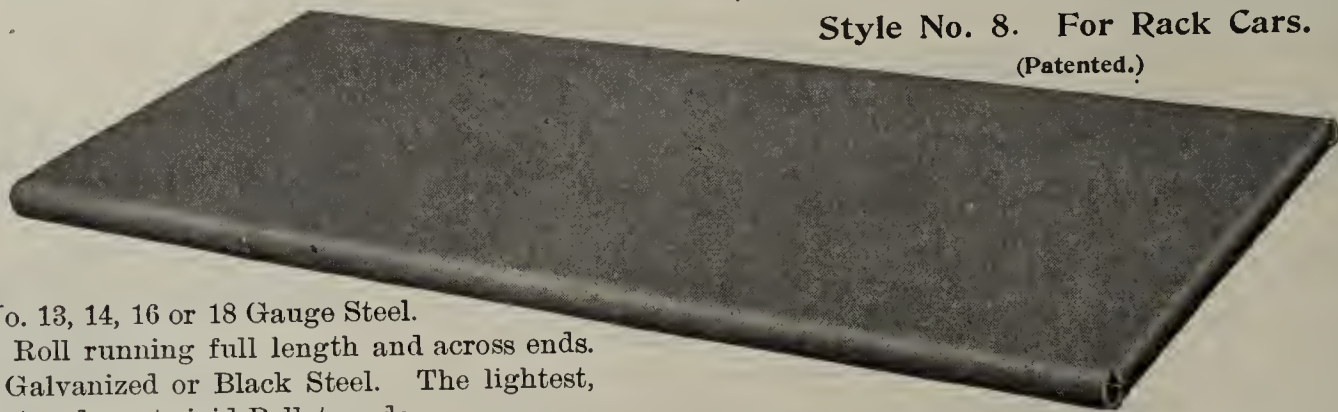
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Style No. 8. For Rack Cars.
(Patented.)



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5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
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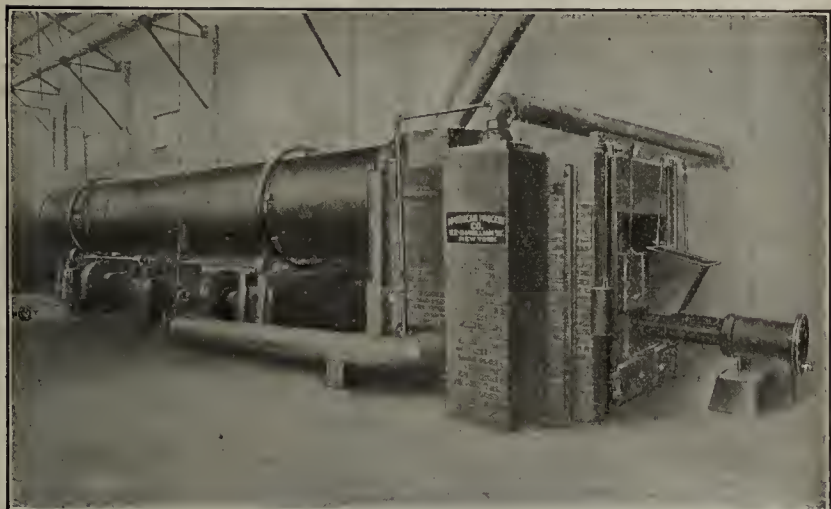
THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

The
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As a Preventative of Scums Use
CARBONATE OF BARYTES
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Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese
and all Chemicals used by the Clay Trades.



Automatic Improved DRYERS

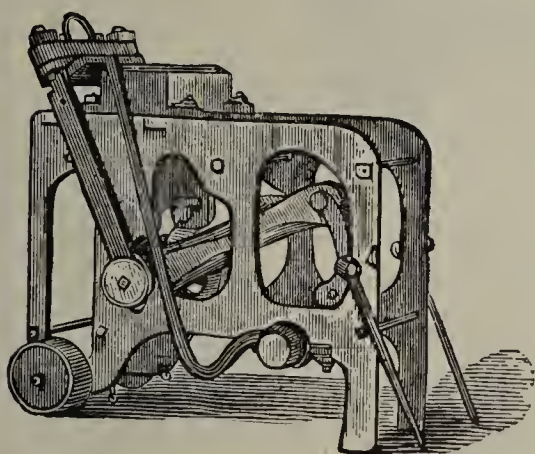
ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

AMERICAN PROCESS CO.,

62-64 William St., New York.

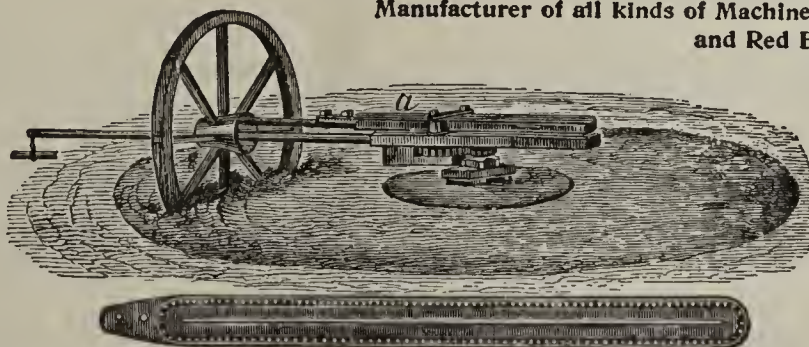


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Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

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Dryer Cars of Quality.

The Manufacturers' Name Guarantees That Qualification.

The Best is The Cheapest.

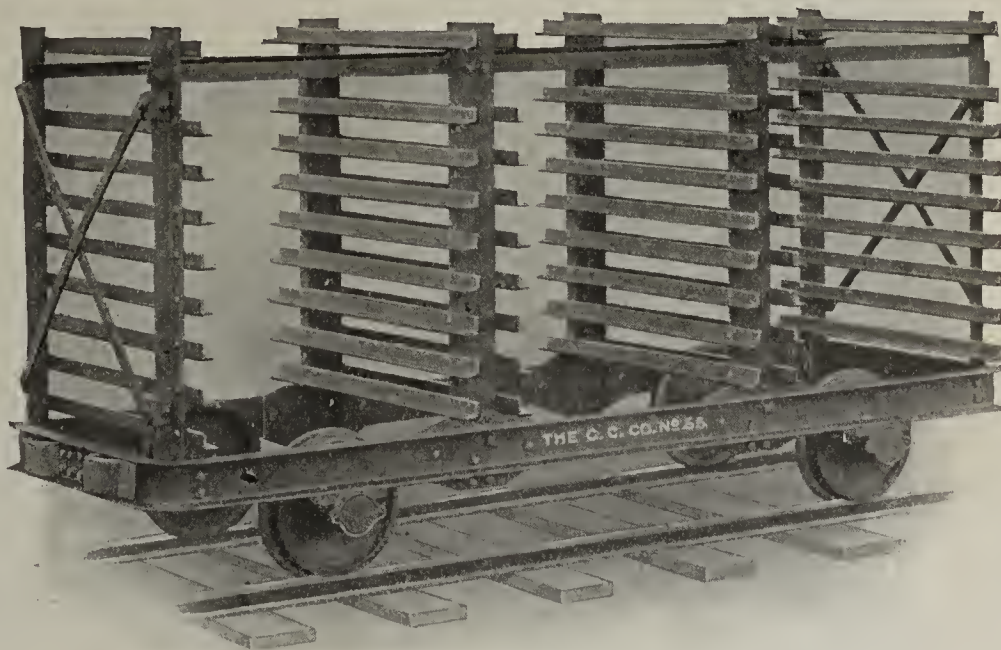
We can satisfy you on that point—To sacrifice quality is no economy—Therefore let us talk to you on the subject. We have something to say. Write us now.

Don't put off that car matter. Send for catalogue.

The Cleveland Car Co.

West Park, Ohio.

(Suburb of Cleveland.)



THREE SECTION RACK CAR.

Designers and Builders of Industrial Railways Complete.

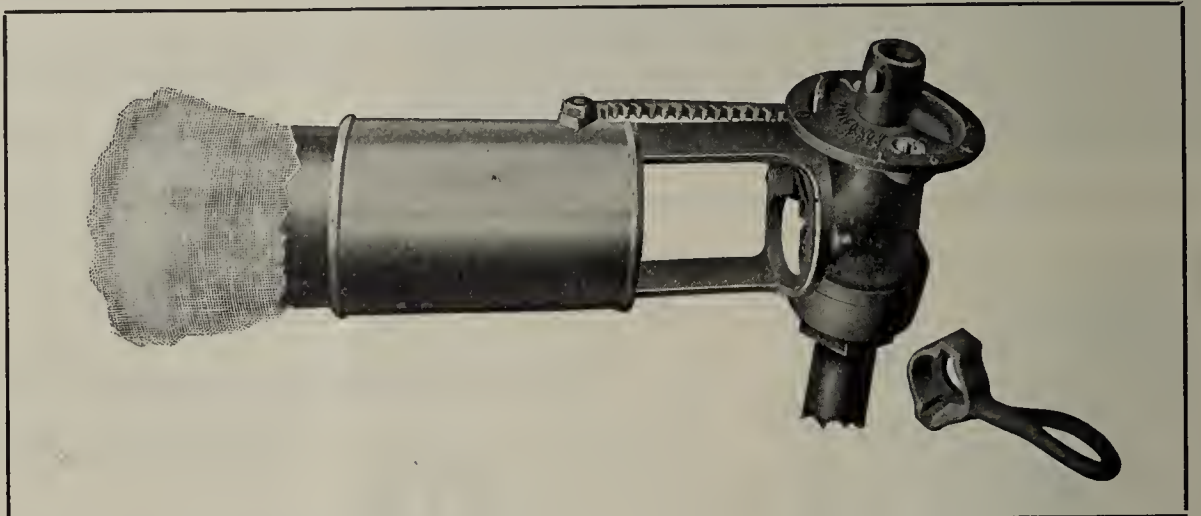
CARS FOR ALL PURPOSES, SWITCHES, PORTABLE TRACK, TURNABLES, TRANSFERS, PALLETS, KILN BANDS, TUNNEL DOORS, ETC.

DON'T BE DECEIVED

You say you are getting all the air you need with your natural gas to give perfect combustion.

But, ARE YOU SURE?

You can be dead sure, when you are equipped with Kern Gas Valves, as the air regulation is automatic.



COMPARISON: We will equip a kiln with Kern Gas Valves and if we do not save you from 10 to 25% of your gas and give better results, no sale. We send an expert to install them.

Leader Specialty Mfg. Co., 7 P. O. Building, **Bradford, Pa.**

STEAM SHOVELS FOR BRICK YARDS.



We have a large number of Shovels in brickyard service in all parts of the country, and can furnish machines of any dipper capacity desired from $\frac{3}{4}$ to 5 cubic yards. If interested write for catalog.

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Marion, Ohio.

F. H. HOPKINS & CO., Agents
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THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.

These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Sqaure Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.

A CAR THAT DUMPS CLEAN SAVES

time and trouble, and for that reason we have designed a car with a steep dumping angle, which guarantees a clean dump. This car is made of steel. It is so constructed that once it is dumped it rights itself automatically. We will send our catalog 12 with further details upon request.



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Youngstown, O.
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LARGE STOCK DUMP,
FLAT CARS, ETC.,
RAILS, FROGS, SWITCHES.

**Handle Your Clay
With One Man and**

The Thew Steam Shovel.



Type No. 3—George Gynn Brickyard, Cleveland, Ohio.

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

Made in four sizes.
Mounted on Car Wheels
or Traction Wheels.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

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THE THEW AUTOMATIC SHOVEL CO., LORAIN, OHIO.

BRICK DRYERS.

We have no patent rights for sale nor do we furnish equipment, or contract to build dryers, but we investigate drying propositions and design dryers adapted to all the conditions in each special case.

**Natural Dryers. Combined Natural and Artificial Dryers.
Artificial Dryers.**

Hot-Floor Dryers—Furnace and Steam.

**Tunnel Dryers—Periodical and Progressive, Furnace and Steam.
Waste Heat Dryers.**

Improved System of Moving Cars Through Tunnels.

Our dryers are scientifically calculated and in design and construction embody the latest developments in theory and practice in Europe and America. Our complete detail plans and specifications enable our clients to get competitive bids on construction and equipment and save money and worry.

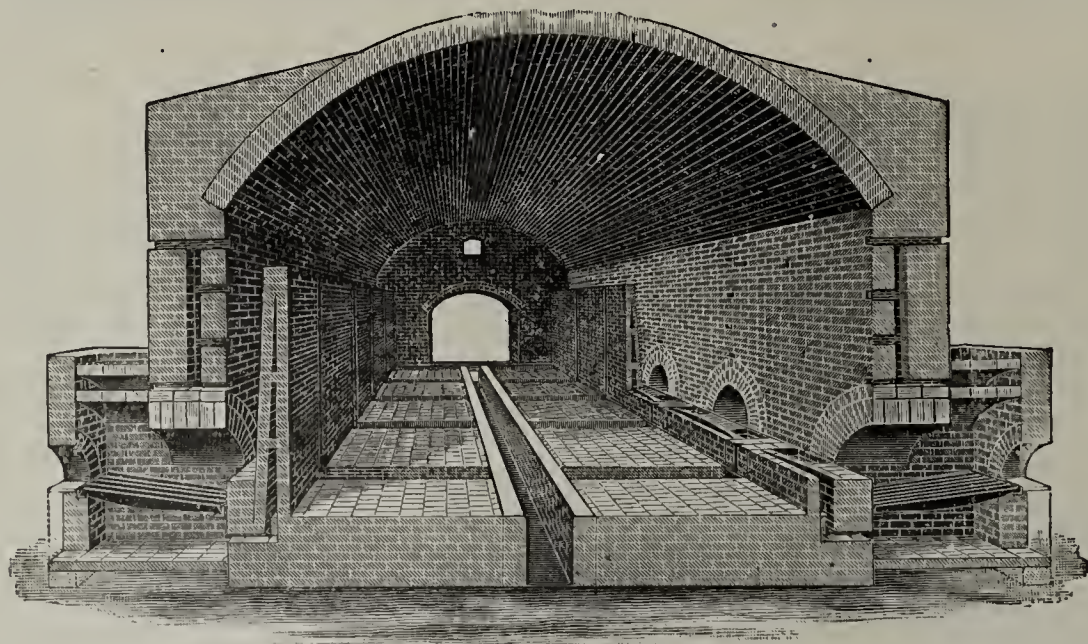
**Drying Properties of Clays Tested.
Dryers Tested and Faults Corrected.**

Publications { "Drying Brick" 25c.
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Columbus, Ohio.**

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STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

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HAIGH'S NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning

ROOFING TILE, DRY PRESSED, FACING, PAVING AND COMMON BUILDING BRICK.

A CURE FOR THE SMOKE NUISANCE. Among other advantages, the Haigh Continuous Kiln offers relief to many brickmakers whose plants have nearby neighbors who object to the smoke from ordinary kilns. An instance is that of William Conway, President of the National Brick Manufacturers' Association of Philadelphia, whose plant is now surrounded by flats and residences. He built a Haigh Continuous Kiln early the past season and has had no complaints of the smoke nuisance since. In regard to the kiln, he says: "The product is all that could be desired, our brick being of good color and well burned." An illustrated leaflet showing views of President Conway's plant and his new Haigh kiln mailed free on application.

POINTS OF SUPERIORITY. Cheapness in Construction. Easy to Understand and Operate. Perfectly free from any Nuisance. Will save more than one-half of the fuel used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

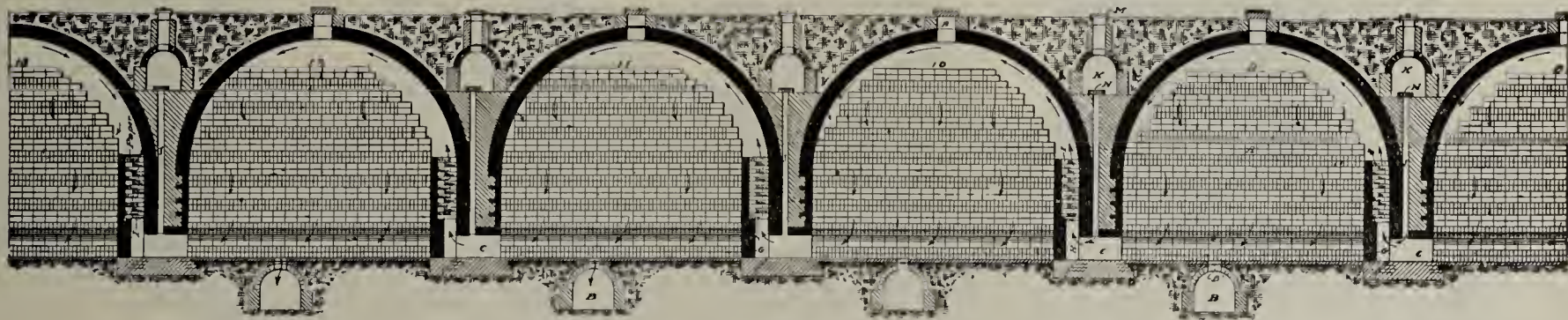
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Every Brickmaker Who Has Kilns With an Arch on Should Have One.

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THE YOUNGREN CONTINUOUS KILN PRODUCER GAS FIRED.



This kiln has now been developed to a state of perfection that places it far in advance of any other system of kilns for burning any and all kinds of clay product.

The kiln is fired with producer gas which is generated from ordinary bituminous coal in a gas producer attached to the kiln. This renders the operation easy and places the regulation of the temperature under most accurate control.

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THE BOSS SYSTEM OF BURNING BRICK.

WATER SMOKE WITH ALL SLACK
BURN WITH ALL SLACK
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME
LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS COMMON BUILDING BRICK
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BURNS DRY PRESSED BRICK
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BURNS TERRA COTTA

Thirty years' experience; will guarantee to burn any kind of clay, including the most refractory fire clay for 40% less fuel cost than by the old method. Can be applied to kilns already built without any alterations. Write for Catalogue.

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Office, 404-405 Monger Bldg., ELKHART, IND.



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We Are PRACTICAL BRICKMAKERS.

We install Dryers that **DRY BRICKS** either open air or artificial.

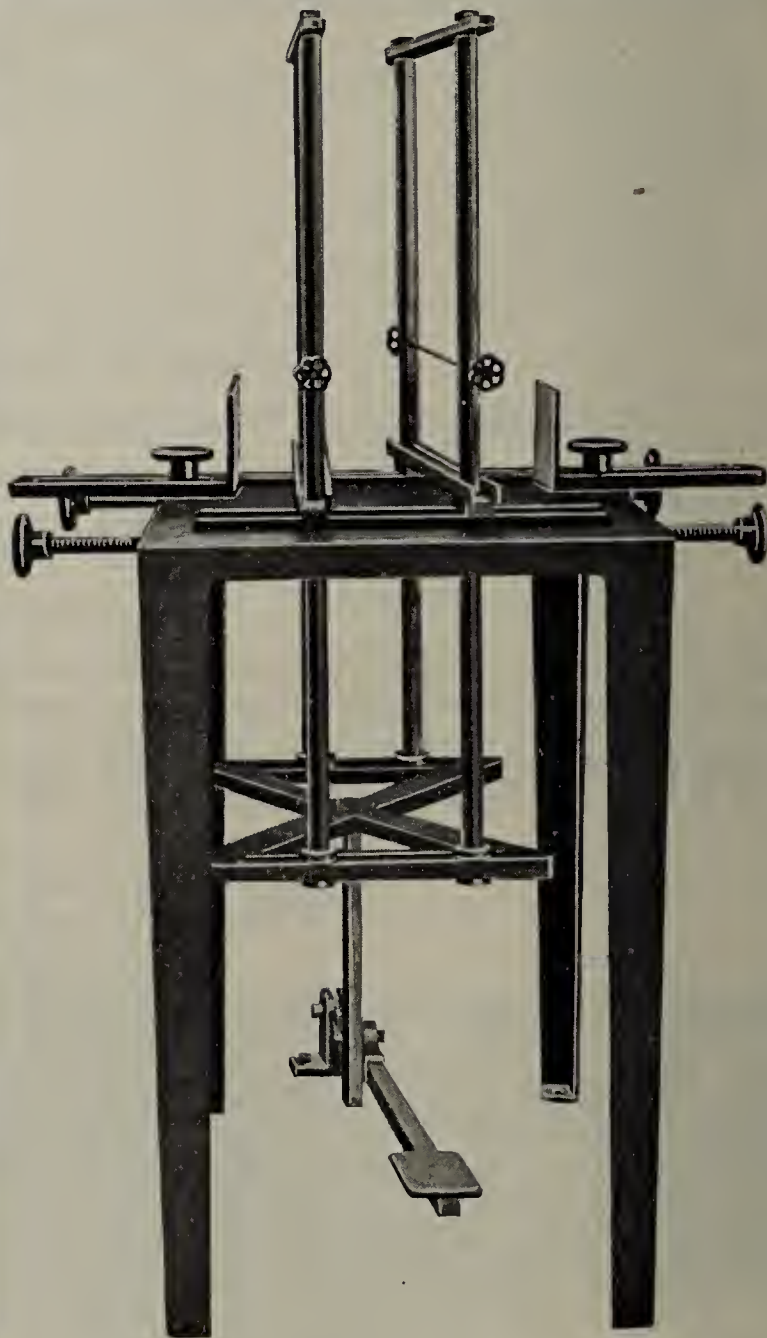
We manufacture Disintegrators and Automatic Brick, Tile and Hollow Block Cutting Tables. Absolutely no stop for broken wires. Write for our catalogue.

BECHTEL'S,
Waterloo, Ont., Can.

You Can't Afford to Cut Special
Shapes by Hand,

Not when your competitor is using a

BRADFORD BRICK RECUTTING MACHINE



THE MACHINE.

This machine will cut arch and key brick, also track paving brick, uniformly and accurately.

The machine is easily and quickly adjusted to shape desired.

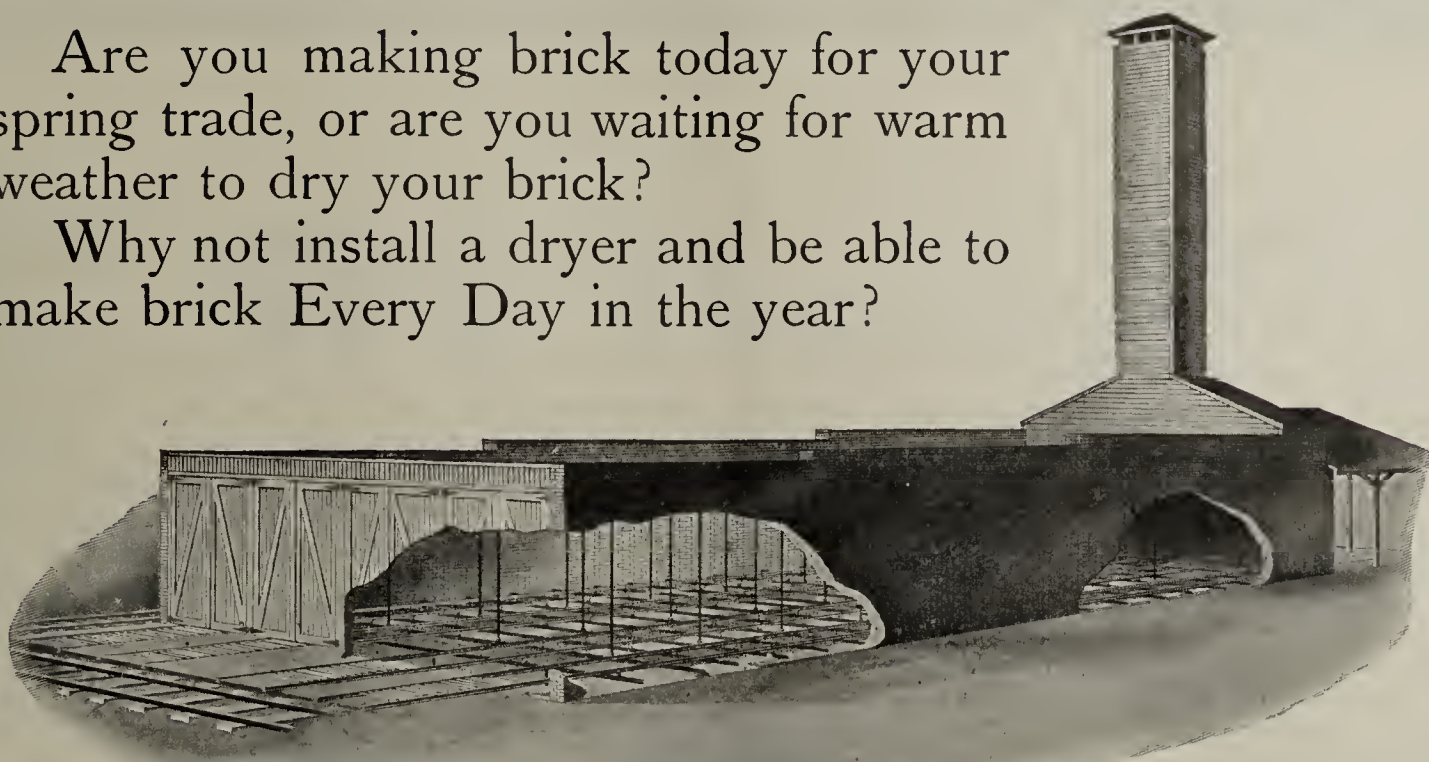
We would like to tell you what it did for the other fellow.

G. W. FLEMING CO.,
BRADFORD, PA.

The Original ^{EXHAUST STEAM} Dryer is the National.

Are you making brick today for your spring trade, or are you waiting for warm weather to dry your brick?

Why not install a dryer and be able to make brick Every Day in the year?



TATUM & BOWEN, Pacific Coast Agents,
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No Fan. No Engine. No Fire Danger.
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Ask for Cat. 200

The National Dry Kiln Co., Indianapolis, Ind.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for; write us.

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The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

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A review of present practice in the manufacture, testing and uses of Vitrified Paving Brick.

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A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

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One of Jeffrey A5 Drills in Mines of the Robinson Clay Product Company, Midvale, Ohio.

The Jeffrey A5 Electric Rotary Drill

A thoroughly efficient and dependable
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**Coal, Slate, Shale, Clay, Gypsum,
Salt, Soft Rock,**

and other semi-hard or tough material.

This drill is designed on distinctly original lines and for heavier work than has heretofore been found practicable with rotary drills.

The motor is of the most improved type and is fully enclosed in a damp and flame proof casing. The armatures are drum wound with machine formed coils, the pole pieces are of laminated sheet steel, and the windings of both the armature and field coils are insulated in the most thorough and approved manner. The power of the motor and strength of the machine throughout are ample to overcome any resistance the bit will stand up under.

The feed screw passes through the center of the armature shaft, which is hollow, and is driven by a double set of gears which halve the wear. This arrangement, which is found in no other machine, causes the drill to balance perfectly.

A friction release permits the feed nut to slip, and stops the forward movement of the bit in case excessive resistance is offered. This friction slip permits material to be drilled which would be impracticable with a positive feed. Changes in speeds and rates of feed are easily and quickly effected.

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Complete Mine and Tipple Equipments,
Elevators, Conveyers, Screens,
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Before the season for making brick begins.

If you have a

**Brick Machine, Disintegrator, Mold Sander
or Pug Mill**

which is not Modern and with which you can not compete with your neighbors either in Quality or Cost; if your supplies are worn or broken,

DON'T DELAY

but write at once, stating your troubles. We can help you.

We manufacture the most complete and modern line of

**Sand Mold Brick Machines, Horizontal Brick Machines,
Disintegrators, Mold Sanders, Pug Mills, Winding
Drums, Clay Cars, Elevators, Molds, Trucks
and Barrows,**

As Well as the Best Drying Proposition on the Market.

As we have neither traveling salesmen nor agents, our operating expense is small. You will find our prices right.

We are in position to equip your plant complete, from Clay Bank to Kiln, guaranteeing results.

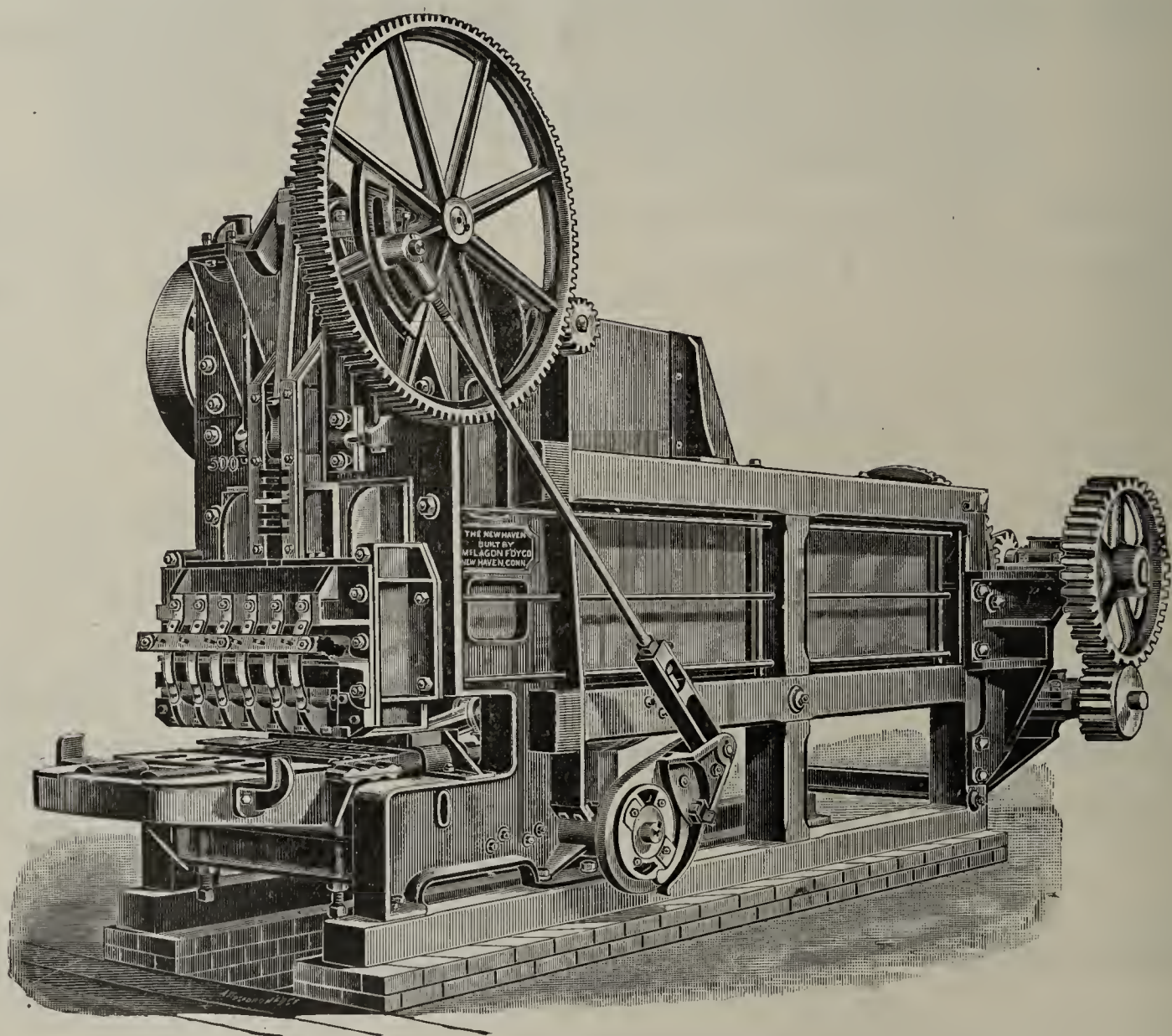
Write for our catalog.

C. & A. Potts & Co. Indianapolis, Ind.

Endurance the Crowning Quality.

The "New Haven" Horizontal Brick Machine is the Strongest Soft Clay Brick Machine in the World.

It is adapted to work any clay and is suitable for any yard, large or small, that uses steam for motive power. The brick made on it are solid and square, having smooth surfaces and sharp corners. For **Quantity** and **Quality** of production we challenge comparison with any machine built. The capacity of the machine is really limited only to the facilities for handling the brick as they are made.



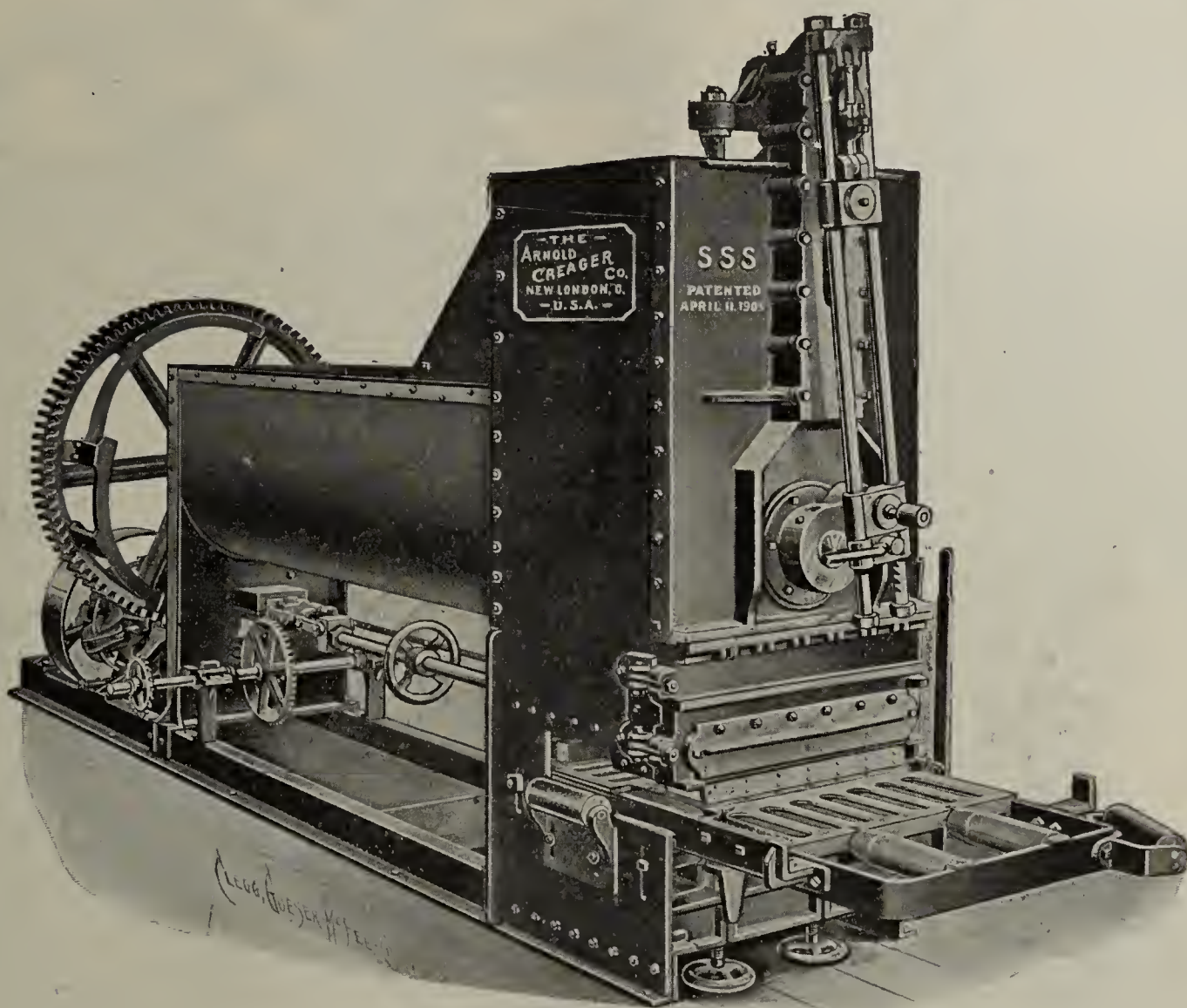
"New Haven" Horizontal Brick Machine.

We will be pleased to submit estimates for a complete plant or any portion of one. We can furnish machinery of the most modern and approved construction for soft mud plants of any capacity at reasonable prices. Shafting, hangers, bearings, pulleys, gearing and machine work of all description.

The EASTERN MACHINERY CO.,

NEW HAVEN, CONN.

HONESTY IS THE BEST POLICY.



S-S-S.

Every Brickmaker should insure himself against loss through poor machinery by taking out a policy NOW with the Arnold-Creager Company, and adopting one of their S-S-S all-iron-and-steel Brick machines. A perfect combination of Simplicity and Strength. Few parts, and all Automatic. Inside Press, exerting tremendous pressure, easily regulated. Twelve feet of tempering capacity, and can easily run 16 moulds per minute. Solid construction enables the working of very stiff clay, making the ideal brick. Front of Press fitted with stone doors when desired. A strictly first-class machine at a small price.

For complete catalog giving details of this, and other high grade machinery and the "1908—Grand-Automatic" address

The Arnold-Creager Company, Inc.,

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CINCINNATI, OHIO.

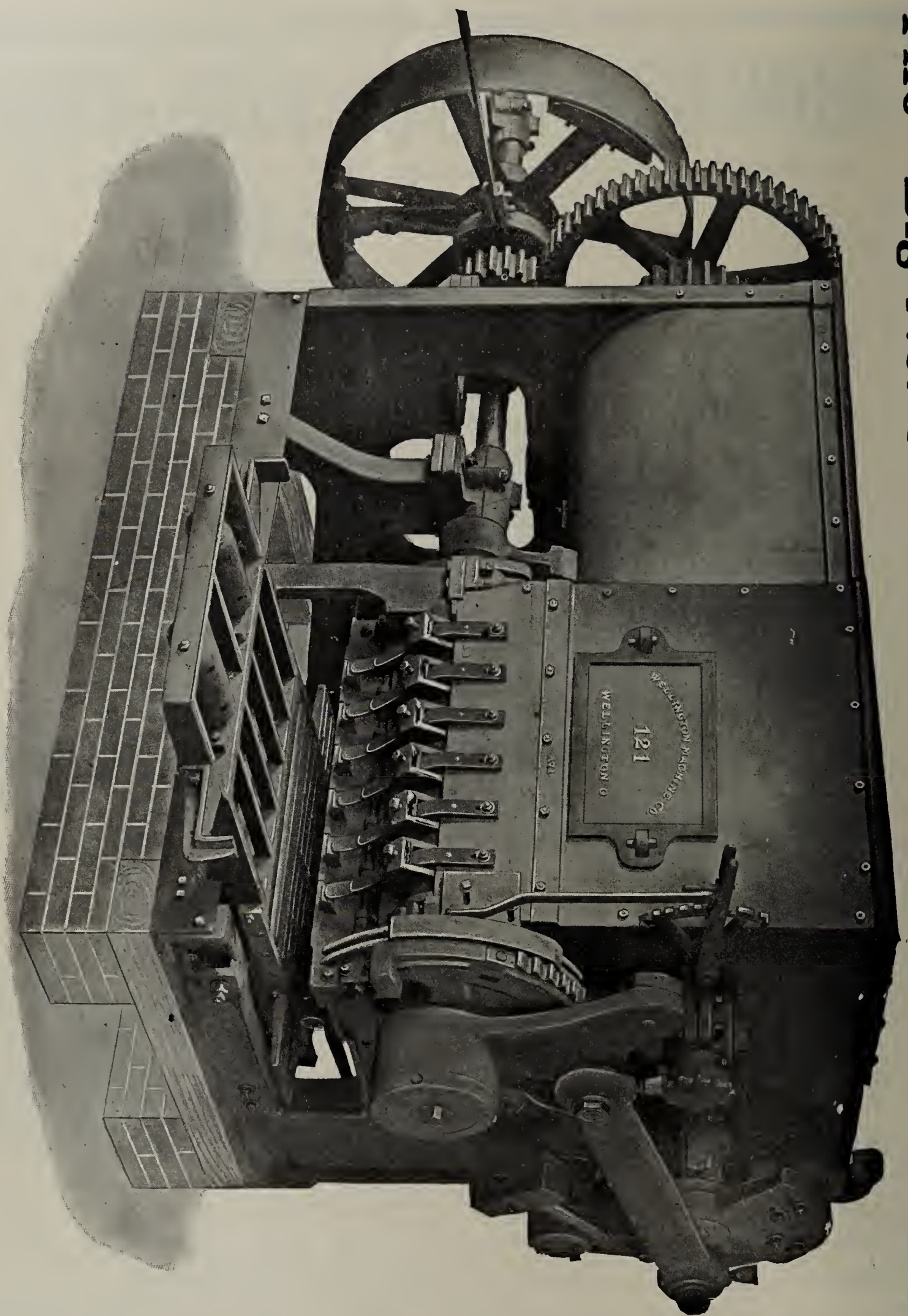
CABLE "AUTOMATIC".

Mention The Clay-Worker.

OVER
235
"Monarch"
Brick
Machines
in use

OVER
565
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators.
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
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Barrows,
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Drums,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The "Big No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

**ROLLER-BEARING
BARROWS.**

The Wellington Machine Co.,

WELLINGTON,

OHIO.

Send for Catalogue.

We manufacture a complete line of BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BEARERS.

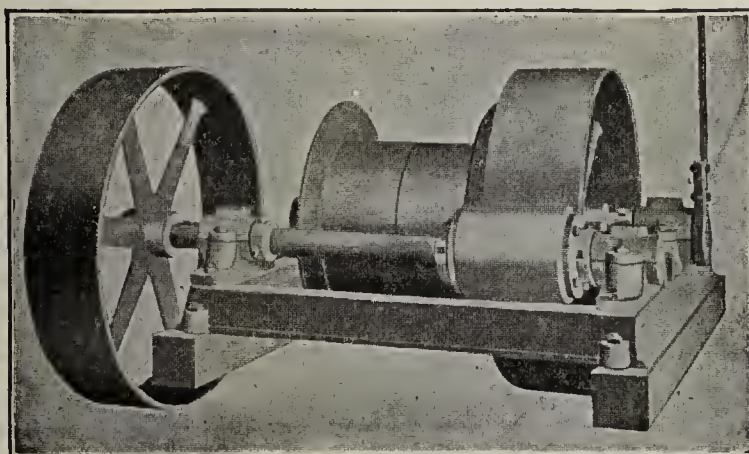
The best built, Price \$6.50 each.

Stock size wheel, 20 inches diameter.
(If wanted 18 inches.)

There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.



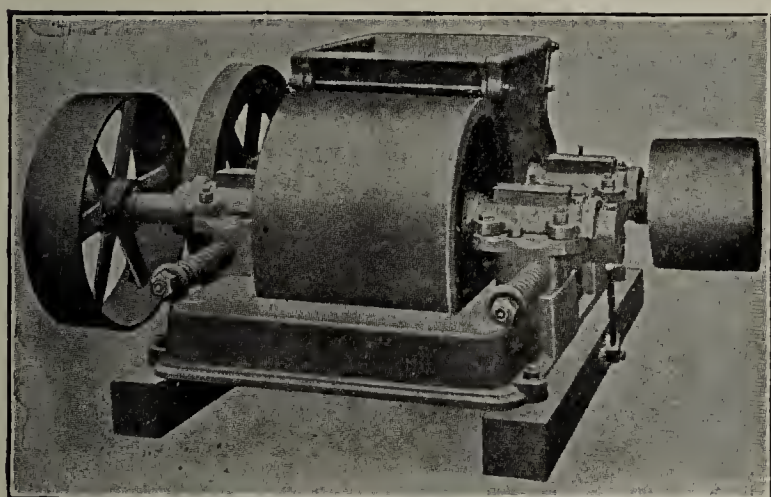
Winding Drum.



Our Direct Driven Self-Contained Winding
Drum is a Labor-Saver.

Our Heavy Clay Disintegrator.

Note the springs and what is said about them below.

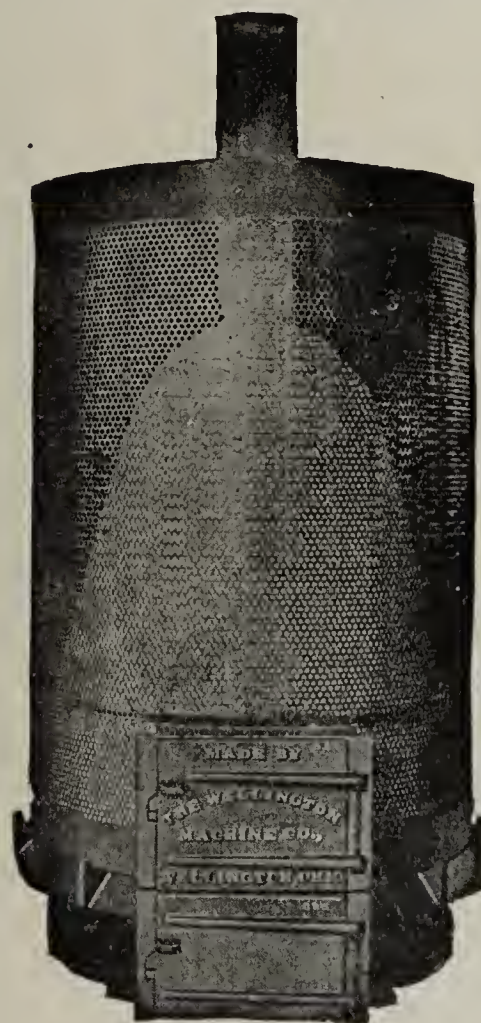


This particular disintegrator we believe to be much the best one that is built, as we intend it for large capacity, and to stand up to severe work for years. Both rolls are chilled. The journals are 10 inches in length. The small roll has a heavy balance wheel. Note its massive construction. There is a weighted scraper so hung that it automatically cleans the large roll.

RELIEF SPRINGS: After considerable experimenting we have learned just how to put relief springs on the large roll, and do it successfully. Occasionally a bolt or something else gets into a disintegrator that cannot be crushed, and it always means a smash-up. We have experimented long before adopting these, but can now guarantee them a success.

CAPACITY, 25,000 to 50,000 per day according to speed at which it is run. Pulleys fast roll 14 dia. x 10-in. speed, 700 to 800. Slow roll, 24 dia. x 6-in.; speed, 50 to 75.

1908 CATALOGUE MAILED FREE
ON APPLICATION.



Sand Dryer.

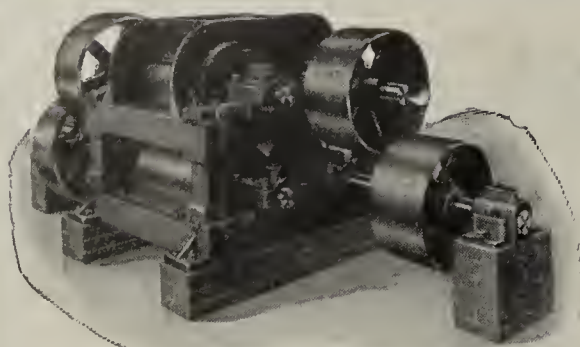
Weight, 1,100 lbs. Every brick works needs one. Diameter over all, 3 ft. 1 in. Height, 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

JAMES W. HENSLEY,

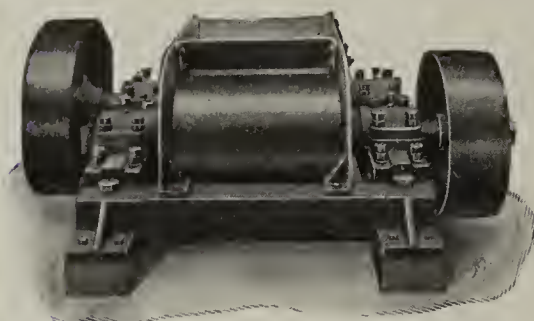
Successor to S. K. Fletcher.

Indianapolis, Ind.

Mention The Clay-Worker.



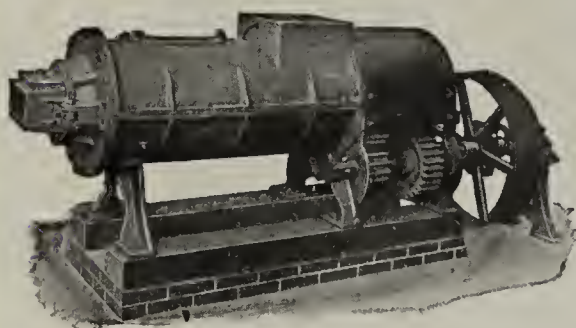
DISINTEGRATOR.



LET'S FIGURE TOGETHER

Handling Brick From  the Brick Machine to the "Martin" Patent Dryers

We Build the Most Complete Line of Brick Machinery, Disintegrators, Pug Mills, Elevators, Conveyors, Clay Cars, Hoisting Drums, Mould Sanders, Barrows and Trucks.



STIFF MUD BRICK MACHINE

ANIMAL POWER
BRICK MACHINE

THE "MARTIN"

PLANS, SPECIFICATIONS, ETC.
WILL BE
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FOR CONSTRUCTION OF
COMPLETE BRICK PLANTS

FOR THE MOST
LABOR-SAVING SYSTEM

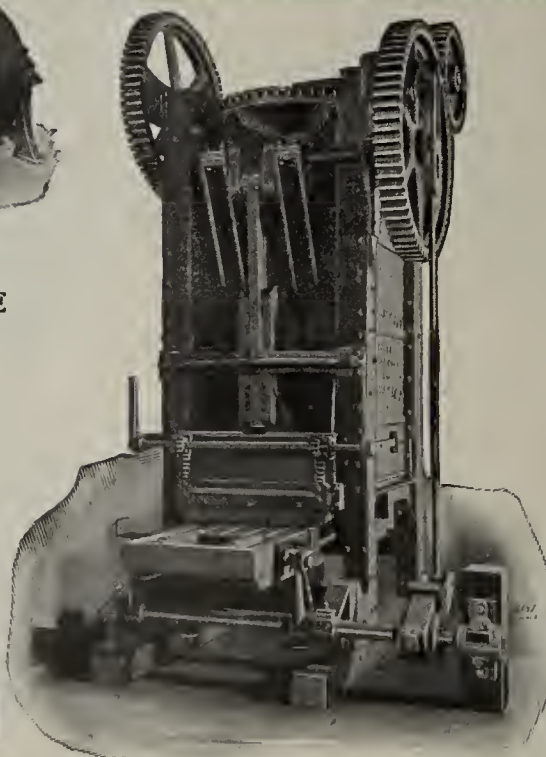


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THE BRICKMAKER NEEDS"

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It Will Show You How to
Manufacture High-Grade
Building or Paving Brick

**THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.**



STYLE "A" BRICK MACHINE

THE "MARTIN"

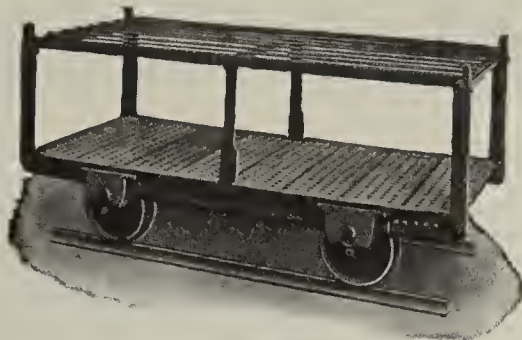
BRICK DRYERS
ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

FULLY COVERED BY PATENTS

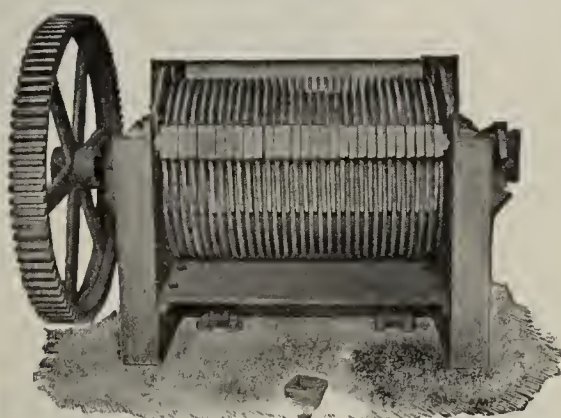
PATENTED Feb. 22, 1898 = 599509
Oct. 10, 1905 = 95520
Nov. 14, 1905 = 804489

UNITED STATES & CANADA

SATISFACTION
SAND DRYER



DRYER CARS



CLAY SCREEN



Interior View of a
"Martin Patent System"
STEAM BRICK DRYER

The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem == Quick to Install and
Low in Price == Write Us.

THE "MARTIN" COMPANY
AT LANCASTER, PA.

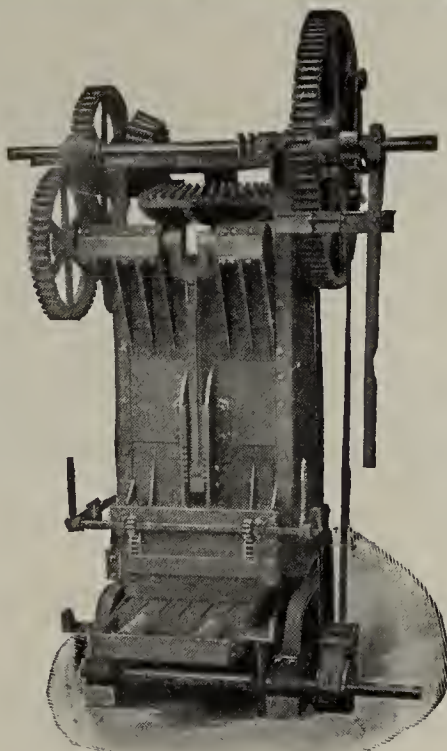
Own and Control These
Important Dryer Patents
and Have Authorized

— NO ONE —

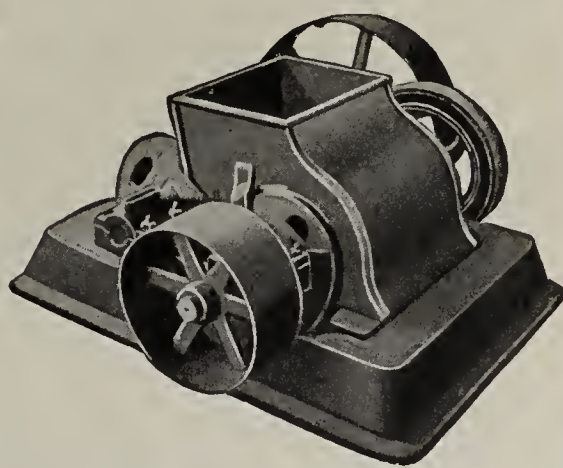
To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

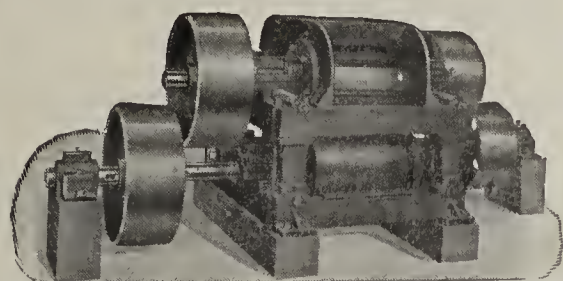
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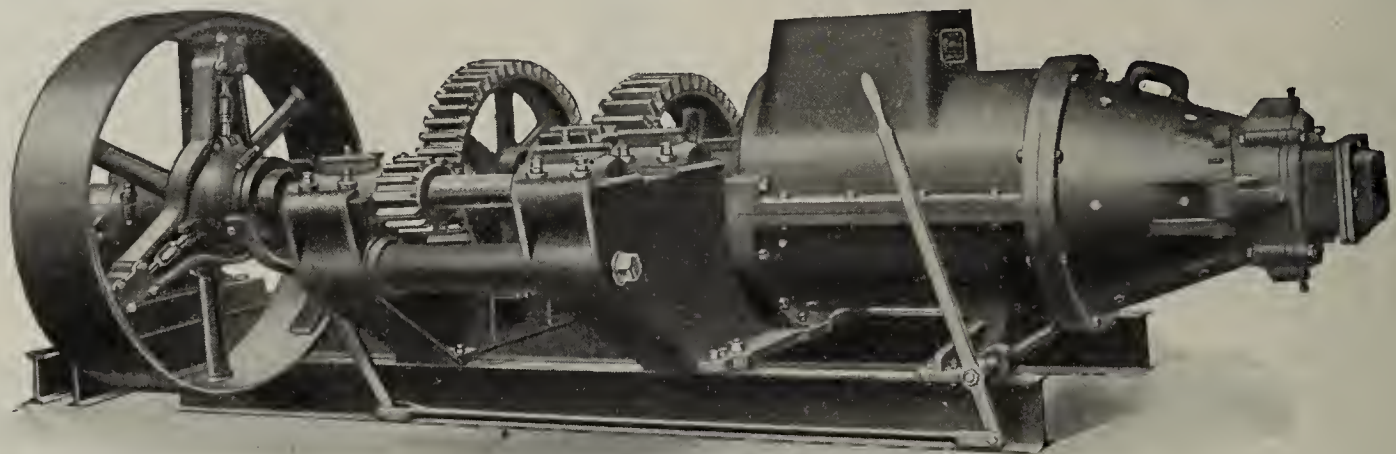
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HIGH-SPEED CRUSHERS



Modern Clayworking Machinery.

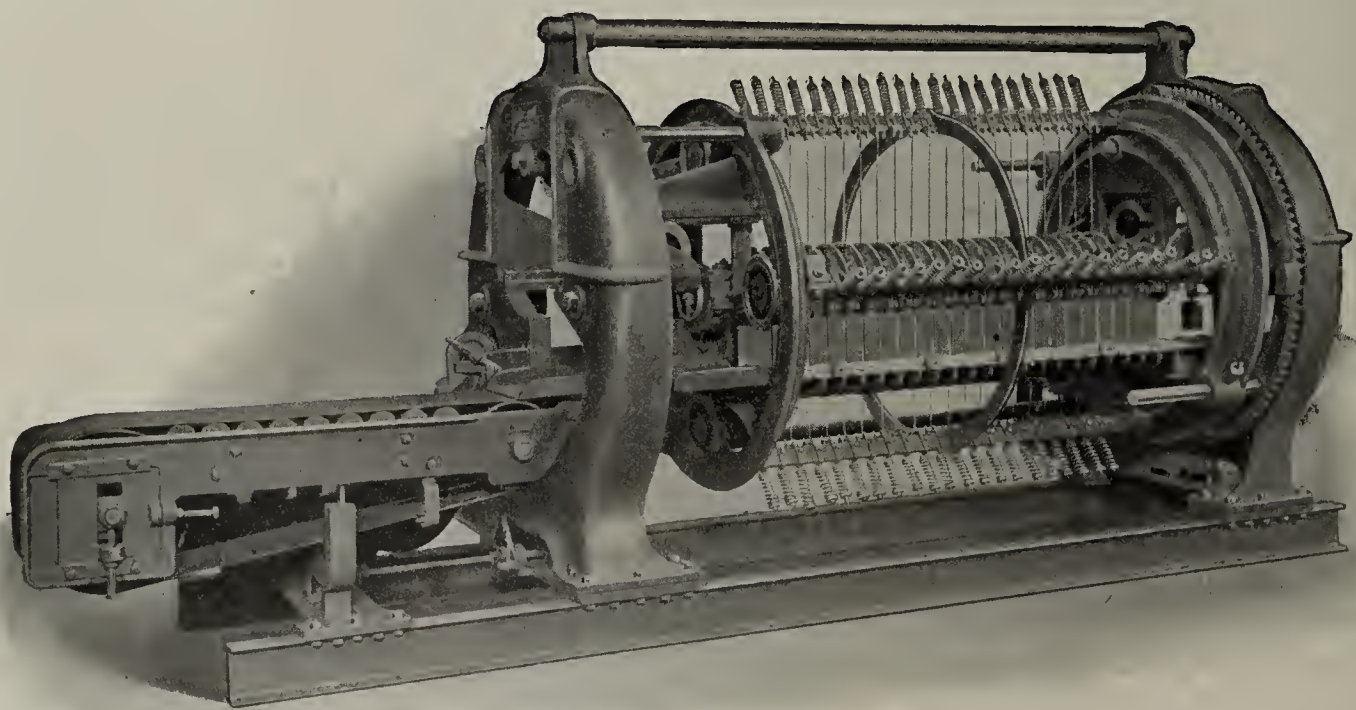


No. 10 Auger Brick Machine
Capacity 50,000 to 75,000 per Day.

A GOOD MACHINE AND EASILY GET-AT-ABLE.

CANTON REPRESS is the Best of its Class.

ASK US FOR THE PROOF.



Rotary Automatic Cutting Table
Capacity Up to 100,000 Daily.

Cuts Brick Within 30 Inches of the Die. End Frames Are Stationary.

COMPLETE LINE OF CLAYWORKING MACHINERY.

THE BONNOT COMPANY, Canton, Ohio.

WESTERN OFFICE, 305 NEW YORK LIFE BLDG., KANSAS CITY, MO.

Mention The Clay-Worker.

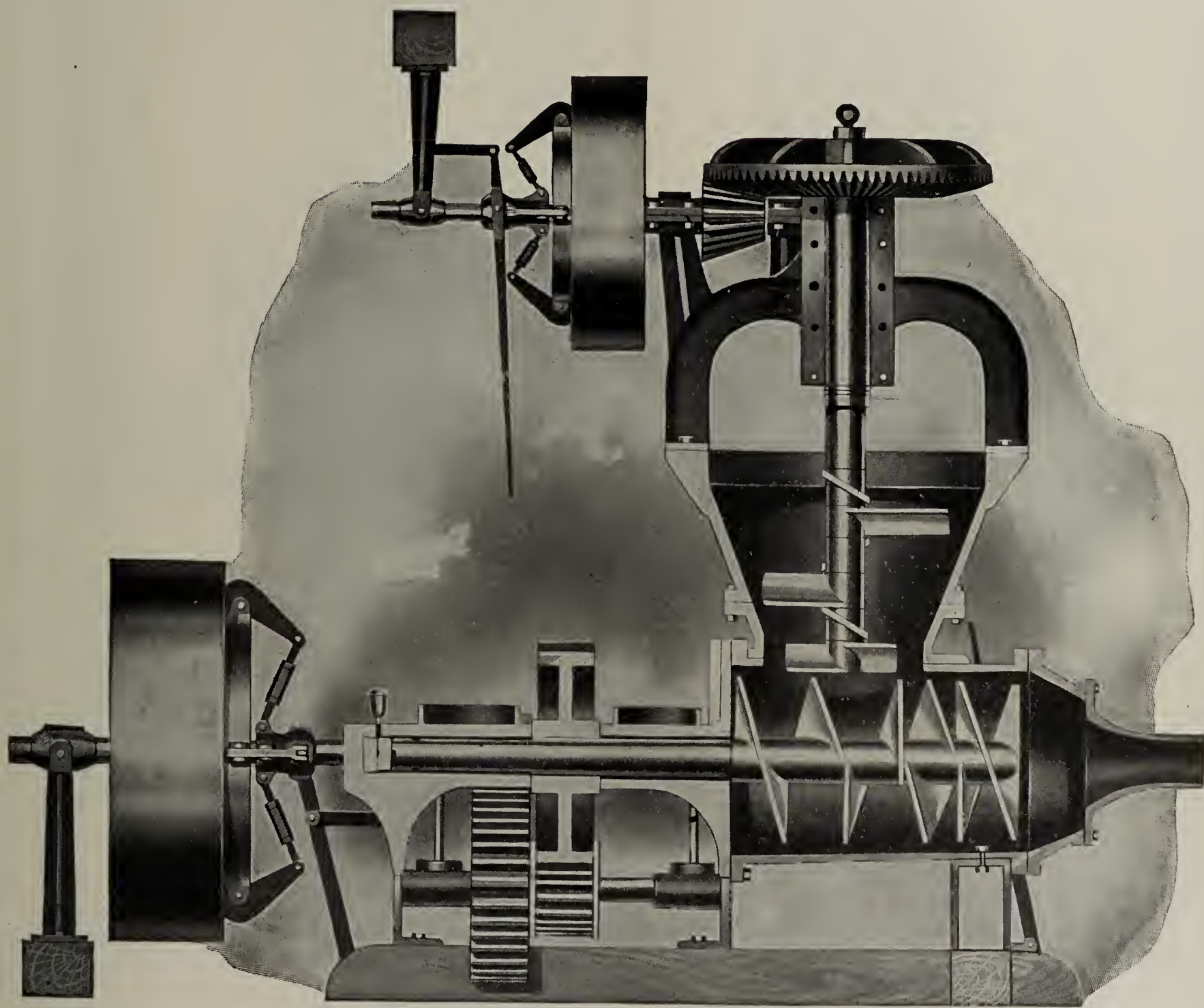
Start The Ball Rolling Right!

USE "ELI" MACHINERY—Then the money will come rolling in.

You are on the right track if you are investigating "ELI" MACHINERY.

IT IS THE BEST.

Our 52 years experience in this line should be sufficient recommendation.



SPECIAL "ELI" BRICK MACHINE.

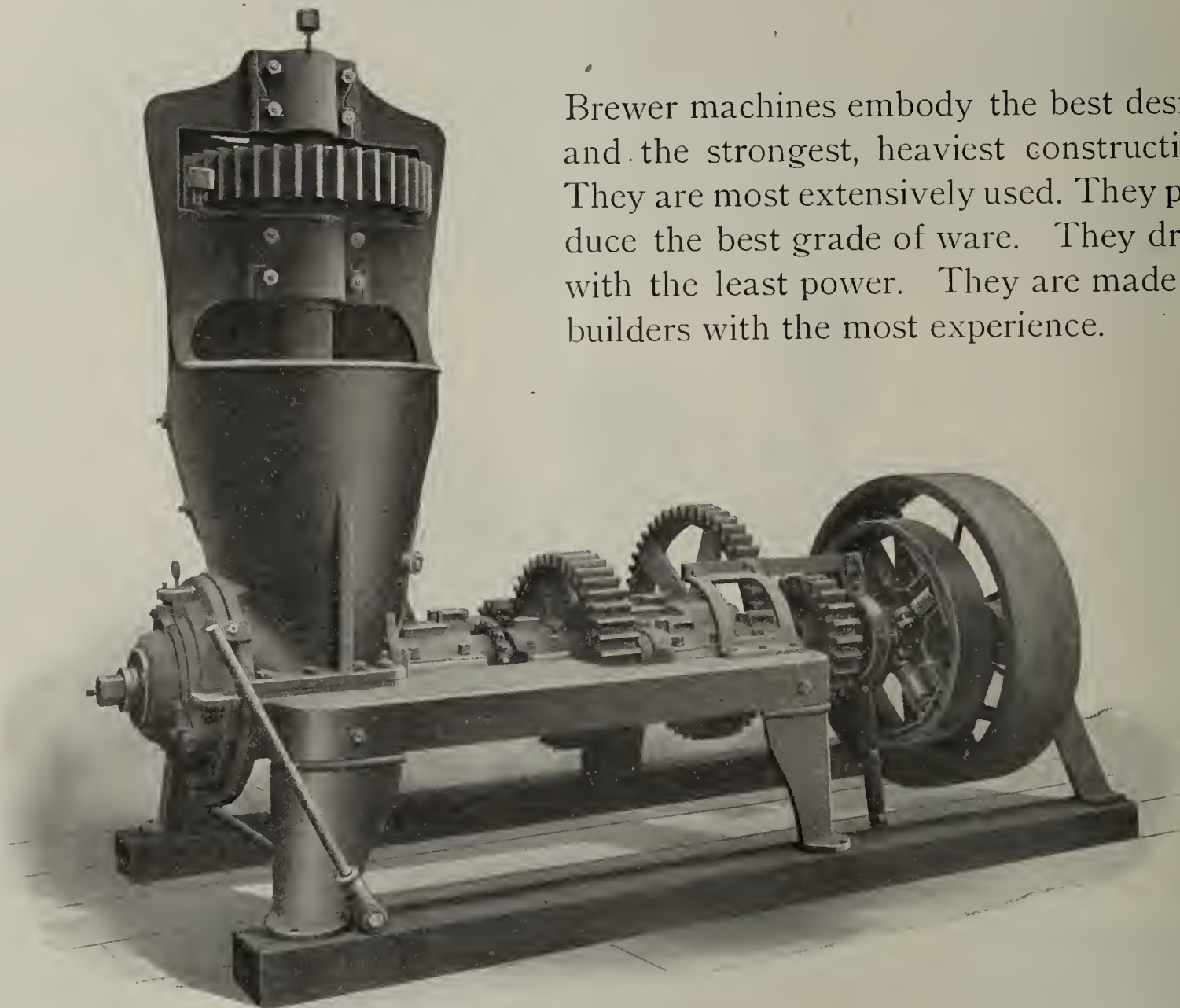
Write for our catalog and full particulars.

Michigan Brick and Tile Machine Company,

[ESTABLISHED 1856]

Morenci, Mich., U. S. A.

DRAIN TILE MACHINES



Brewer machines embody the best design and the strongest, heaviest construction. They are most extensively used. They produce the best grade of ware. They drive with the least power. They are made by builders with the most experience.

THE BREWER NO. 10A

The line consists of three sizes, ranging in capacity from the largest output you can possibly handle to the smallest you can produce economically.

The knives are forged from hard, high-carbon steel. The augers and casings are made of white-iron. The vertical cylinders are cast in one piece. Gears and shafts large and heavy.

If you don't know all about Brewer Drain Tile Machines it will pay you to get Catalogues and Bulletins. Mailed upon request.

If Marked



It's Good.

H. BREWER & CO.,

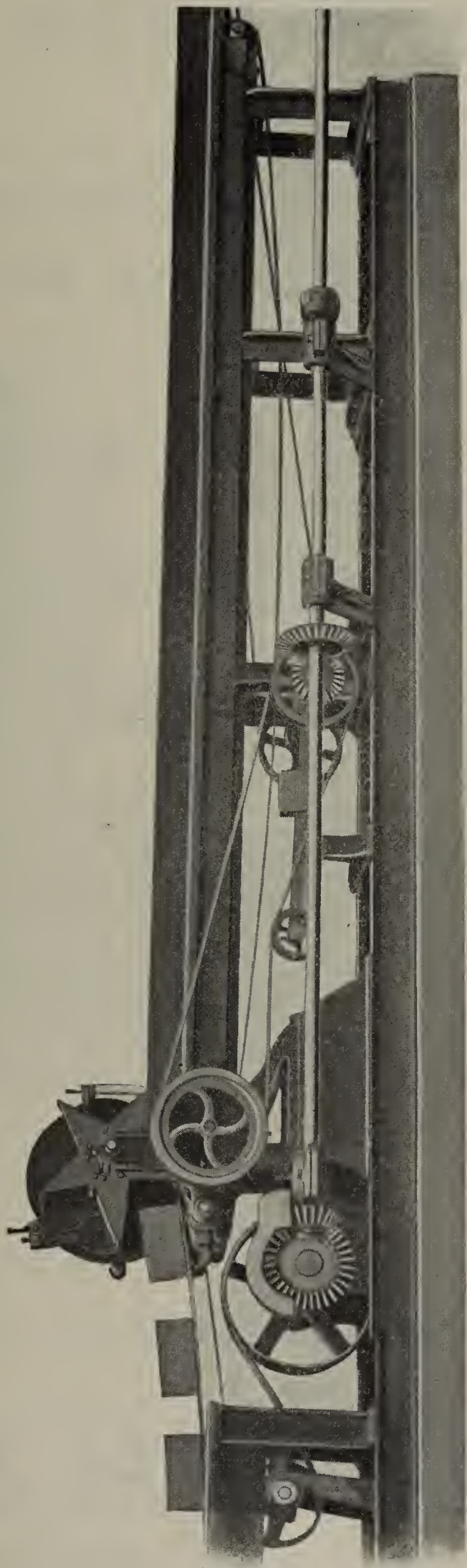
Tecumseh, Michigan.

If Marked



It's Good.

The Steele Automatic Cutter.



Athens, Ga., November 23, 1907.

Messrs. J. C. Steele & Sons, Statesville, N. C.:

The No. 3 Brick Machine with pug mill and four disintegrators of yours are doing all that we could ask. We made over 4 million brick with this little machine since January last, and hope to be able to say on January 1, next, that we have made 5 million brick this year. We are considering our capacity and putting in one of your No. 4 machines.

GEORGIA BRICK CO.

We build a complete line of clayworking machinery.

Write for further information.

J. C. STEELE & SONS,

Success Brick Machinery Co., Memphis, Tenn.,
Western Agents.

Mention The Clay-Worker.

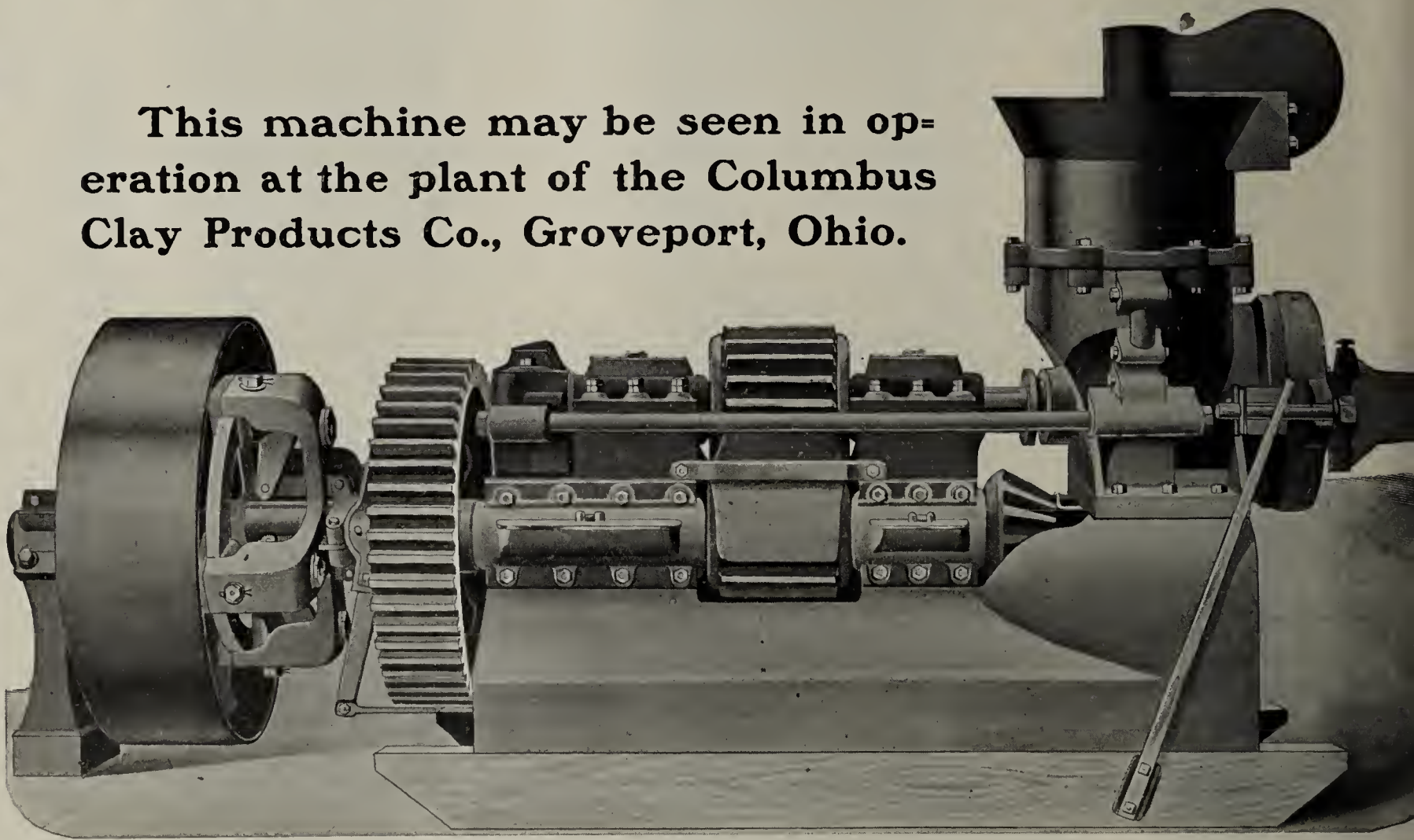
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THE BIG WONDER.

**The Brick and Tile Machine That
Does Not Laminate the Ware.**

This machine may be seen in operation at the plant of the Columbus Clay Products Co., Groveport, Ohio.



No. 4 Wonder Brick and Tile Machine.

**A Large Capacity Machine With an Unequaled
Record for Durability.**

THE WALLACE

FRANKFORT

Mention The Clay-Worker.

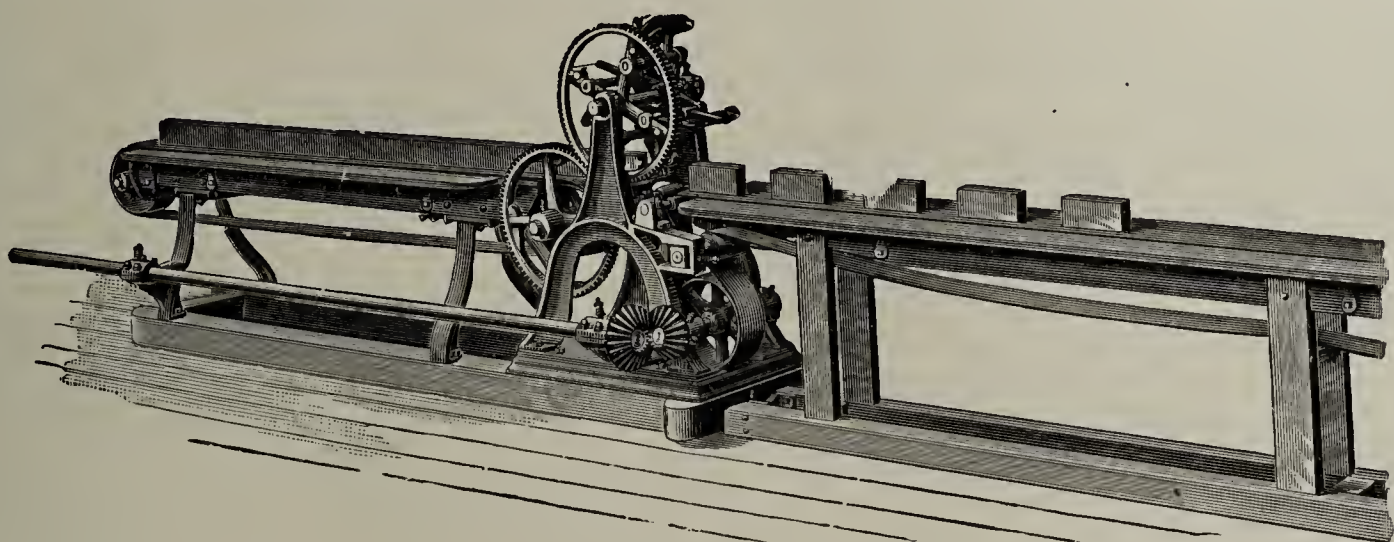




THE PROOF OF THE PUDDING:

Brick, Tile and Hollow Block made on Wonder Machines afford ocular demonstration of the full truth of our claim.

Write for list of plants in your section where Wonder Machines may be seen in operation.



Rotating Automatic End-Cut Brick Cutter.

THIS IS THE TABLE OF CAPACITY—
Runs as regular as a clock. We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans and Disintegrators, Pug Mills and Granulators, Corrugated and smooth Roll Crushers.

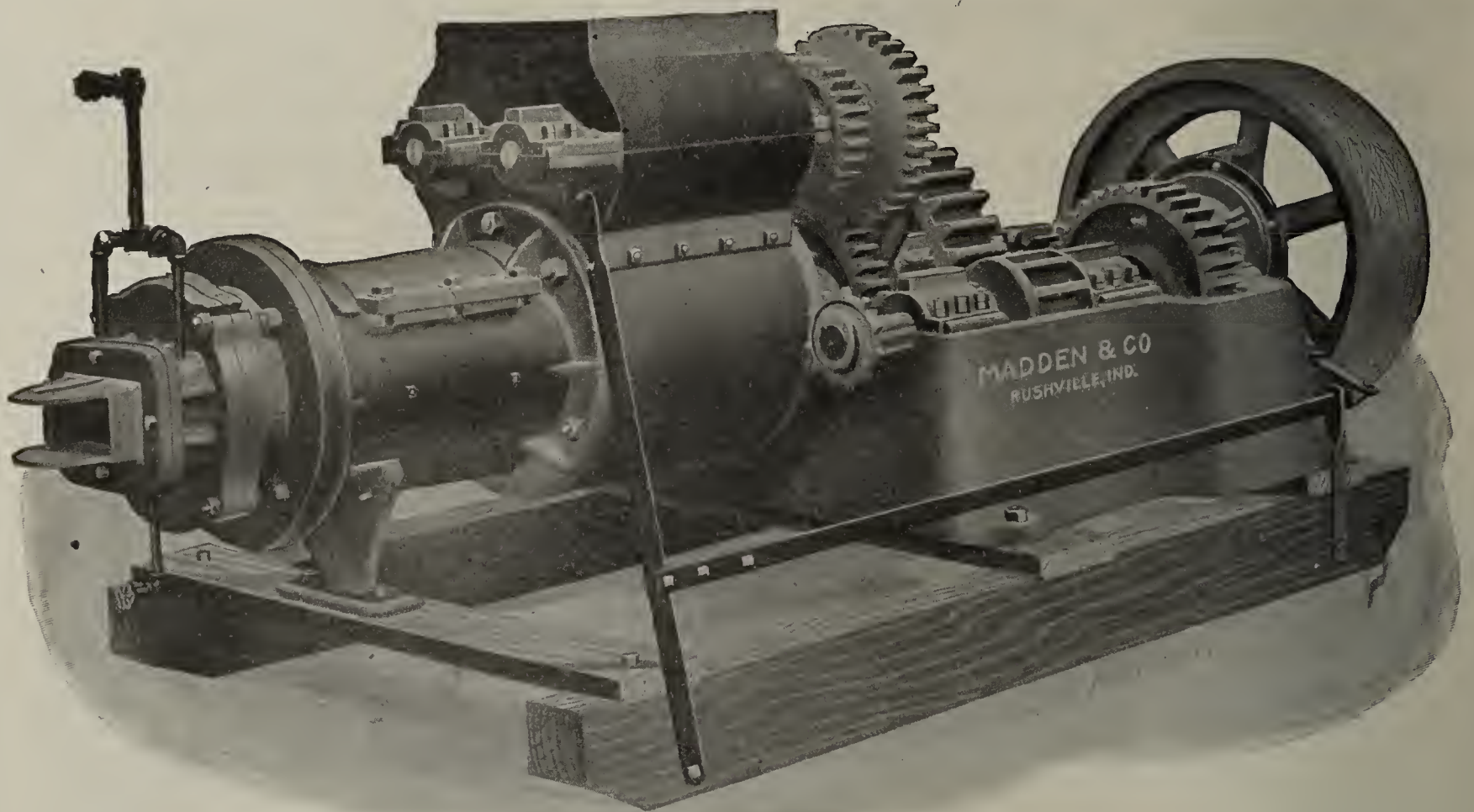
Write for Catalog and prices.

MFG. COMPANY,
INDIANA, U. S. A.



NEW MODEL HOOSIER BRICK, TILE

**A Line of Extra Heavy Stiff Clay Machinery of Great Strength,
Capacity and Durability for Making Brick,
Tile and Fire Proofing.**



No. 6 D Hoosier Brick Machine.

This is a New Heavy Duty Machine designed to meet the demands for a machine constructed on somewhat the same lines as our well-known C Machine, but larger, heavier and stronger, and with greater capacity; gearing is all extra heavy, broad faced, steel-cut when desired; shafts are heavy and strong and amply able to withstand the severe strain; bearings are unusually large and long; rear bearing of auger shaft is of the submerged type, provided with adjustable anti-friction thrust discs; machine is furnished with our friction clutch pulley, 40-inch diameter, 12-inch face.

Recent Purchasers of These Machines

Mason City Brick & Tile Co., Mason City, Iowa; North Iowa Brick & Tile Co. (2), Mason City, Iowa; National Drain Tile Co. (2), Streator, Ill.

If you want a machine of capacity and with the question of breakage practically eliminated, write to

Mention
The Clayworker.

MADDEN & CO.,

AND HOLLOW BLOCK MACHINERY.



Extra Heavy Hoosier Clay Granulator.

Our Heavy Duty Granulators, heavy gears, spur or bevel, and shafting, self-contained bearings, large and long, free from contact with the clay, main shaft, set "off center" which prevents rocks or foreign substances becoming wedged between drum and end of knives, thereby avoiding the greatest cause for broken and bent knives. Drum of heavy boiler firmly bolted to frame. The whole making a very rigid and compact machine, capable of standing the most severe service. Made in any length.



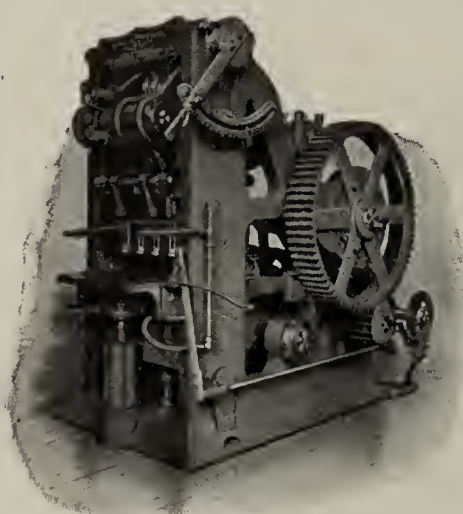
Extra Heavy Hoosier Pug Mill.

Our Pug Mills built with the same generous proportions as granulators. They are machines for large capacity; either bevel or spur gear; made in any length.

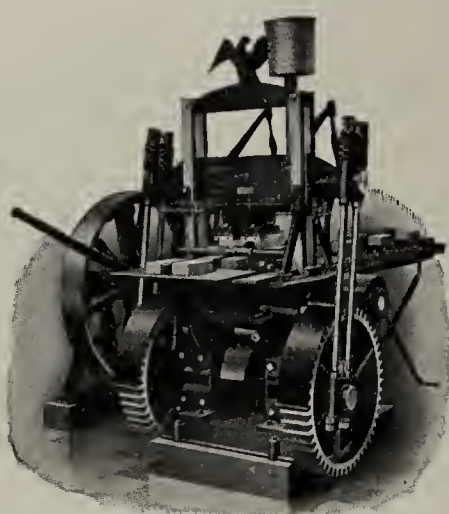
Write for Catalogue.

Rushville, Ind.

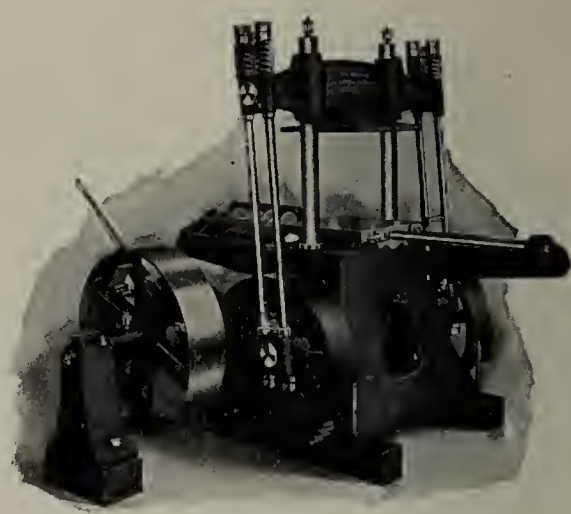
THE AMERICAN CLAY *MACHINERY COMPANY* BUCYRUS OHIO, U.S.A.



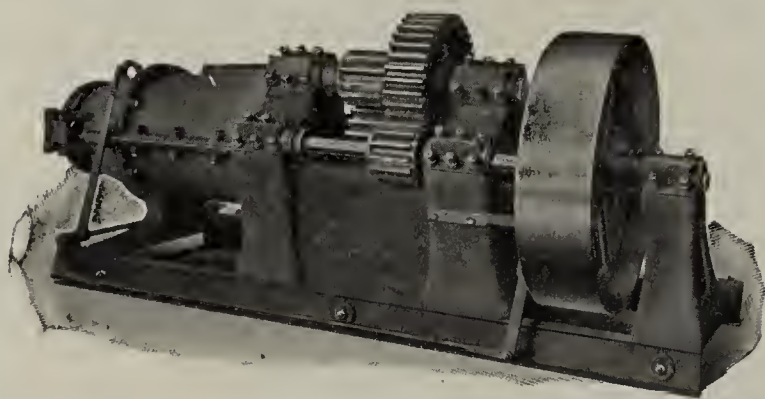
D-3 Dry Press



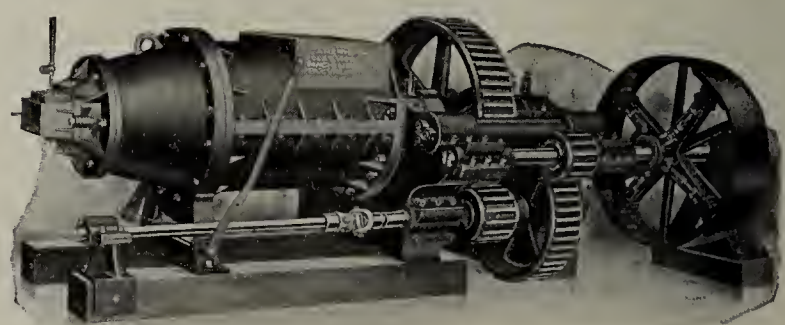
Eagle Repress



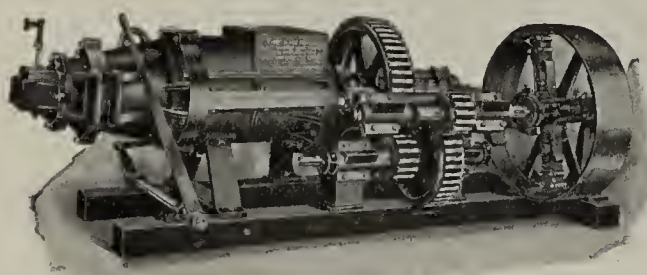
Roofing Tile Press



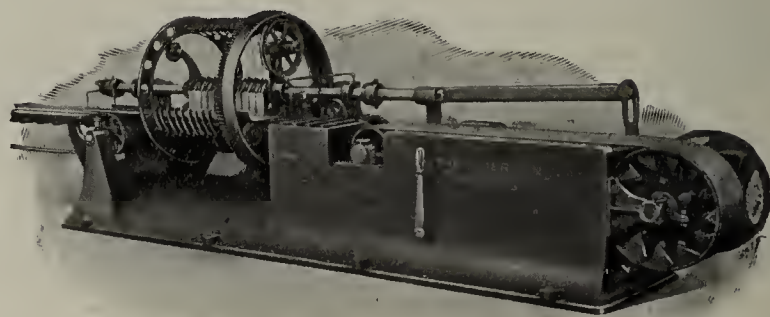
No. 65 Auger Brick Machine



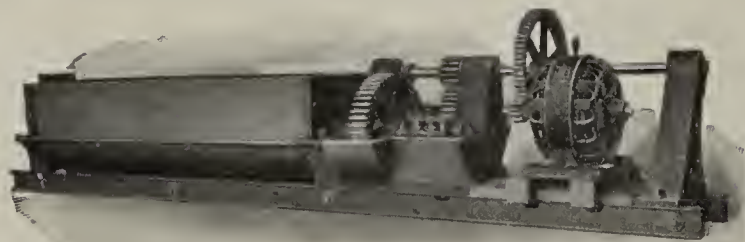
Special Giant Brick Machine



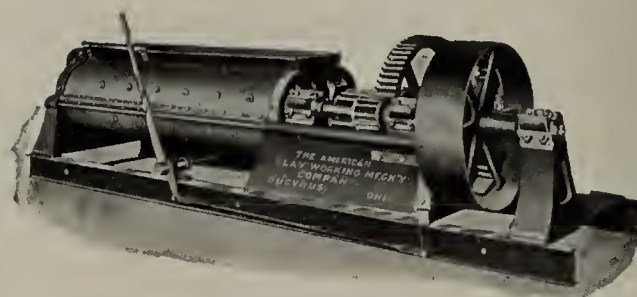
No. 2 Giant Brick Machine



No. 83 Automatic Cutter



No. 51 Electrical Driven Pug Mill



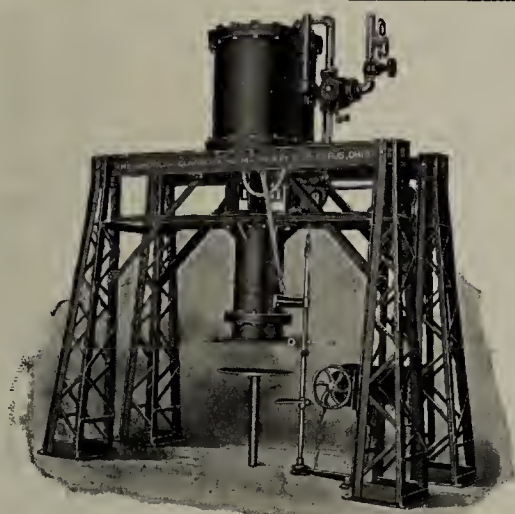
No. 38 Double Shaft Pug Mill

We Build Every Machine and Every Appliance Needed for the Manufacture of Every Class of Clay Products by Every Process.

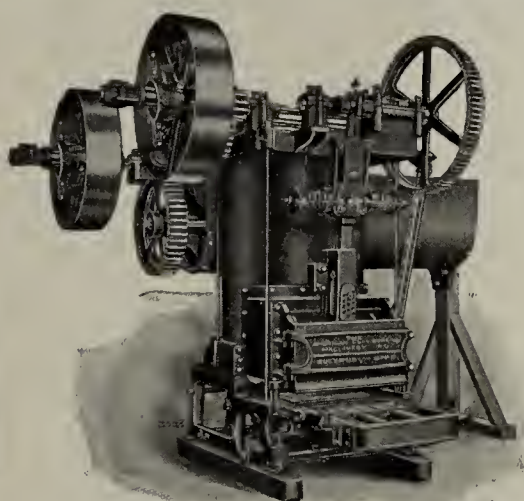
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

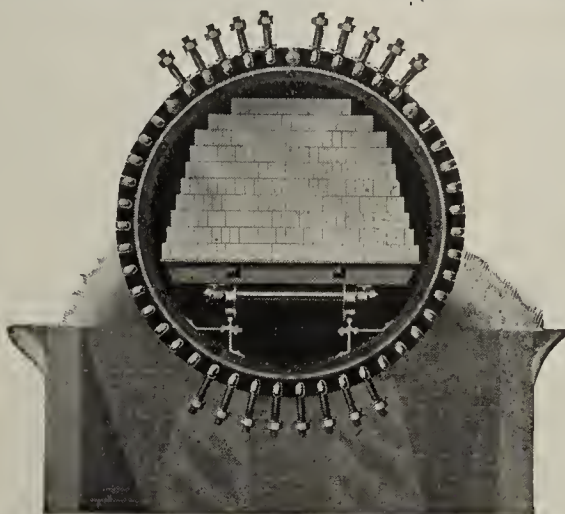
BUILT RIGHT RUN RIGHT



Sewer Pipe Machinery



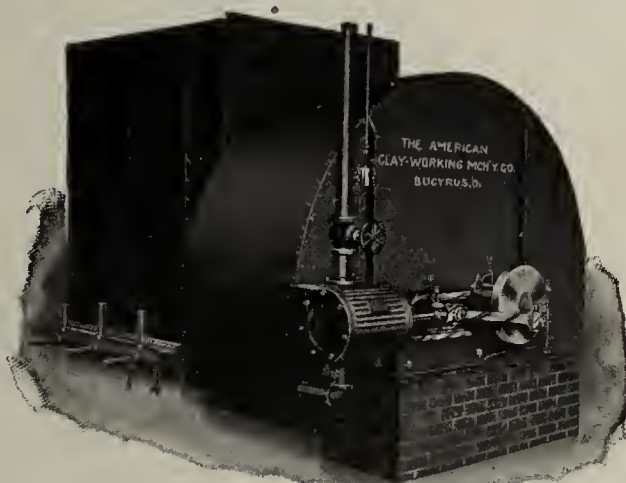
Upright Stock Brick Machine



Sand-Lime Brick Machinery



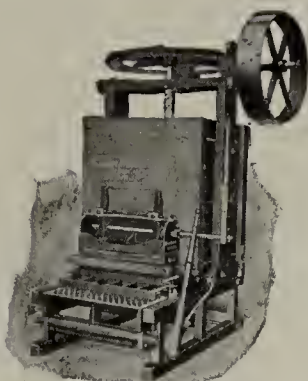
No. 64—9 Foot Wet Pan



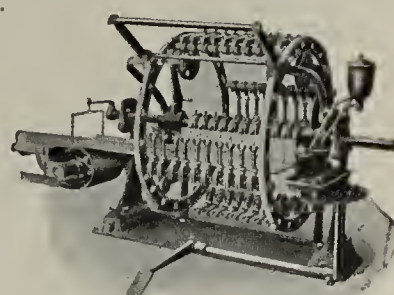
Blower Dryer Apparatus



Mold Sander



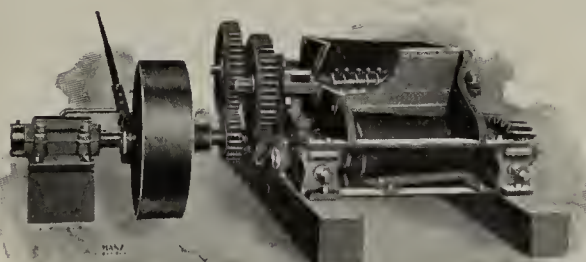
H. P. Brick Machine



No. 62 Hand Power Cutter



Dry Cars



No. 25 Smooth Roll Crusher

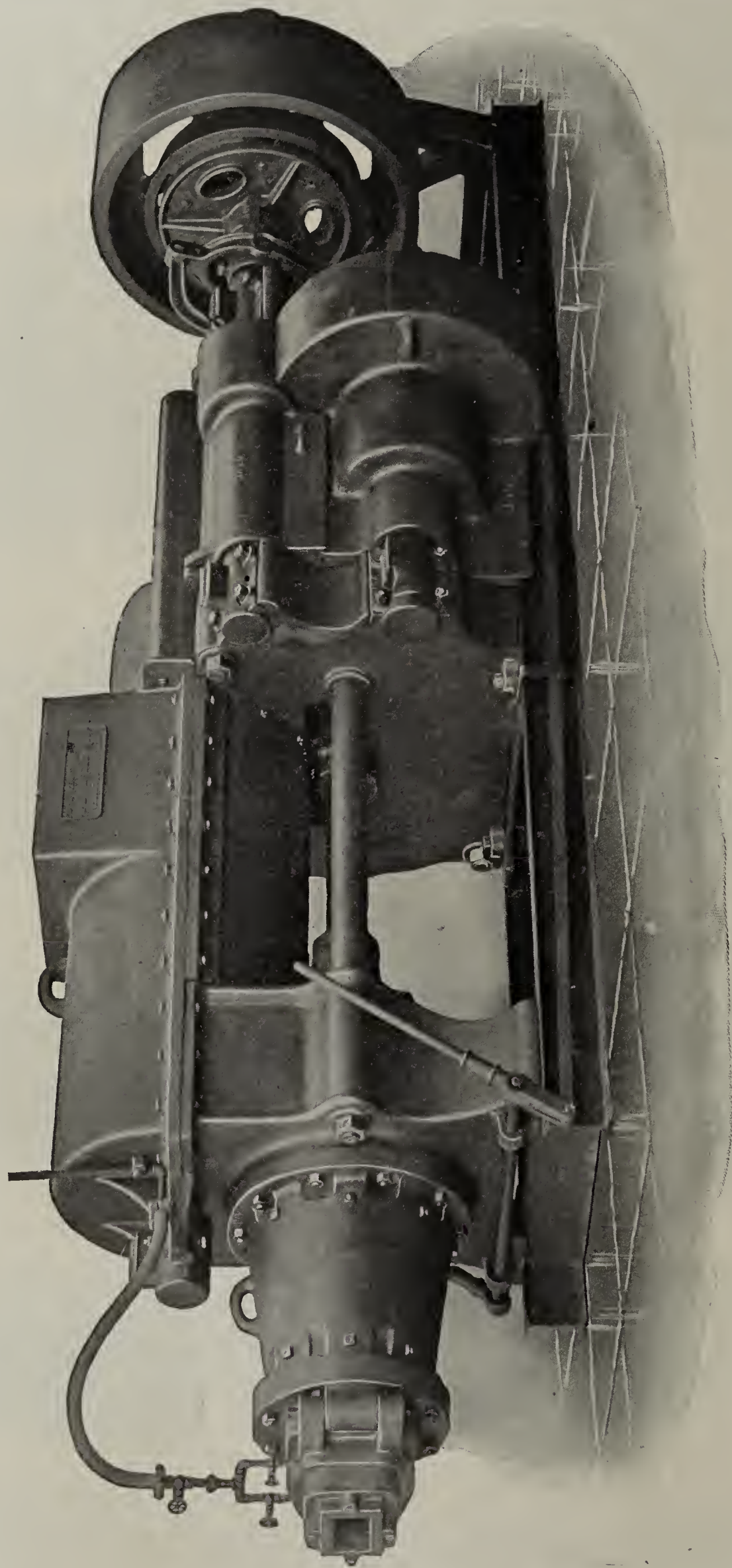


Winding Drums

We Are Much the Largest and Much the Most Extensive Manufacturers of Much the Best Clay-working Machinery in the World.

Mention The Clay-Worker.

Another Brick Machine.



This is a Brick Machine of massive proportions and of modern construction throughout, designed for large capacity and severe service. The gearing, shafting and other parts are very heavy. The gearing is protected by a removable dust and accident proof covering, hinged for convenient access to the interior. The feeding chamber is of ample diameter and length, and this result is obtained without excessive overhang of auger shaft. The auger shaft is supported by three journal bearings of sufficient distance apart to give it a substantial support. The part of the auger shaft in the clay chamber is about 4 feet in length, while the part outside is more than 9 feet long.

The machine is mounted on steel "I" beam sills between which are placed heavy cast iron spreaders with flanges, affording a substantial method of attaching the machine to its foundation. The outer end of the pulley shaft is supported by a rigid stand having an adjustable journal box.

Height from floor to top of hopper, 5 ft. 8 in.

Length of machine over all, 19 ft.

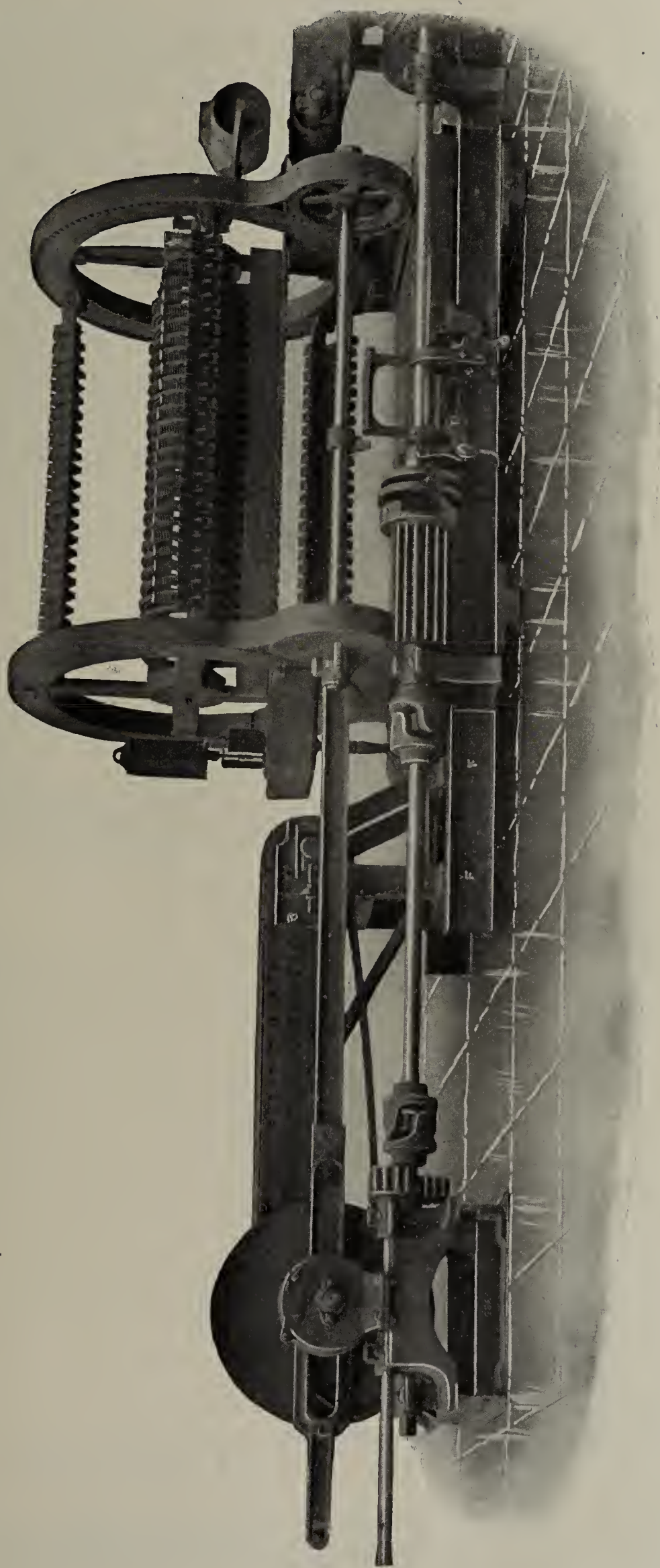
Size of hopper, 26-in. x 26-in.

Weight of machine about 26,000 pounds.

E. M. FREESE & CO., Galion, Ohio.

(Mention The Clay-Worker.)

An Improved Rotating Automatic Cutter.



Our Rotating Automatic Cutters are the result of many years' constant hammering at a single type of Cutter. One of the three sizes we are building will suit your Stiff Mud Brick Machine.

We ship on trial—YOU say whether our guarantee of "satisfactory operation" is fulfilled.

If desired a man will be sent to arrange details of installation.

These Cutters will give you satisfaction when all others have failed.

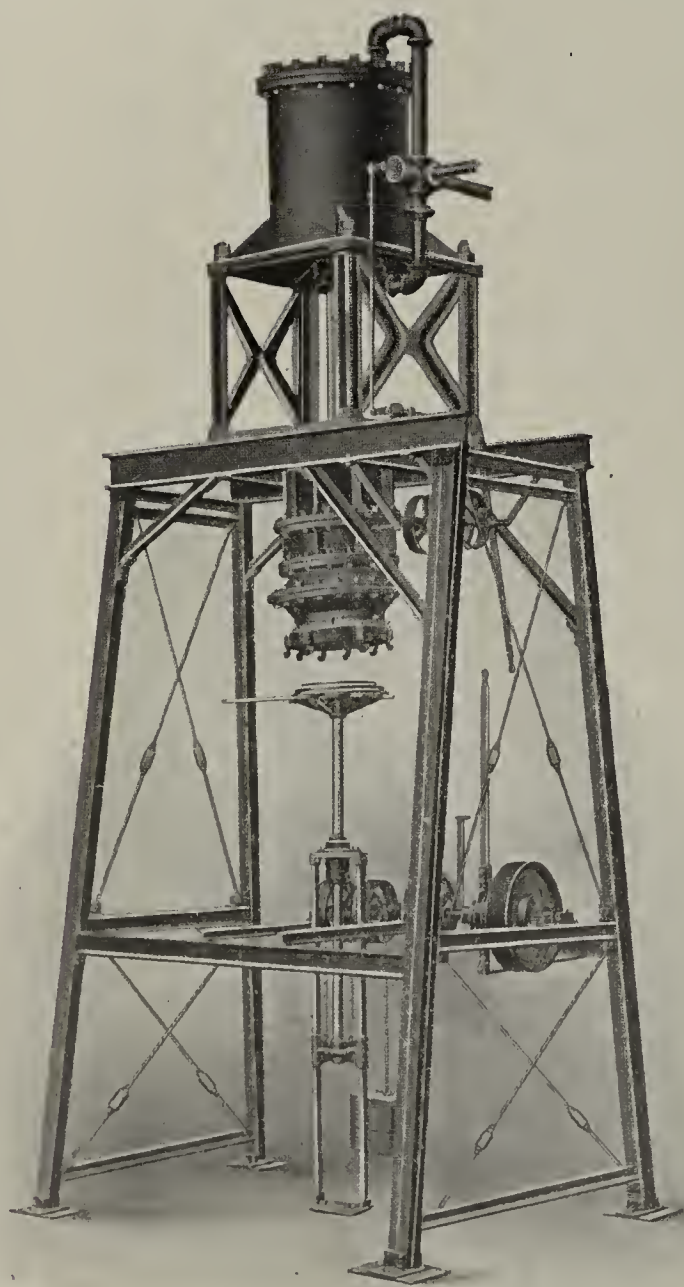
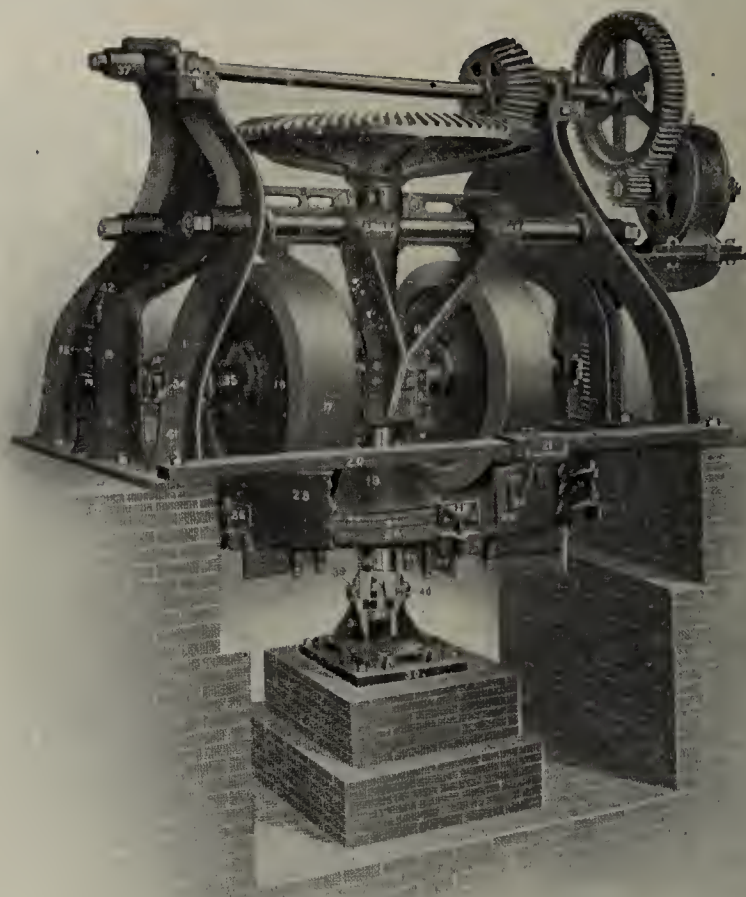
(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,

Wellsville, Ohio.

THE HARRINGTON AND KING PERFORATING CO.

PERFORATED METALS

OF EVERY DESCRIPTION

AND

FOR ALL PURPOSES

FOR SCREENS OF ALL KINDS

PERFORATED STEEL FOR CLAY SCREENS.

Samples or blue prints with prices furnished on request.

For Chute or Gravity Screens, Shaking or Vibrating Screens, Revolving Screens, Dry Pan Screens.

For Cleaning and Grading Clay, Shale, Sand, Cement, Coal, Stone, Etc.

For Pallets or Trays, Car Bottoms, Drying Floors, Conveyor Bottoms, Separators, Etc.

NEW YORK OFFICE
No. 114 Liberty St.

No. 231 North Union Street,
CHICAGO, ILL., U. S. A.



MONEY MAKERS.

If you want to make money—more than you are making right now—to save or to spend, the **MOST RAPID INCOME PRODUCERS** in the brick business today are the

Rodgers Waste Heat Dryers.

Heat Savers }
Time Savers } **MONEY MAKERS.**
Brick Savers }

WANT TO MAKE SOME?

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

**Largest Manufacturers of Brick Drying Equipment
in the United States.**

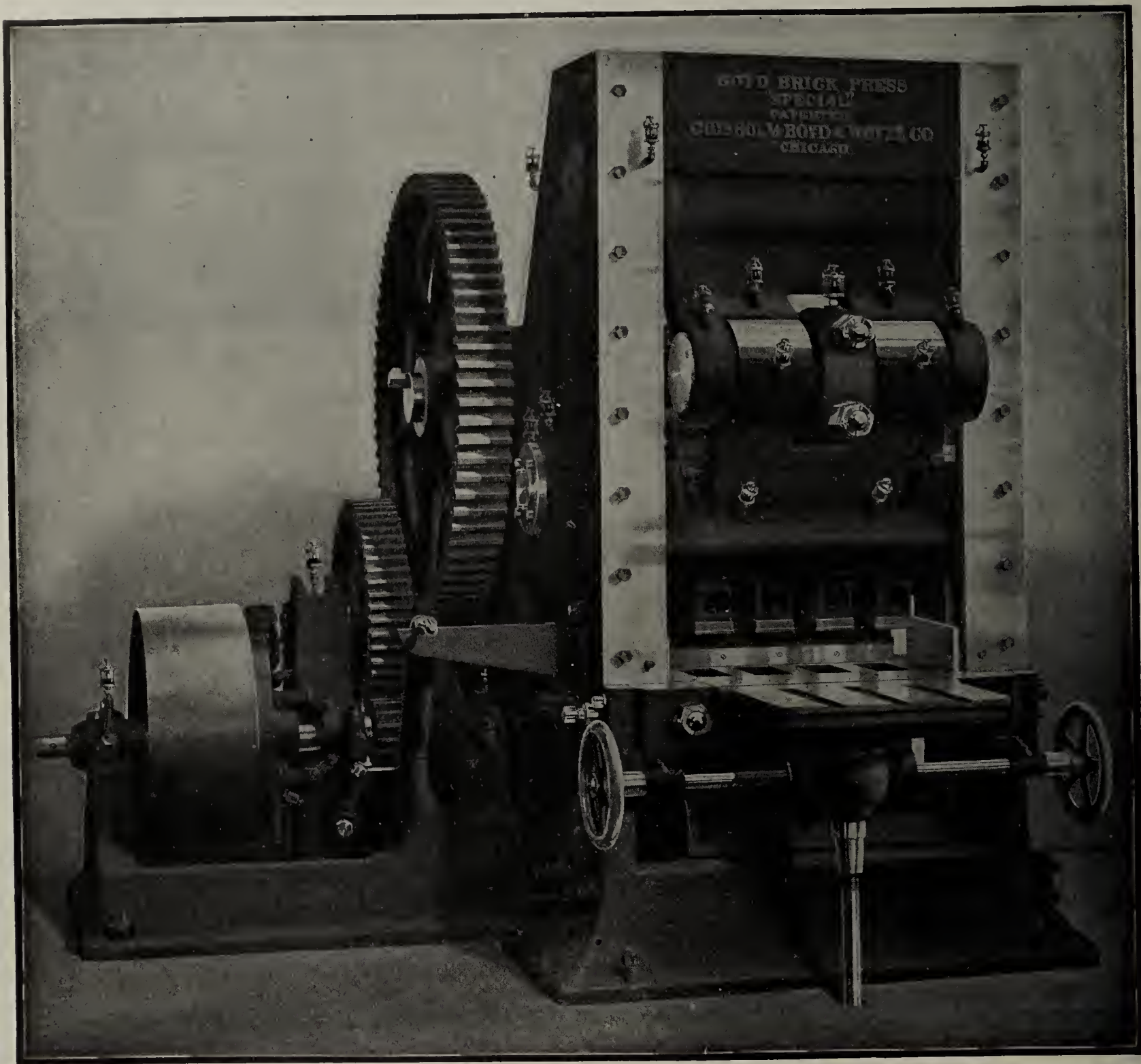
108 LA SALLE ST.

CHICAGO.



The Boyd Brick Press

Built in Two, Four and Six-Mold Sizes.



FOUR-MOLD SPECIAL.

BRICK PLANTS designed and complete machinery equipment furnished. Machinery and product guaranteed.

More Boyd Presses in use than all other Press Brick Machines combined.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 19 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end.

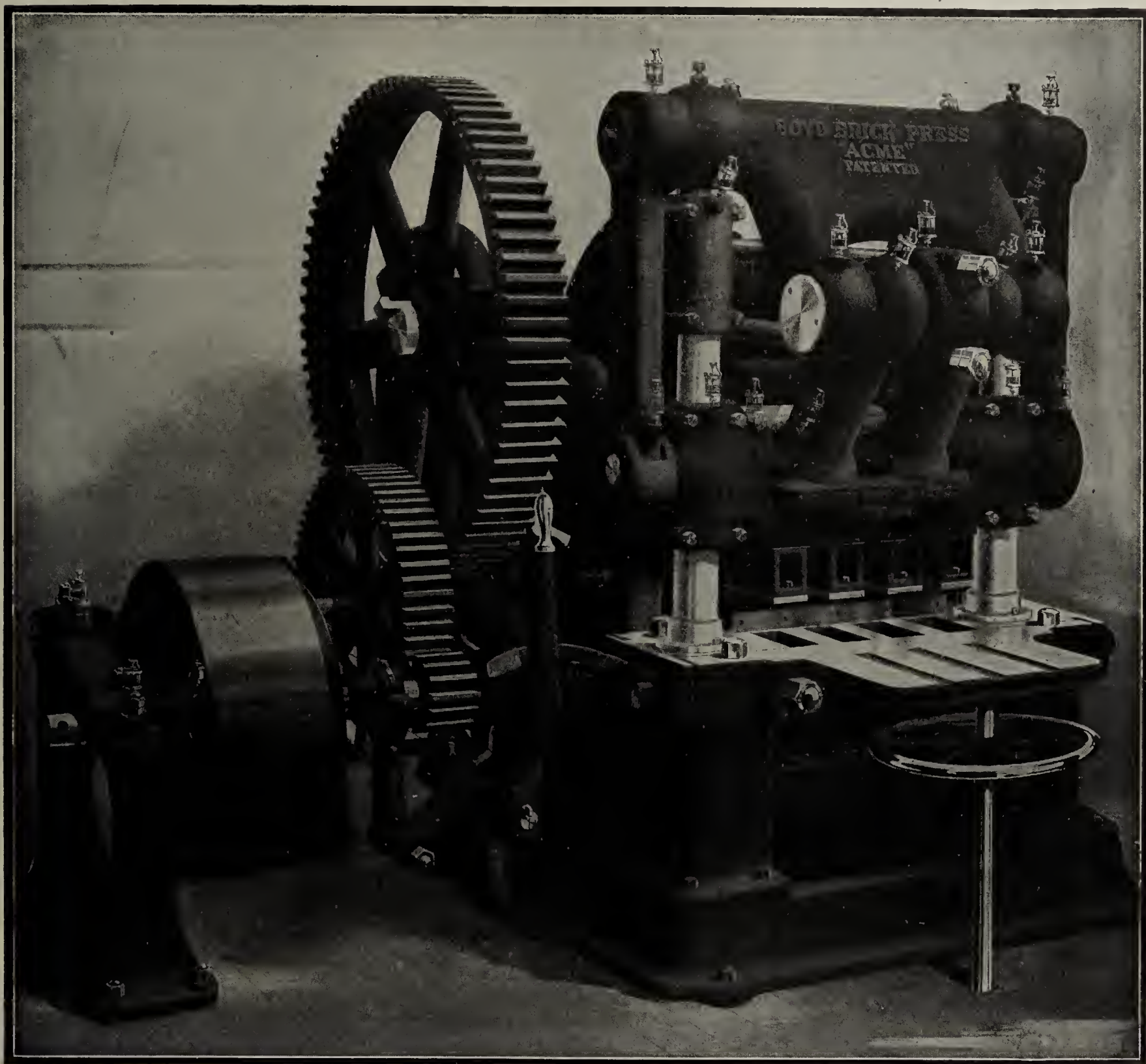
Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Boyd Brick Press

Four-Mold "Acme."



We have been building this type of machine for over ten years. It has all improvements to date and embodies all the special features of the original Boyd Press.

Detailed perfection, strength, endurance and quality of product have made THE BOYD the Brick Press by which all others are judged.

We will send to any responsible party a *Boyd Brick Press on trial* under the broadest and safest guarantee. We take the machine back if not satisfactory.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Grath Special Brick Press

Patented.

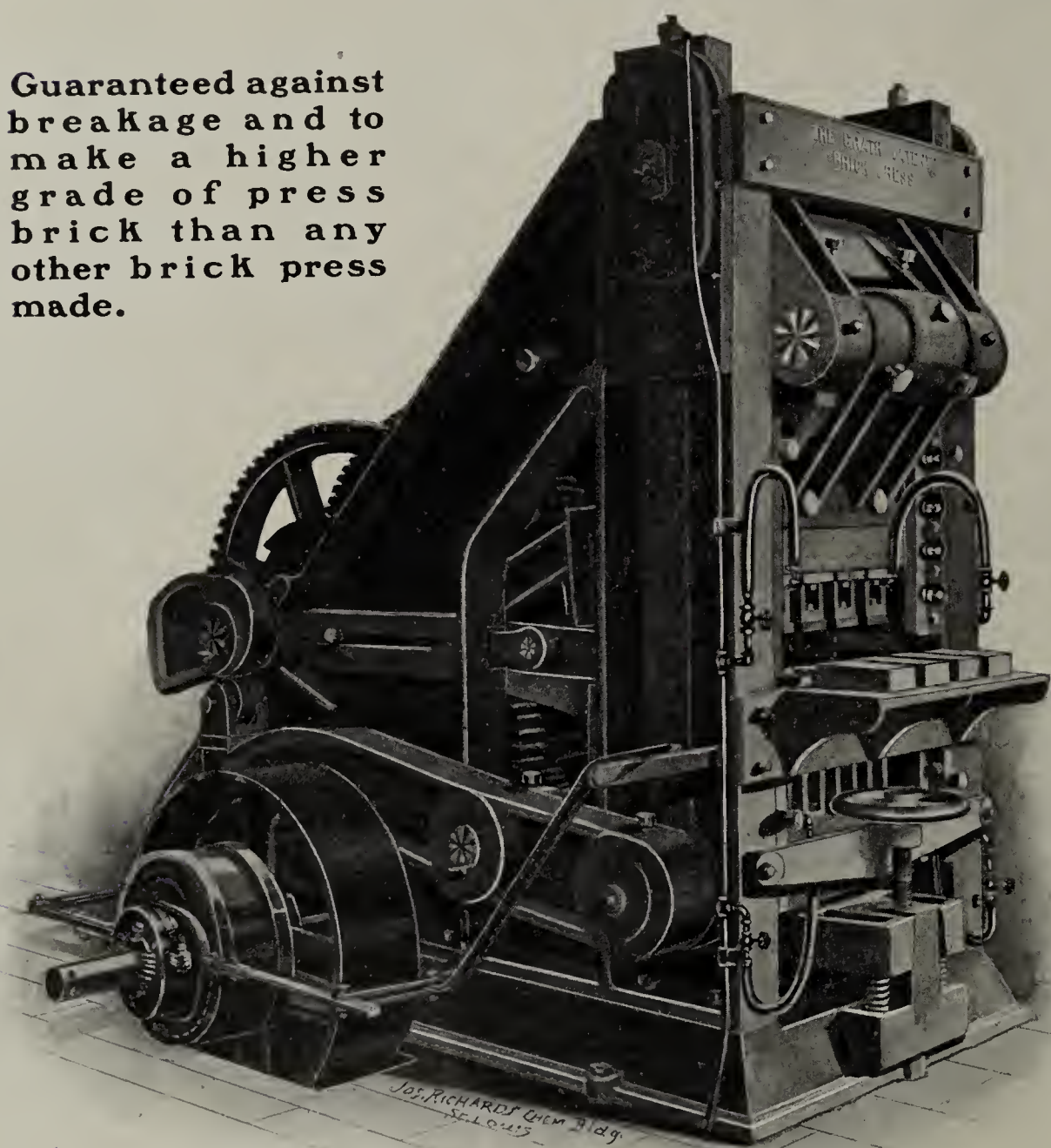
Made in Two, Three, Four and Five-Mold Sizes.

THE ONLY PERFECT BRICK PRESS

For SAND-LIME and DRY CLAY BRICK of Unequaled Quality.

FOUR MOLD MODEL.

Guaranteed against breakage and to make a higher grade of press brick than any other brick press made.



BRICKMAKERS

Do not buy Brick Presse every month or year.

When you **do** buy get a **modern** press. It cost no more than one which is **out of date**.

Unless the press is **double geared**, with gears between frames and bearings, which prevent all side strain and twisting of crank shaft, it is out of date and behind the times.

The above construction is contained in the **Grath Special** and is securely covered by patents. All infringements will be prosecuted.

THE PRESS OF TODAY.

THE ALBERTA PORTLAND CEMENT CO.

W. P. Grath, St. Louis, Mo.:

[Copy]

Sandstone, Alta., Sept. 26, 1907.

Dear Sir—Replying to your favor of recent date regarding Grath Special press purchased from you, would say that after working your press alongside another well-known make, your press has proved itself vastly superior in every way; it is stronger, simpler, easier of adjustment, makes more brick, and of much better quality.

After a long experience with presses, having operated five (5) different presses each of different makes, I consider yours "THE BEST YET," in short, "AN IDEAL PRESS."

Wishing you the success your press merits

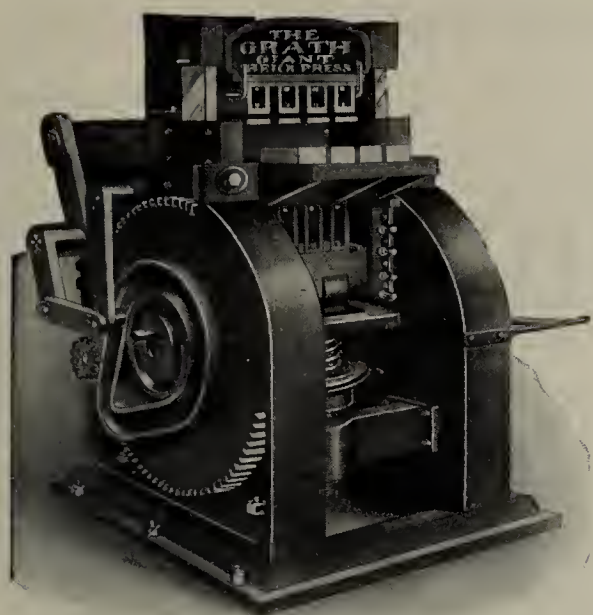
Yours truly, G. W. DELLER, SUPT.
Alberta Portland Cement Co., Limited.

Illinois Supply & Construction Co.,

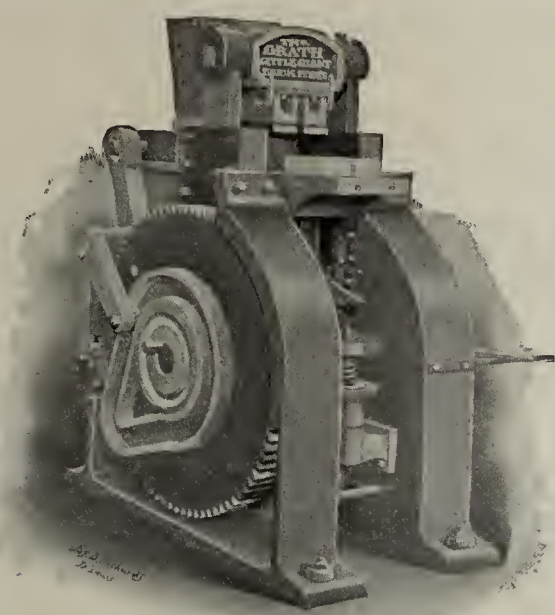
Suite 512 and 513 Holland Bldg.

St. Louis, Mo., U. S. A.

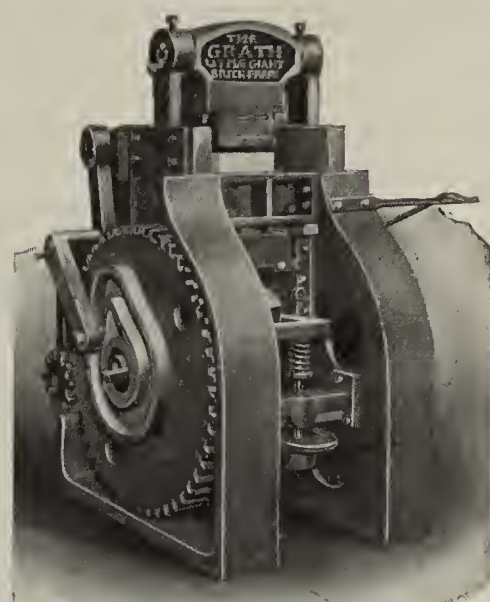
Mention The Clay-Worker.



**THE GRATH GIANT FOUR MOLD
BRICK PRESS**
For Fine Press Brick
From Dry Clay or Sand-Lime.



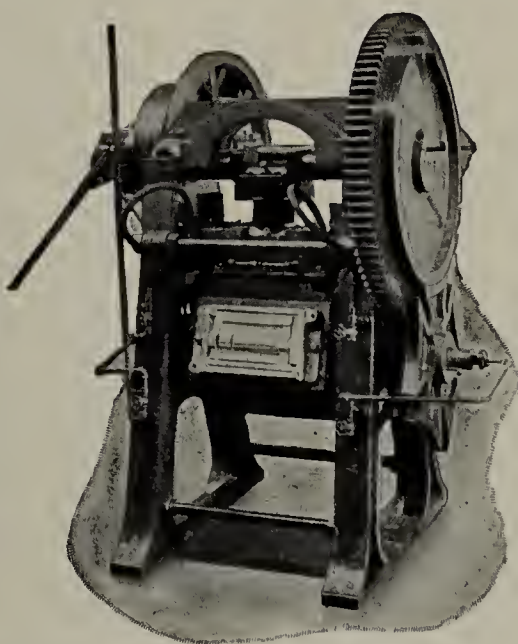
**THE GRATH LITTLE GIANT TWO
MOLD BRICK PRESS**
For Fine Dry Press Brick.



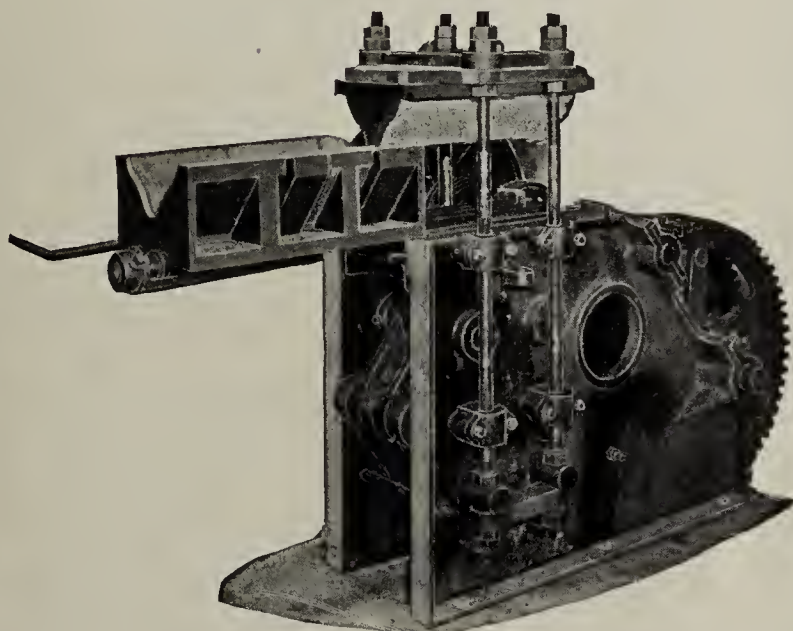
**THE GRATH LITTLE GIANT
ONE MOLD BRICK PRESS**
For Perfect Sand-Lime or
Dry Clay Face Brick.



**The Grath Special Hand-Power Brick
Press, for Plain and Ornamental
Press Brick.**
From Dry or Semi-Dry Clay or Sand-Lime.
Guaranteed against breakage.

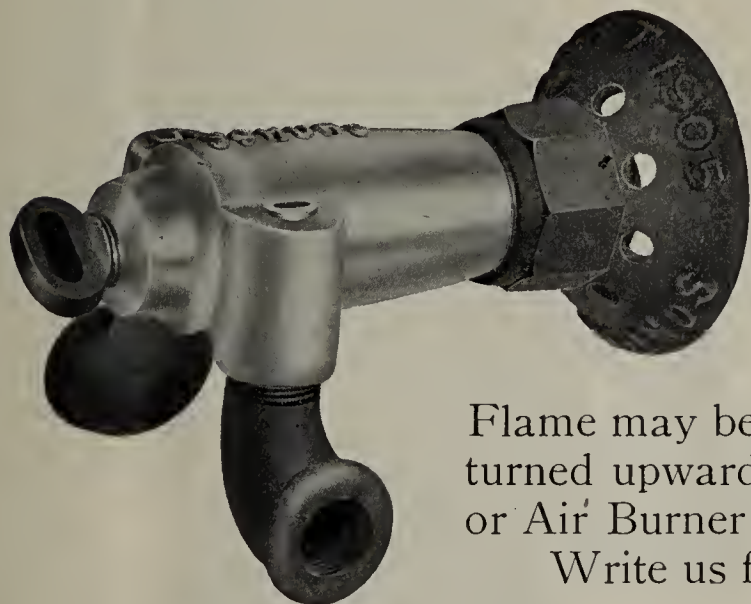


**The Grath Revolving Roofing
Tile Press.**
Strongest and Simplest Made.
For Plaster or Metal Dies.
Top Cross Head and Pentagon Adjustable.



The Grath Roofing Tile and Trimming Press
No Roofing Tile Plant
Complete Without This Press.
For Plaster or Metal Dies.
For Special Tiles, Hips and Crestings.

GUARANTEED AGAINST BREAKAGE.



**Selling Agents for The
SCHURS PATENT PERFECT
OIL BURNERS**

Especially designed for burning Brick, Tile, Terra
Cotta and Lime. For Up and Down Draft Kilns.

Flame may be regulated as desired and to produce any heat, can be
turned upward, downward or sideways. Most economical Steam
or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices and information.

Lieber's Code.
Cable Address,
GRATH, St. Louis.

Illinois Supply & Construction Co.
HOLLAND BLDG., ST. LOUIS, MO.

Long Distance
Phone
Bell, Main 235.

REMOVAL NOTICE.

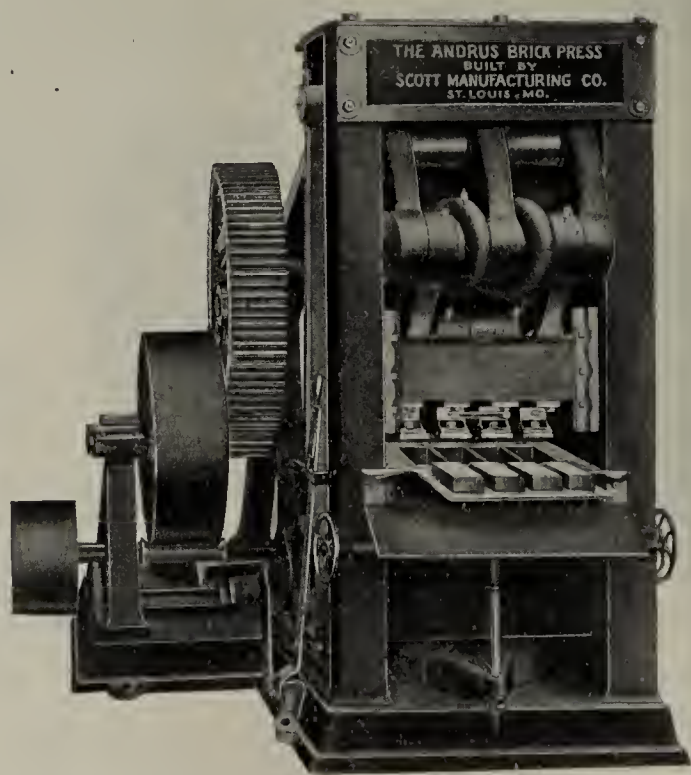
We wish to announce the removal of our offices from 421 Olive Street to the Third National Bank Building. It has been our pleasure in the past to extend whatever hospitality we could to the visiting clayworkers and, if possible, to have them come and see us, no matter what branch of the clay industry they might be following. To meet this desire we have arranged our new quarters in such a manner that visitors can come and go without feeling for an instant that they are discommoding us in the least by leaving their baggage in our care, writing or dictating their letters or using our unrestricted telephone service. All of these features have been arranged as much for our visitors as for ourselves.

To the pressed brick fraternity let us insist that St. Louis is still the greatest pressed brick center in the world, and we now have two dozen Andrus Presses right in the St. Louis district, three of which have been installed during the past year, and at least a dozen of which have been in constant operation for the past 15 to 20 years. So when coming to St. Louis, whether on pleasure or business, come and see us. If you have time, we can show you some of our pressed brick machinery, but if not, you needn't think that we don't want to see you, for we certainly do.

Cordially,

**Scott
Manufacturing
Company,**

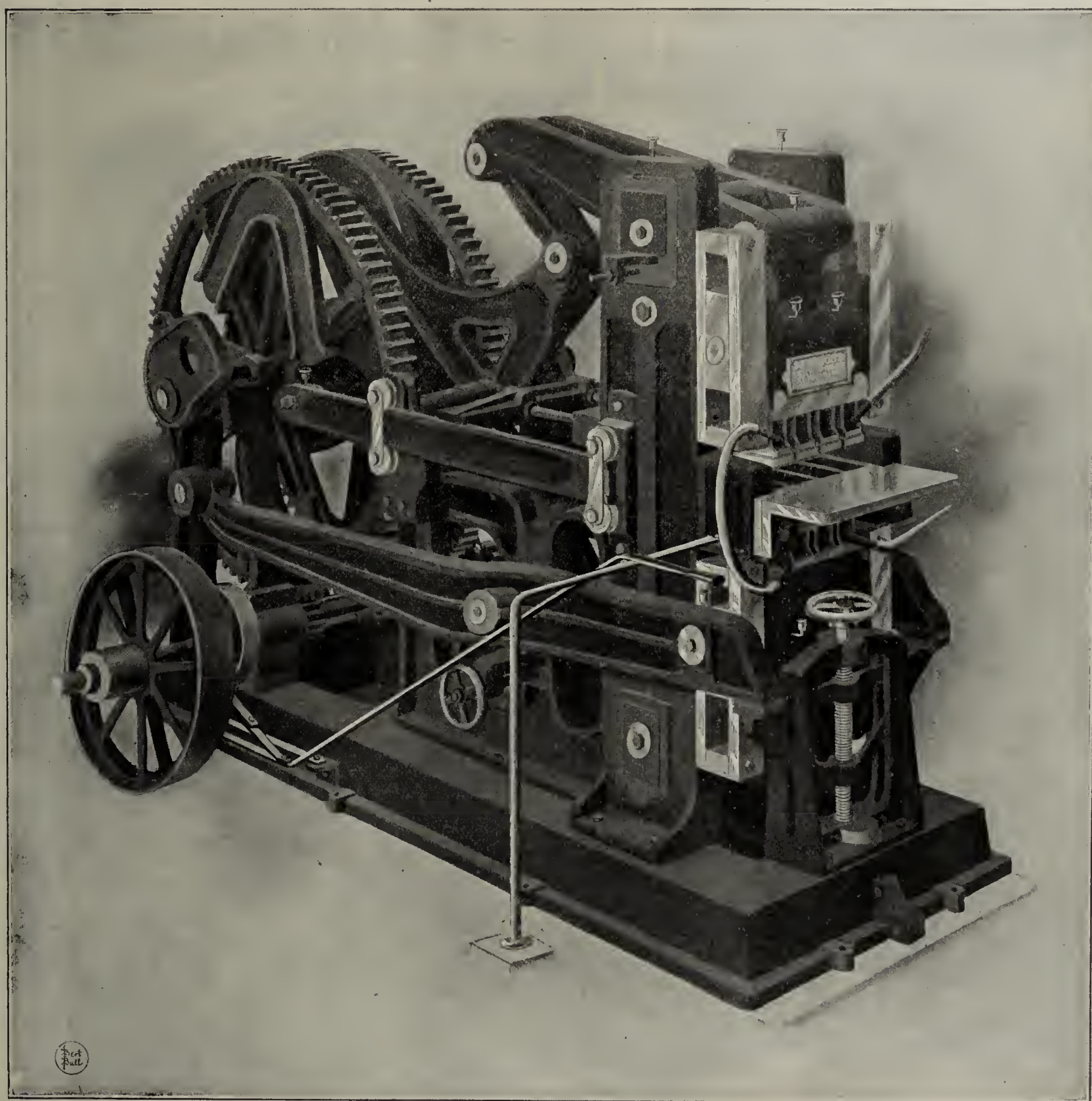
**506 OLIVE STREET,
ST. LOUIS, MO.**



THE PRESS THAT SCOTT BUILDS.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

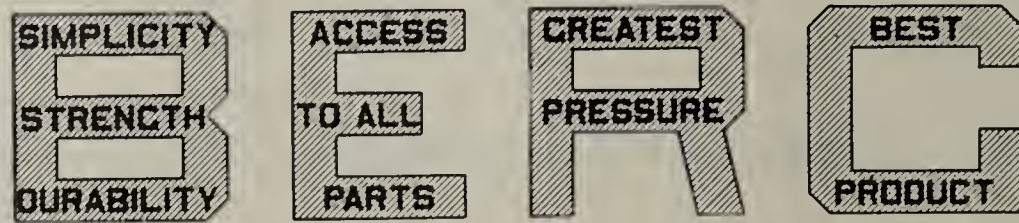


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

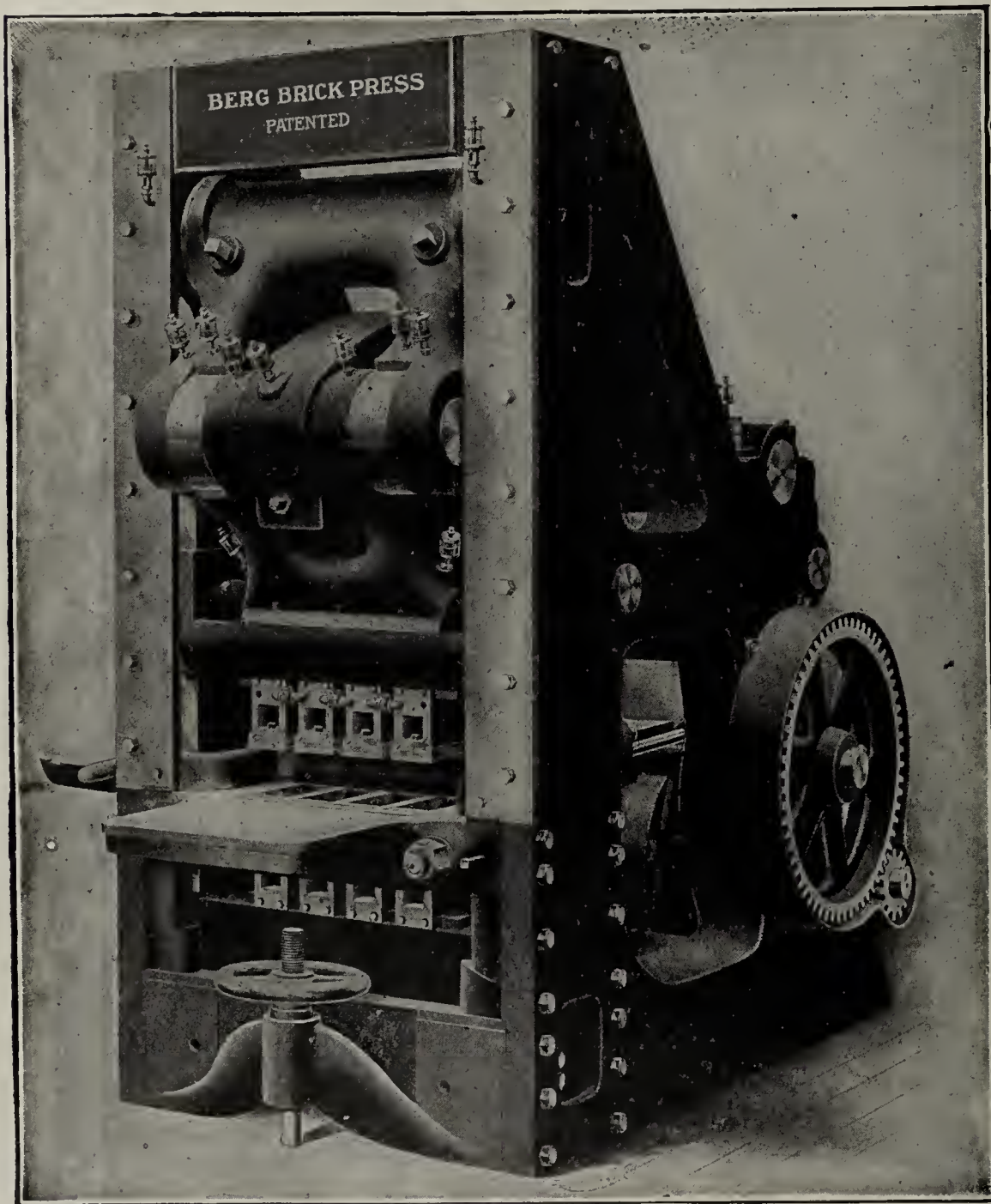
The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

WHAT'S IN A NAME?



The "Berg Press" is The Highest Development in The Art of Brickmaking Machinery, so Pronounced by The U. S. Government.



IMPROVED BERG BRICK PRESS.

THE BERG PRESS EXCELS
for

Shale Pressed Brick.
Clay Pressed Brick.
Sand-Lime Pressed Brick.
Sand-Cement Pressed Brick.
Fire Brick.

THE BERG PRESS
Gives THREE Distinct PRESSURES:
Result is,
No Granulated Centers.

THE BERG PRESS
HAS ALL WORKING PARTS ABOVE
Clay Line.

THE BERG PRESS
is fitted with "THE BERG PATENTED
MOLD BOX"—the DELIGHT of brick-
makers, and which many OTHERS
have tried to IMITATE.

All Sizes and Shapes
Can be Made.
Molds Can be Changed in a
Few Minutes,
Owing to the
SIMPLE MECHANICAL
CONSTRUCTION.

Cut Gearing, and many other steps forward in *Improvements*, and built of the *Highest Grade of Material and Workmanship*. *Fully Guaranteed* as to its *Success*.

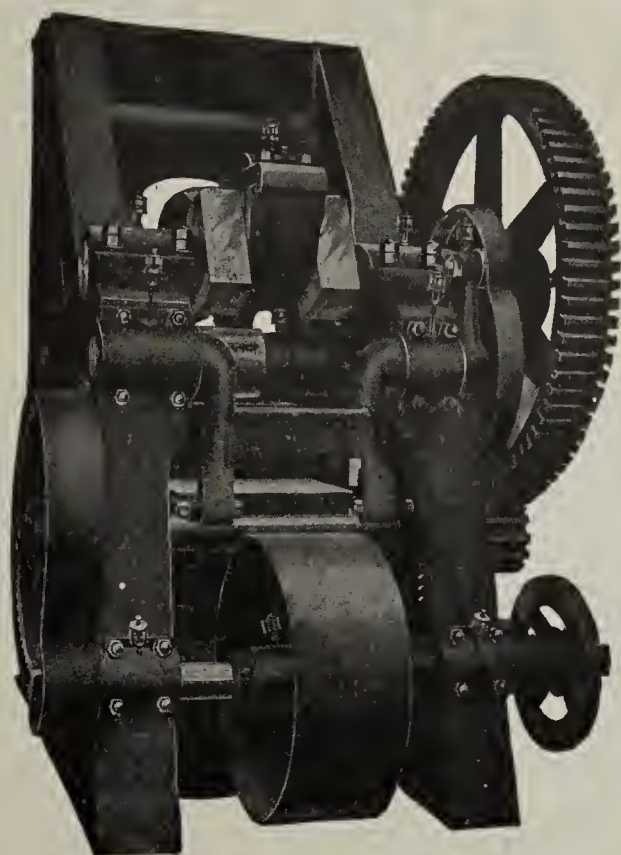
Manufactured by its Inventor in Toronto, Canada, exclusively. Also all equipments for Pressed Brick Plants to make *Sand-Lime Brick*, *Sand-Cement Brick*, *Shale Brick*, *Clay Brick* and *Fire Brick*. Correspondence solicited.

A. BERG & SONS,

Mention The Clay-Worker.

Manning Chambers, TORONTO, ONT., CAN.

New Model Berg Brick Press



Back View.

Still in the
Lead
and
One Step
Further
Forward.

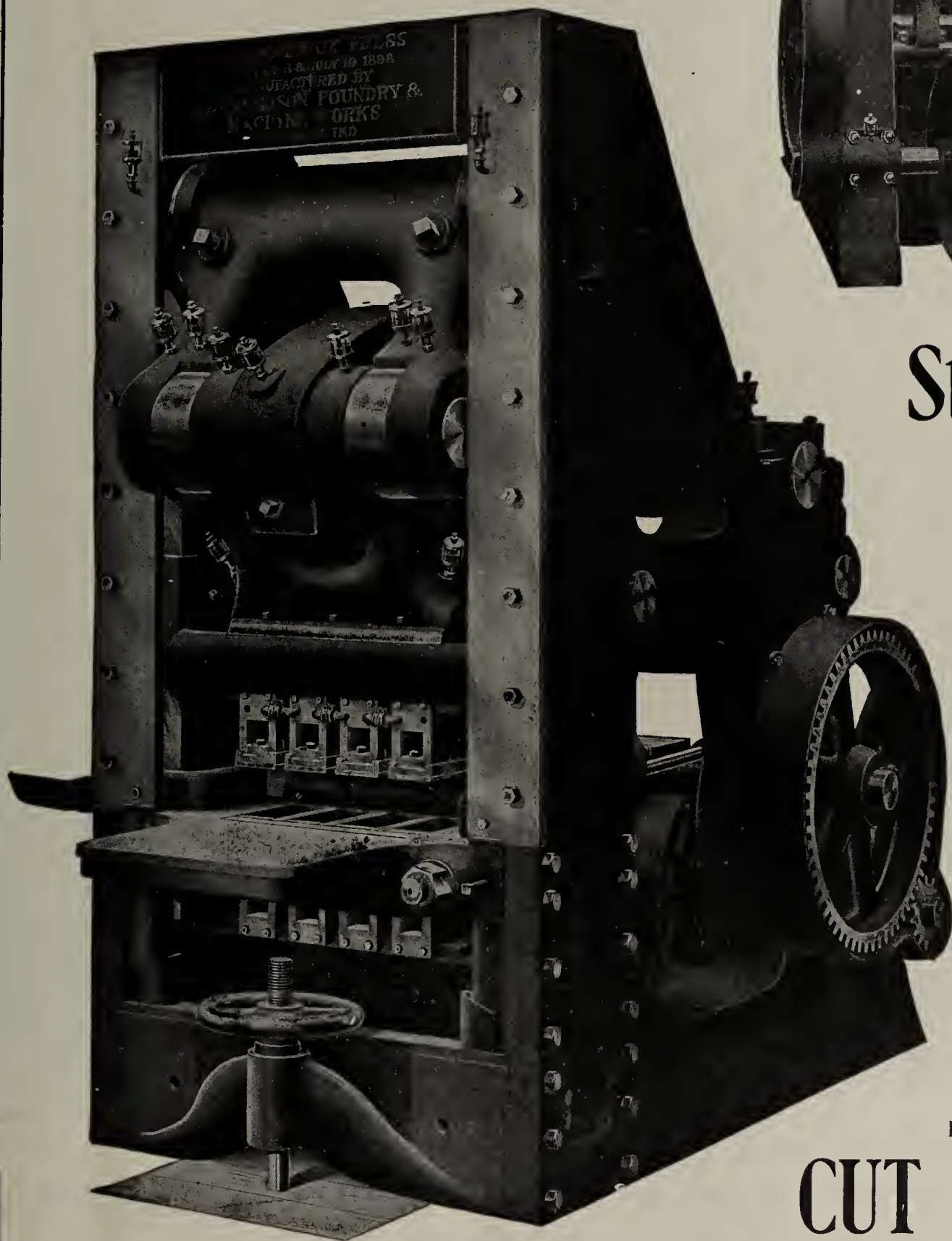
Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact, and

SHIPPED IN ONE
PIECE.

Provided with

CUT GEARING

of either iron or steel, if desired.



Sold by

CHICAGO BRICK MACHINERY CO.,
Great Northern Bldg.
77 Jackson Blvd.
CHICAGO.

Manufactured and Sold by

Anderson Foundry & Machine Works,

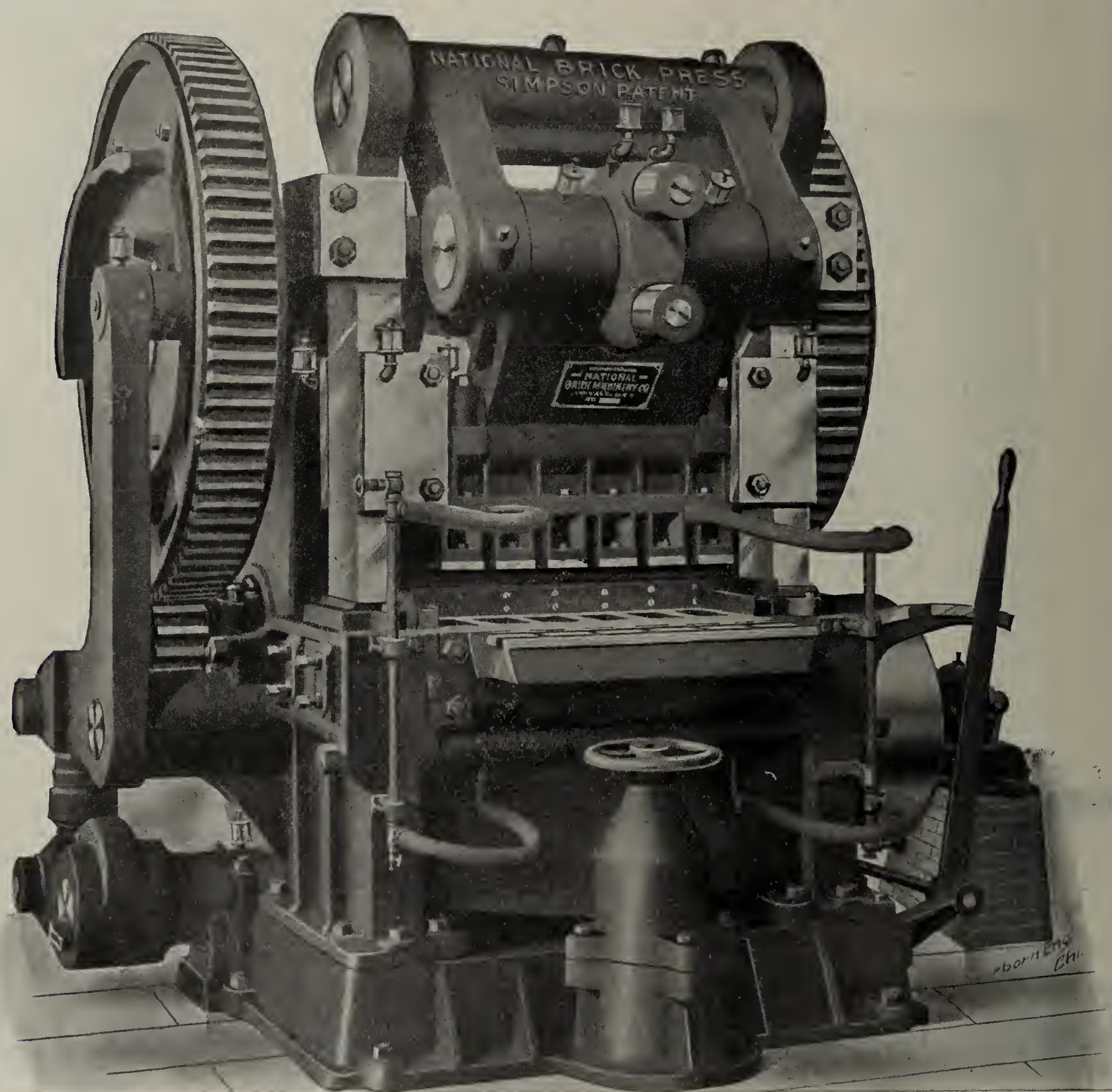
Southwestern Office, Wilson Bldg., Dallas, Texas.

ANDERSON, IND.

NATIONAL BRICK PRESS

SIMPSON PATENT

SIX-MOLD



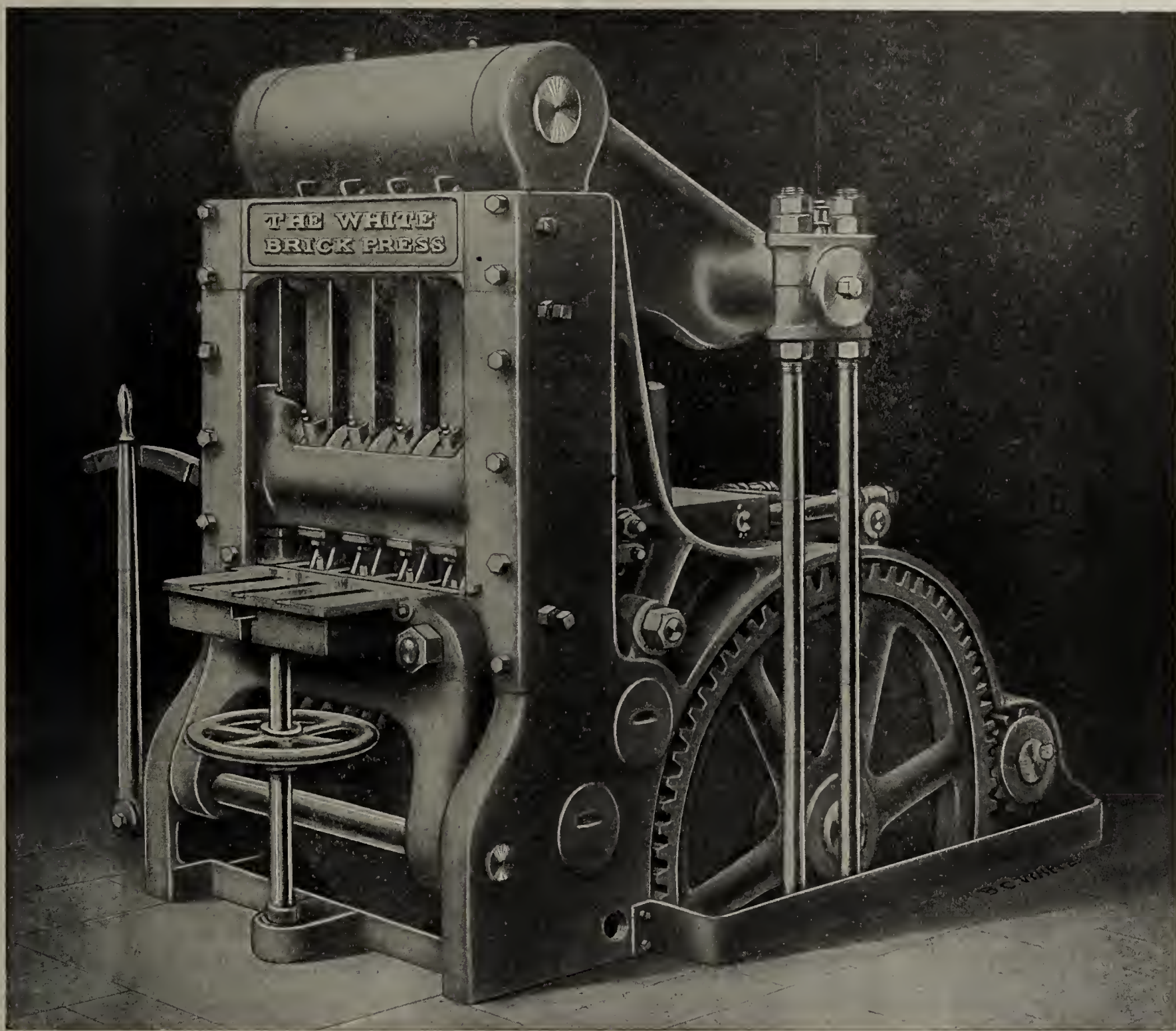
Built in Four, Five and Six-Mold Sizes.
Send for our new Treatise on Dry Press Brickmaking.
Complete Outfits for Brick Plants.

National Brick Machinery Co.,
Chamber of Commerce Bldg. CHICAGO.

Ask the Man that Owns One

What He Thinks of His

WHITE BRICK PRESS.



Read the letter of the **Sibley-Menge Press Brick Co.**, in this issue of The Clay-Worker and you will know what one owner thinks. We will give you the names of the other owners on request if you want to find out what they think also. Not a dissatisfied customer among them.

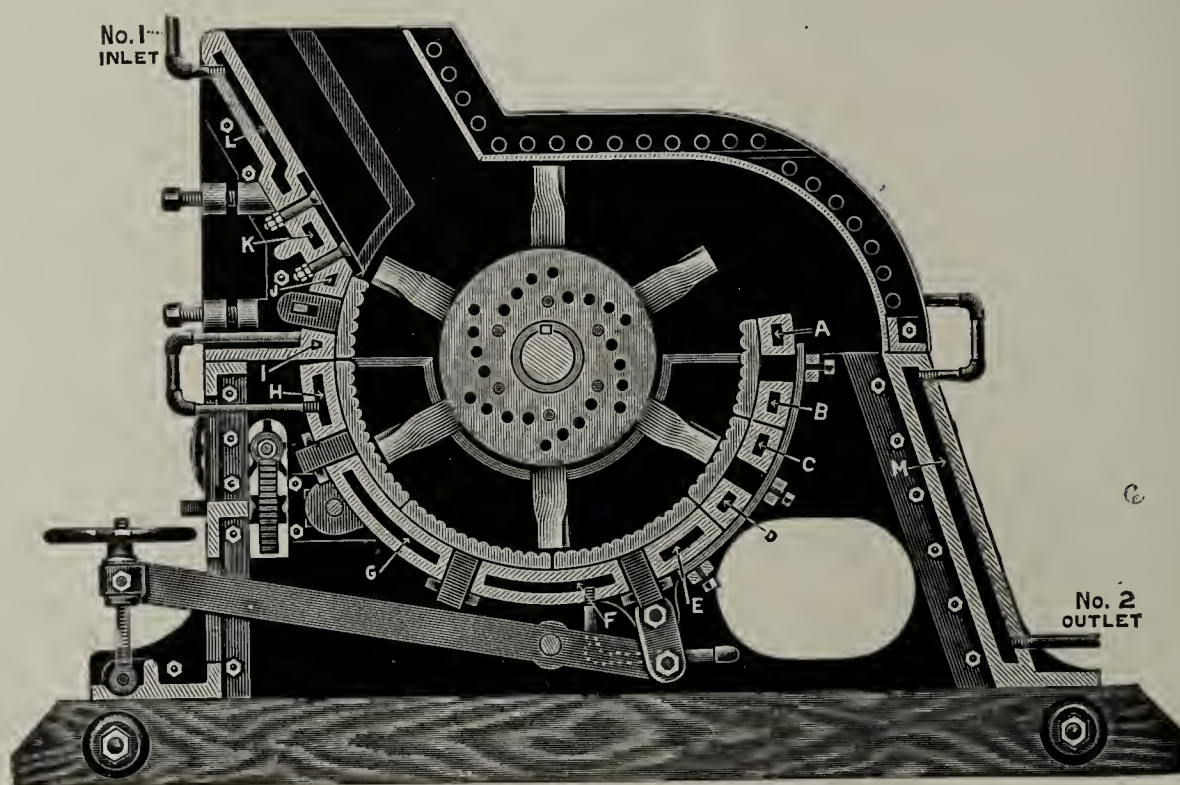
SEND FOR CATALOG.

CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

Mention The Clay-Worker.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

Williams Patent Crusher and Pulverizer Co.
St. Louis, Mo., U. S. A.

Write for Bulletin 21.

Over 1300 of the Williams Hinged Hammer Crushers and Pulverizers in daily operation.

Mention The Clay-Worker.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO
Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary
knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay
plant, a bolt tightened at the right time may save a seri-
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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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No. 5.

Written for THE CLAY-WORKER.

GATES IN EGYPT.

A Pleasant Journey Up the Nile, Where Brickmaking Had Its Origin.

RIGHT ON THE site of the ancient city of Memphis; right on the dust of what had once been a populous and powerful city and from the dust of which had grown the grove of date palms, now stands in the baking sun the queer but thriving brickyard which I mentioned in my former letter.

I had my camera ready and tried to catch the men at work

I show in an accompanying photo. The boats are of the universal Dahabeah type, with a mast in each end, but in this case have timbers stretched across them and nets on each side, giving three times the regular width of the boat, over all of which water jugs are loaded. The entire domestic supply of water for all the inhabitants of the Nile valley is carried in similar jugs. In getting water for irrigation, and nothing grows there without it, the generally employed method is shown in the photo of the Chadouf, in which a rudely constructed lever, weighted on the short end with a mass of dry clay and fibre, has a bucket of goat skin suspended from the long end of the lever. The operator pulls the bucket down till it dips the water and then the counter-



A Native Village, Pyramids in the Distance.



Karnak Before the Pylon.



Fallen Statue of Rameses II.

on this strange brickyard, but our donkey troupe was hurrying past toward Sakkara, and, besides, I was not at all sure when the workmen would go to work, if indeed ever. I was able, however, to get a snapshot of the yard. The brick were just such plain mud, unburned brick as the Children of Israel made when Moses was there, and made in the same way. Later on, I saw some of the identical brick of Moses's time and thus could make comparison. The case was quite parallel in this, also, that I did not see either of them manufactured nor the brick machines. Of the latter there was just as much left from those of Moses's time as there appeared to be in the case of the yard I photographed. The fallen statue of Rameses II, shown in another print, is within a stone's throw of this brickyard.

Journeying up the Nile we passed many boats such as

weight of clay elevates it quickly to the point where he tips it into a ditch in which it flows to the next man. This photo was taken pretty well down on the Nile, where the banks are low, and it only required two men to get water to the top, but further up in most instances it required three, four or more. These Chadoufs are so thickly scattered along the bank that one wonders that the river is not bailed dry before it gets to Cairo. The picture shows in itself that it was taken low down on the stream near Cairo, by the dress of the operators. They dress more on the lower river, and as you go up it and get into hotter and hotter weather, there is less dress, until you see them clad in a turban only, and then further up—well, why say more?

The one other method of elevating water is the Sakkiah, in which an ox or camel goes round and round, pulling a lever

which agitates a crude wooden wheel which engages another crude wheel which winds up a rope to which pottery jars are tied which fill with water at the river surface, and spill it out at the top when they tip over the wheel. Why windmills are not used for pumping the water I can not understand, but in the 600 miles of the river that I saw there was not a windmill, and all the reason I got for their not using them was the statement that the "wind changed."

Egyptian Plan of Delivering Brick.

Inasmuch as I dislike to write without giving out any hint of method or improvement, I call your attention to a snapshot I took at Assouan, showing their method of delivering brick. These were about the only burnt brick I saw, and had been unloaded on the bank from a boat and were being transferred to the building by filling rope network baskets—one on each side of a donkey—with the brick. In case any of your manufacturers want to adopt this plan of delivering, I will explain further. I was going to keep it quiet and give it to Purington, but haven't figured out how many donkeys it would take to deliver the 5,000 odd tons he handles per day.

Another picture shows the same native village, where they were trading in other truck, winnowing out and selling grain, sugarcane, etc., and weighing out and selling little chunks of wood—a most scarce article there. The snapshot of the low bank of the river was taken in an effort to catch some more mud brickyards, but they do not show in the picture appreciably.

The picture with the Pyramid in the distance was taken from the plain below, and the native village of mud huts in the foreground. The picture with the economically clad children in the foreground was at Karnak, before the Pylon at the end of the long avenue of Sphynx's, on one of which the children are standing. They promptly held me up for "back-sheesh" as soon as I had clicked the camera.

Altogether, the trip has been very interesting and instructive; I have seen varieties of life—and of dirt—that I never mistrusted existed, poverty stricken and yet happy and careless. I have seen the dark and massive ruins, the hot sands, the bright sunshine, but "God's Country" calls home over the waters and I am glad to retrace my way over the seven or eight thousand miles, to be content in my own land and live under and see again the Starry Banner, all too rarely seen in our foreign parts.

GATES.

ENCOURAGING HOME BUILDING.

The retail lumber dealers throughout the country do, from time to time, make a sort of special study of the problems of home building, and, out of this, devise frequently effective ways to encourage people to build sooner, and at times to build better than they intended. Seemingly they find it pays, too, otherwise they would not keep it up. All this suggests that probably brick manufacturers could give more attention to this same thought with good results. In the lumber trade it is not only the retail dealers who take an interest, but the manufacturers of lumber themselves take a very active interest in such matters, and, in one notable instance, built a three-room cottage complete to show the effects of different stain and finish on a certain kind of wood, and spent thousands of dollars exhibiting this to architects and others all over the country. It did a lot, too, to promote the use of that special wood, and, eventually, repaid all its cost.

One of the latest plans of retail lumbermen in connection with encouraging home building is to furnish books of plans for houses and barns and various other buildings to their customers and contractor friends, instead of furnishing calendars and other souvenirs. These books have the name of the dealer printed on them and are arranged for through a

SNAP SHOTS OF INTEREST-

Taken by



View From Steamer Going Up the Nile.



The Ancient Brickyard on the Nile.



Taking Water From the Nile for Irrigation.

ING SCENES ON THE NILE.

W. D. Gates.



Nile Boats Loaded With Water Jugs.



Egyptian Method of Hauling Brick.



Trading Mart at Assuan.

publishing concern that supplies, in any quantity, to the different dealers, with each dealer's name printed thereon, and there goes with it all an arrangement to furnish, at a nominal price, blue prints of any of the plans shown. It is argued by lumbermen that these things beget business by encouraging men to build, and to build better. It is not merely houses either, but barns, poultry houses, gates, and various other buildings of one kind or another, that, through seeing illustrated in some specially desirable manner, people are tempted to build.

It would not be practical, probably, for brick manufacturers to follow exactly in the footsteps of the lumbermen in these things, but there is food for thought in making a study of what lumbermen do to encourage business. And brick manufacturers and dealers should be able to do themselves good in the same way and encourage both building and the use of brick. It wouldn't be a bad idea to have plans of brick buildings, together with the estimates of cost, and not only houses of moderate cost, for such people as do not employ architects, but other uses of brick may be illustrated and suggested in this manner, and figures given that would throw light on the subject and give encouragement to the further use of brick. The general public has an indefinite idea that brick construction costs so much that none but the rich can afford it, and it will take actual plans and figures laid before them persistently to dispel this idea and invite more attention to the use of brick. Just how it may be done is a matter for some discussion, but that there is room to do something more, and that some effort ought to be made continuously along this line, there doesn't seem to be any room for doubt. What should it be, and how should it be done?

CERAMIC MOSAICS.

The growing popularity of mosaic flooring in American architecture, not merely incidentally, but in a general way, all over the country, naturally attracts more attention to the different material offered for doing this work, and, in this, as in many other things, it is found that the clay products are the best. In comparing it with marble, it is found that marble is considerably softer, whereas the clay product, on the other hand, can be baked until it is harder than stone. It doesn't need polishing and it doesn't wear from contact with nails in shoes. The general summing up of the subject by those who have made a study of it is in effect that ceramic mosaic is cheaper, more sanitary, possesses greater artistic possibilities, is more durable and unites better with cement foundations than marble, consequently the clay product is, or should be, practically the only thing to use in this work. It is a line of work that is being pushed industriously by people interested in mosaics and seemingly is developing very rapidly, with room for lots of future growth and a big volume of business during and after the time it has gotten its full growth.

The scarcity and high price of hardwood has helped materially, and anyway, after people once take up with ceramic mosaics in flooring, and find it so much better than anything else, it will be practically without competition.

ANCIENT TERRA COTTA.

Consul General W. H. Michael, of Calcutta, quotes from the recent report of the archaeological survey of an interesting discovery of terra cotta reliefs with Pali inscriptions, dating back to the eleventh century A. D., at Petleik pagoda. These reliefs illustrate scenes in the life of Buddha, and, unlike most others of a similar kind, are vigorously modeled and almost as clear and sharp as the day they left the kiln, about the time England was being conquered by the Normans. Each piece of terra cotta bears a number corresponding to the number of the story depicted in the Jataka book, and the whole forms an authentic record of the orthodox Buddhist iconography of the eleventh century, besides being specimens of an art which is described as of no mean order.

The Use of Barium Compounds in Preventing Scum.*

By Ellis Lovejoy, Columbus, Ohio.



ARIUM AS A preventative of "scum" has been used many years, but there is so little literature on the subject that many do not understand its use, how it acts on the salts in the clay, why it frequently fails, especially beyond a certain limit, and some doubt exists as to its efficacy. Theoretically barium is a perfect preventative of "scum," but in practice it often fails.

The purpose of this paper is to call attention to lines of investigation which the writer believes would give valuable results in the use of barium to overcome efflorescence, nor are the lines suggested by any means a complete list.

Seger, in his paper, "Concerning the Addition of Barium Compounds to Clay," says: "With a content of 0.1% of calcium sulphate in clay there will be required 0.127% of barium carbonate," or "0.170% of crystallized barium chloride." In the following paragraph, the solubilities of some of the salts involved in the question of scumming are given:

Calcium sulphate, $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$, is soluble in 386 to 451 parts of water according to the temperature.

Ferrous sulphate, $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$, is soluble in 1.64 to .27 parts of water.

Magnesium sulphate, $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$, in 3.17 to 1.25 parts.

Potassium sulphate, K_2SO_4 , in 10.31 to 3.82 parts.

Sodium sulphate, $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$, in 4.34 to 0.32 parts.

In practice, we do not have to contend with any such quantities as these solubilities represent, except, perhaps, in the case of calcium sulphate. That the water which we use in our clay work may be fully saturated with calcium sulphate when it enters the clay, or become so before leaving it in the dry-house, can not be denied. Calcium sulphate is the chief source of our trouble, and we shall confine our discussion to it.

In passing, however, we wish to say that it would be valuable to determine what effect, if any, solutions of these other salts would have upon the solubility of calcium sulphate in concentrated solution, and upon its corrective, barium carbonate. It is possible that the soluble salts resulting from the reactions of these with barium carbonate may affect the solubility of the latter, and explain its sometimes erratic behavior in the prevention of "scum."

Efflorescences Classified.

There are three distinct lines of efflorescence, and we must confine this paper to one of them.

The efflorescence which appears on the material after it is laid in the wall is a problem in itself, and whether any conditions of chemical compounds to the clay can prevent it, students of chemistry must determine for us.

Kiln white, a much rarer phenomenon, concerning which we have little data, seems to be outside of any possible effect of chemicals in the clay.

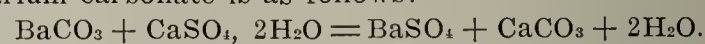
Dry-house white, the common "scum," which appears on the material in the drying stage and continues unchanged through the burning, is usually calcium sulphate, and to it we will confine our attention.

Dry-House White.

If we assume that a dry pressed brick contains eight ounces of water, and that sixteen brick can be made from one hundred pounds of clay, then we have in one hundred pounds of clay prepared for this process, 128 ounces of water.

This, since calcium sulphate is soluble, in round numbers, in 400 parts of water, will dissolve 128/400 ounces of calcium sulphate, or 0.32 ounces.

The equation for the precipitation of calcium sulphate by barium carbonate is as follows:



By weight, 172 parts of calcium sulphate require 197 parts of barium carbonate, or one part of calcium sulphate requires 1.15 parts of barium carbonate. The amount of 0.32 ounces of calcium sulphate, which may completely saturate the water in one hundred pounds of dry press clay, will require $0.32 \times 1.15 = 0.368$ ounce of barium carbonate to satisfy the requirement for complete decomposition of the calcium sulphate. Barium carbonate requires 14,137 parts of water for solution. One hundred and twenty-eight ounces of water will therefore take up 128/14137 ounces of barium carbonate, or 0.009 ounce. If 0.368 ounce of barium carbonate are required to precipitate 0.32 ounces of calcium sulphate, then 0.009 ounce of barium carbonate will precipitate 0.008 ounce of calcium sulphate. Thus, 0.008 ounce is $2\frac{1}{2}\%$ of the amount of calcium sulphate which may be in solution in one hundred pounds of clay prepared for dry pressed brick, and this is the initial value of a solution of barium carbonate.

The result of the initial decomposition is the formation of barium sulphate and calcium carbonate. Barium sulphate is soluble in 400,000 parts of water, and calcium carbonate in 28,000 parts, so that all the barium sulphate and practically all of the calcium carbonate formed, is precipitated. With this precipitation, more barium carbonate may pass into solution, followed by the reaction and precipitation until one or the other of the compounds is exhausted. Theoretically, therefore, we need only add enough barium carbonate to precipitate the salts which cause the "scum," and this seems to be the prevailing opinion in practice.

If we were dealing with these compounds suspended in water, we might expect the solution and reaction to continue to the end, but in a block of dry pressed clay, we have very little circulation of the water, and can not get the results which might be obtained from a free circulation. There is room for considerable divergence of opinion in regard to the possible value of an excess of barium carbonate in the water used in dry pressed brick, but the writer holds that there is little value in any excess beyond the initial saturated solution, after, of course, the precipitation of any calcium sulphate in the water prior to its addition to the clay. The water, with barium carbonate in solution and suspension, upon being added to the clay is taken up hygroscopically by the particles of clay and becomes a part of the hygroscopic water already in the clay, and the barium precipitates there, having reacted with calcium sulphate up to the limit of the barium in solution.

The barium carbonate in suspension can not follow the water into the particles of clay, and is left as a coating on their surface. The water is not a circulating medium. It is temporarily fixed in the clay particles, softening them and developing plasticity, and when the drying stage begins, it passes off to the surface, not, however, in all directions, as it entered, and in its passage taking up the barium carbonate deposited, but along certain lines ever towards the point drying fastest. That there will be some solution and precipitation during this stage must be admitted, but it will be quite limited. Whatever barium carbonate may line the channels through which the water is escaping may pass into solution and accomplish its purpose, but the great bulk of the barium remains as a coating on the particles of clay.

The water during its stay in the particles of clay will

*Reprint From Transactions of American Ceramic Society, Vol. VIII.

take up the calcium sulphate in them to the point of saturation, so that we have a strong solution of calcium sulphate escaping from the clay to the surface of the mass with very little opportunity of bringing it in touch with sufficient barium carbonate to precipitate the sulphate. The conditions existing in a clay body are not favorable to the solution of such a difficult soluble compound as barium carbonate nor to the reactions which bring about the precipitation, but they are favorable to the solution of the calcium sulphate which finds its way to the surface without much loss in passage. A common practice is to add the barium in the powdered form, in the dry pan or other grinding machinery, and the little we may get in solution is quickly used up by the impurities in the water, or by the sulphates in the clay, more readily soluble than the calcium sulphate.

If the assumption that only the initial precipitation is effective can be maintained, then the addition of barium carbonate to the dry pressed ware is of no practical value. Our efforts should be directed towards increasing the initial precipitation by getting stronger solutions of the barium.

A stiff mud brick contains two pounds of water, more or less—four times as much as a dry pressed brick. This will dissolve 1.28 ounces of calcium sulphate in one hundred pounds of clay, which will require 1.47 ounces of barium carbonate to precipitate.

It will take up 0.036 ounce of barium carbonate, which in turn will precipitate 0.032 ounce of calcium sulphate.

The extremely low percentage, 0.02 per cent. of calcium sulphate which may be in solution in dry pressed ware explains why manufacturers of such products are less troubled with "scum" than the manufacturer of stiff mud ware. Moreover, the porous face of the dry pressed ware will tend to hide the deposits of calcium sulphate which may come to the surface in the drying stage. Increase the quantity of calcium sulphate four or five times, and deposit it on a dense face of ware, and we readily see why a compound which gives little trouble in the one process, becomes a serious problem in the other.

In one factory using both processes it was necessary to treat all the stiff mud products, but no barium was used in the dry press work. While "scumming" is of much rarer occurrence in the latter, yet when it does occur it much more difficult to overcome.

The writer's explanation of the ineffectiveness of barium carbonate in dry pressed work is based upon some observations in stiff mud work. In the manufacture of stiff mud brick, we first ran the product quite soft, treating it, of course, with barium carbonate in the wet pan, and had very little trouble with "scum."

With the introduction of a repress, we made the brick stiff enough to be repressed as they came from the separating belt, and they quickly assumed a leather hard condition, showing the absorption of the water by the particles of clay. These brick came from the dry house and kilns badly coated with "scum." We doubled and quadrupled the quantity of barium without effect. We cut out portions of the clay which we thought made the trouble. We put in tanks in which the barium was stirred up with the water before being mixed with the clay, all to no purpose.

During this time roofing tile and hollow blocks made from the same clay were generally free from "scum," particularly the roofing tile, but, of course, they were run much softer than the brick, so much so, in fact, that the water could actually be squeezed out of the tile clots under the press.

As a possible explanation, it might be said, that in case the content of calcium sulphate in the clay was insufficient to saturate the water, the increase in the quantity of water would not increase the quantity of calcium sulphate, but would simply dilute the solution, while at the same time the barium carbonate would be increasing in quantity, maintaining its saturated condition from the barium carbonate in suspension.

In the stiff mud we may not have had enough barium in solution to precipitate all of the calcium sulphate, while in the soft mud process the precipitation was complete. This argument reads better than it looks in figures.

Two pounds of water to each brick means 0.036 ounce of barium carbonate in solution in one hundred pounds of clay, which will precipitate 0.032 ounce of calcium sulphate. This would be only 0.02%, a mere trace in commercial analysis. Such a minute quantity will not give any trouble by "scumming."

In the series from dry pressed products, through leather-hard stiff mud, stiff mud, soft mud to slumming clay, we pass from hygroscopic water, through a mass saturated with water in which there would be more or less circulation of the water, to water with clay in suspension. In the latter extreme we would have perfect opportunity for the continued solution and precipitation until the barium carbonate or calcium sulphate was exhausted, but in just the degree that we decrease the circulation of the water, we reduce the efficiency of the barium carbonate, until in the dry pressed ware, and perhaps in the leather-hard stiff mud, the efficiency of the barium carbonate is limited to the initial solution, or 2.5 per cent. of the possible content of calcium sulphate in solution. We repeat, therefore, that our aim should be to increase the initial value of the barium solution.

Use of Barium Chloride.

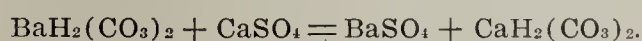
The use of barium chloride, $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$, which is soluble in 3 to 1.66 parts of water, is hardly to be recommended. While it will precipitate all the sulphur and thus remove all the soluble sulphates, yet any excess remains in solution and is drawn to the surface in the drying and there deposited to appear after the brick are burned. Seger's advice not to use it in excess is to be heeded. Moreover, the resulting calcium chloride is also readily soluble and it, too, would find its way to the surface to affect the color. Its use would be safer in connection with barium carbonate. We could thus use less chloride than would be required for complete decomposition of the calcium sulphate, but yet enough of it to remove the bulk of the trouble, all of which would be used up in the initial reaction, together with any carbonate in solution, and for the decomposition of the remaining calcium sulphate, we would have to rely upon the secondary reaction of the carbonate, which in dry press and leather-hard, stiff clay would be of little value for reasons already pointed out, but even the little value thus obtained might remove the final trace of trouble. In any case we would have the soluble calcium chloride to contend with. It is very desirable that the problem be solved without the use of barium chloride.

Use of Acid Carbonate of Barium.

Fresenius says that barium carbonate is soluble in water containing free carbonic acid, forming the acid carbonate.

Other authorities confirm Fresenius' statement, and in one instance give the solubility as one part in 830 parts of water. To pass carbon dioxide through tanks containing barium carbonate in suspension would be a comparatively simple matter.

It is not within the province of this paper to go into the cost of producing the carbon dioxide gas, but we do not think the problem would be a difficult one nor the cost prohibitive. If the acid carbonate method with its more or less valuable by-products proved too expensive, we could fall back on the products of combustion of wood or oil, first using the heat value in some of our work, and then the chimney products in the above duty. The gas must be practically free from sulphur. The reaction of the acid carbonate with the calcium sulphate would be as follows:



If the acid barium carbonate has a solubility of 1 in 830,

we have raised the initial value of the solution from 2.5% to 50%, which would eliminate the trouble from a great many clays.

We may have an excess of the acid barium carbonate in solution to give trouble, but its instability is a safeguard in this respect, and further, what has been said in regard to using barium carbonate with barium chloride applies equally well to solutions of the carbonate and acid carbonate. The compound in solution is the acid carbonate and that in suspension the carbonate.

By keeping the former near to but below the quantity actually required, and relying upon the carbonate to decompose the remaining traces of calcium sulphate, we can have no trouble with any excess of barium solution.

The acid carbonate of calcium formed is a soluble salt, and like calcium chloride, remains in solution, but we are dealing with a compound a great deal more insoluble than calcium chloride, or even than calcium sulphate, and decrease the danger of efflorescence in proportion to the decrease in solubility.

The solubility of the acid carbonate of calcium is given as 1 in 1200. Furthermore, the acid carbonate of both

to be freshly made, but if by its use we could introduce at once sufficient barium in solution to precipitate all of the sulphur and at the same time not leave dangerous by-products, we have solved the difficulty for any clay, and our trouble with "scum" would be over. The use of barium hydrate would result in the formation of calcium hydrate, and this in the burning would pass into the oxide. Calcium hydrate is soluble in 550 to 1,000 parts of water, and the oxide in 750 to 1,500 parts, in either case a decided gain over the solubility of calcium sulphate. Our greatest danger would be from any excess of the very soluble barium hydrate. If it can be kept below the point of excess, we would have little trouble with "scumming."

The tendency of both the barium and calcium hydrates to absorb carbonic acid from the atmosphere and pass into insoluble carbonates is in their favor. Add to this the tendency of calcium hydrate, and perhaps of barium hydrate, to combine with the silica of the clay, insures, in the opinion of the writer, freedom from any "scumming" because of their presence in the clay.

In conclusion, the writer wishes to repeat the remark made in the beginning of the paper, that there is a valuable



General View of Plant of Shawnee Flash Brick Company, Taken from Neighboring Hill.

barium and calcium can exist only in solution, and the chances are strongly in favor of their being unstable and passing back into the carbonate form and precipitating long before the drying process is complete.

An investigation of these acid carbonates is greatly to be desired.

Use of Barium Hydrate.

Burning barium carbonate with charcoal will reduce it to the oxide, which is quite soluble, according to one authority, in 1.5 to 70 parts of water. The hydrate thus formed is soluble in 20 to 0 parts of water, being soluble in its own water of crystallization, at 75 degrees, nominally its melting point.

Barium carbonate does not readily give up its carbon dioxide, and it must not be inferred from the above bald statement that we can convert barium carbonate into barium oxide as readily and simply as we convert calcium and magnesium carbonate into "lime," but the simple process of mixing barium carbonate with charcoal and burning, especially under forced draft, will give a partial decomposition sufficient, at least, for our purpose.

The process would be crude and the stuff would have

field for investigation in the use of barium. Many factories now making common brick could put their product on the market for face work if the "scum" could be overcome, and factories making face brick would reduce the loss from this cause. Nor is the trouble confined to brick manufacturers; it is only more apparent in their case. What effect the presence of "scum" may have on salt glazing and upon slip and enamel work is purely problematical.

In all this work the following caution must be observed: Barium in any soluble form is an active poison, and must be handled with care. The sulphate being insoluble has no effect except in so far as it may be made soluble by the digestive juices; the carbonate being difficultly soluble is safe to use; the chloride and hydrate being readily soluble should be respected and men who are handling them should be careful to wash their hands before eating their lunches or handling their tobacco, or anything taken into the mouth. Naturally, the antidote would be some soluble sulphate.

DISCUSSION.

Mr. Layman: I had an experience which I think may prove interesting in this connection. We are burning dry pressed brick from a clay charged with iron pyrites. The

source of our clay is a vein covered, in one part of the property, by a considerable depth of surface clay, and in another part by loose sand. In the part covered by clay, we experienced no trouble from the pyrites, but as soon as we struck the part of vein covered by sand, we got black heads on the brick, due to the soluble sulphate of iron, which occasioned a great deal of trouble. It may easily be seen that the portion of our clay which was covered by the sand oxydized readily and the pyrites contained in the clay was converted into sulphate of iron. The portion of our deposit with the overburden of clay had no chance to oxidize, hence the pyrites remained as such. Following the well known principle for making soluble salts insoluble, we tried barium, which was not effective for the reason that it had to be added in such large quantities that the brick had a very disagreeable color. As every one knows, there are three insoluble sulphates, barium, calcium, and strontium sulphate. The last was ruled out by reason of cost, but the calcium compounds were available, so we tried the carbonate and found that it worked excellently well. I used of the carbonate, about 1 per cent. by weight, and found that the scum

Written for THE CLAY-WORKER.

A YOUNG BUT PROSPEROUS PLANT.

THE Shawnee Flash Brick Company which was incorporated in 1906 and has been successfully operating in the interim, manufactures a high grade flash and face brick. The plant is located on the edge of Shawnee, built on the side of a hill with the Zanesville & Western and B. & O. Railroad passing its doors. The old Fanny furnace was formerly located where this plant now stands.

The extent of the Company's clay property is almost 213 acres of rich clay lands. The clays of this region are of the highest grade and make fine ware of red, gray and flashed shades. The company mines their raw material from a hill to the rear of the plant entering it by drifts. The plant is peculiarly arranged due to the lack of level ground and suitable space for the construction of a plant all on one level. The machinery room is located on the level ground at the base of the hill while the clay preparation rooms are located 30 feet above the level, built into the hill. A costly concrete retaining wall was built due to the disintegration of the shale



View of Shawnee Flash Brick Company's Plant, Taken from Railroad.

was being overcome, and that we were making a better product.

ADVERTISING.

There is no unit of advertising power. One inch on a magazine page, one column wide, does not serve all purposes of reckoning. The power of the advertising of one sandwich-man seems to us a better unit, and it sounds more like one-horse power or one-candle power. What we want to say is that ten million sandwich-men marching solemnly in a line could not advertise us more than does our fleet sailing around the globe. Everybody is looking at it. The furthest Turk knows that there are forty-five stars on our flag. The Terradel-Fuegoian may not be able to count up to forty-five, but he can reckon the stripes on his ten fingers and three of his toes. The gun-power of our navy is of little use to us in these monotonous times of peace; but the advertising power is so enormous it has been sheer extravagance to let it lie latent for so long. We are in business; why not advertise? Hurrah for US!—Judge.

which was exposed on excavating for space for the erection of the plant. The clay comes from the mine at the lower level and is elevated to the clay room on an inclined tramway by means of friction, hoist and cable.

The clay is ground in a large Raymond nine foot, heavy duty dry pan, and after thorough grinding is elevated to inclined piano wire screens. The screened clay is conveyed to the bins above presses by means of an auxiliary elevator. A Raymond "special" clay mixer and two Berg presses are used, one four mold and the others two mold. The entire equipment was supplied by the C. W. Raymond Company, of Dayton, Ohio.

A battery of eight round down draft kilns are used for the burning, each kiln has a capacity of about 60,000 brick, set for flash burning.

The company is receiving large orders for their high grade ware and expect to increase their plant's capacity in the near future by adding several more kilns, four 4-mold presses, with the necessary addition of dry pans and screens.

The company is now engaged in sinking a shaft to the lower strata of clay from which buff and gray brick will be

made. As soon as this clay vein is opened up they will push the production of the light brick along with the darker shades.

They are also installing an electrical equipment for lighting plant and handling clays.

The Shawnee Flash Brick Company has for its officers: Ferdinand Baumann, Columbus, Ohio, president; F. Z. Neel, Thornville, Ohio, vice-president; W. O. Copeland, secretary and treasurer. The offices of the company are at 1003-5 Brunson Building, Columbus, Ohio.

The plant was designed and erected under the supervision of the superintendent, E. M. Starnier, who has had considerable experience in the Shawnee district and is thoroughly acquainted with the peculiar properties of the raw material.

The plant has some excellent ware in the market and has furnished brick for a great number of handsome buildings in Ohio and neighboring states.

Written for THE CLAY-WORKER.

IOWA BRICK NEWS.

HENRY ENGHOLM, of Fort Dodge, Iowa, has purchased a tract of ground adjoining the city on the north, consisting of fifteen acres of fine clay deposit, which will be the basis of a new clay products company that will be organized at once. Mr. Engholm will have associated with



One of the Brick Presses at the Shawnee Press Brick Plant.

him, Mr. A. M. Oleson, of Red Wing, Minn., who has had twenty-five years' experience in working clay. He pronounces the deposit the finest he has ever seen.

A company of capitalists of Ft. Dodge, headed by L. E. Armstrong, president and manager of the various Plymouth stucco and clay plants, has purchased the Marshalltown pottery, which has not been running since last fall. The deal for the property was completed the first of this month, and a force of men put to work to getting the plant in shape for operation at once. Clay will be shipped from their deposit in this city and it is hoped to have some of its product on the market in a short time. The plant is a six kiln capacity, so arranged that it can be doubled. The sales office and management will be kept in this city.

An Indianapolis company has had an expert in the vicinity of Ft. Dodge for several days investigating the clay deposits in this locality. Before departing he gave out his observations as being the finest and most favorable he has so far found, and that he would recommend the erection of a large plant here.

The Lehigh Clay Manufacturing Company, which was organized in January of this year, has permanently located its offices in the First National Bank building of Ft. Dodge, although the plant is located at Lehigh, eighteen miles distant. It has purchased the property and plant of the Corey

Pressed Brick Company and the Lehigh Clay Works property, both at Lehigh, and both of them are now undergoing a process of remodeling and enlargement. Manager Geo. H. Emery, formerly located at Omaha, announces that the work is progressing rapidly, and it is expected the fires will be started in the pressed brick plant by June 1st, and the common brick and tile kilns by July 1st.

The Campbell Brick Company, of Lehigh, has shut down indefinitely, owing to a difference between the workmen as to the price of common labor. The management refused to pay \$2.00 per day and only offered \$1.50. A strike resulted.

A strike took place at the plant of the Clay Products Company, of Lehigh, over a difference in wages. The common labor demanded \$2.00 per day and the management offered \$1.75. After the regular workmen went out the kiln men refused to work with imported labor, and the management discharged all of them and imported a carload of laborers from Indiana.

The new plant of the Lehigh Sewer Pipe and Tile Company, which has been in course of construction during the past winter, is now practically completed, and it is expected that fires will be started on regular stock in the kilns by the



A View of the Clay Grinding Room at the Shawnee Press Brick Plant.

first of next month. The machinery has been set in motion, and scouring and adjustments are now taking place.

The Plymouth Clay Products Company, of Ft. Dodge, has shut down temporarily on account of a strike caused by the mill hands and miners of the Plymouth Gypsum Company going out. The company has a good stock on hand and is filling all orders promptly.

J. E. D.

ENTHUSIASTIC OVER THE SAND-LIME BRICK PROSPECT.

The Seminole Pressed Brick Company, of Jacksonville, Fla., has recently installed a four-mold White press at their sand-lime brick plant for making face brick, in addition to the rotary presses used for common brick. Mr. J. K. Munnerlyn, the secretary and treasurer of this company, reports excellent results from the new press, and Mr. Munnerlyn is enthusiastic over the sand-lime brick, and the future for it in Florida, which is an excellent field for this class of brick, as they are long on sand and short on clay. There are already several sand-lime brick plants working successfully in that State.

CONTROLLING DRYER AND KILN OPERATIONS.*

By Prof. A. V. Bleininger.

BY CONTROLLING THE operation of a dryer or a kiln we mean, naturally, the adjustment of conditions so that the greatest efficiency is produced. Without discussing the different principles of dryer and kiln constructions, we shall proceed at once to the consideration of the subject of this paper. For purposes of clearness, let it be stated that our discussion deals with the continuous tunnel dryer and the down-draft kiln of any shape.

The process of drying evidently is influenced by several factors, which are as follows:

1. The rate of evaporation of water evidently is proportional to the surface of the ware. In other words, more pounds of water are evaporated from thin ware, like drain tile per minute than from brick since, obviously the former presents a larger area per ton of clay than the latter.

2. The amount of water evaporated depends upon the humidity of the air. By this we mean the difference between the existing aqueous pressure and the aqueous pressure which would be found if the air were saturated. In order to make this clear we must realize that the water vapor in air, which is never absent, exerts a certain pressure, and this pressure at any given temperature is greatest when the air is saturated, that is, when it holds as much steam as it is possible for it to contain. Now, when air is not saturated with steam the latter also exerts a pressure, but evidently this is lower than in the saturated condition. To illustrate, supposing we have air at 20 degrees C, and it is saturated with steam. Its steam pressure is then equal to 17.4 mm, mercury. Again, taking air at 20 degrees, we find it, say, to show a vapor pressure of 10 mm. We can say, therefore, that evaporation is proportional to $17.4 - 10 = 7.4$. The greater this difference, the more water will be evaporated. For this reason the evaporation proceeds faster with a higher temperature than a lower one. For instance, assuming for the sake of simplicity the water vapor pressure to remain at 10 mm, the evaporation value for $30^\circ = 31.5 - 10 = 21.5$; for 40° it is, $54.9 - 10 = 44.9$; for 50, $92 - 10 = 82$, for 60° , $148.8 - 10 = 138.8$. At 60 degrees, therefore, evaporation proceeds 18.7 times as rapidly as at 20 degrees.

The water vapor pressures of saturated air can be obtained out of any book dealing with the subject of heat, for any desired temperature and the real water vapor pressure under any conditions is found by simply taking an accurate thermometer whose bulb is wrapped in wet muslin and reading its temperature. On looking up the vapor pressure corresponding to this temperature in a table the actual steam pressure of the air is found. Subtracting the water pressure of the wet bulb thermometer from that of the dry bulb we again obtain the evaporation value, as has been shown before. In saturated air, of course, both the dry and the wet thermometer read the same and no evaporation takes place.

3. The rate of evaporation is inversely proportional to the barometric pressure. At high altitudes, therefore, drying takes place more rapidly than in lower locations.

4. The more rapidly air passes between the brick the faster they will dry.

The conditions most favorable to speed of drying are thus: High temperature, dryness of the air, large surface of the ware, rapid change of air and low barometric pressure.

In observing the operation of a dryer there are evidently three points to be observed.

1. Temperature and humidity.
2. Velocity of air.
3. Regularity of operation.

On the outset, of course, we realize as clayworkers, that the fastest drying is by no means the best and that the nature of our clay requires careful consideration. We must understand that the tunnel dryer, as usually operated, contains three zones, the steaming, the evaporating and the heating stage. In the first the clay is brought from the outside temperature to the temperature at the end of the dryer without causing any drying to take place, the aim being to heat the brick uniformly throughout its mass. It is of the greatest importance that this be done, for if the clay were heated in dry air, evaporation would proceed at the surface, while the interior of the brick would be still at the temperature it had when brought into the dryer. The result would be a tension between the outside and the inside of the brick, since the outer portion would shrink away from the interior.

The result would be cracking or straining of the ware which would render the product worthless, or would, at least, injure its strength seriously. Evidently the finer grained and the more plastic the clay the more thorough must be this steaming stage. With some clays the steaming must be extended so long that the continuous dryer becomes impossible and must be replaced by the periodic dryer. Many manufacturers do not pay as much attention to this point as they should, and they suffer the consequences. Many a clay, if treated more rationally, would redeem its reputation as a poorly drying material.

The steaming stage, hence, must govern the operation of the dryer. This means that at the wet end the air must escape nearly saturated with vapor at all times. The humidity of the air leaving the dryer is easily determined by means of the wet and dry bulb thermometer, whose use has already been indicated. This instrument consists of two thermometers, the bulb of one of them being covered with muslin, to which a cotton wick is fastened. The latter is immersed in a small receptacle containing water. Consequently the dry bulb thermometer indicates the atmospheric temperature, and the wet bulb thermometer the temperature of the dew point. Looking up the aqueous pressures corresponding to these temperatures we divide the pressure obtained for the wet thermometer by the pressure of the dry and multiply by hundred. The result will be the humidity expressed in per cent. This should be close to about 97 per cent. and should not be allowed to rise higher. The remaining part of the problem must be to use as high an initial temperature in the dryer as the clay will safely stand, and to impart to the air such a velocity that it is nearly saturated at the upper end and yet will leave the dryer fairly rapidly, so that no sluggish pool of moist air is formed at the end of the dryer. In dryers using the waste heat from kilns it is important that the temperature of the hot air be carefully regulated inasmuch as considerable loss may be caused by an excessive temperature. For this purpose long stemmed thermometers protected by iron pipe are inserted into the flue beneath the dryer, as well as into the lower part of the tunnel itself. A number of satisfactory instruments for this purpose are now on the market. The dryer flue temperature may also be measured by means of a carbon nickel couple and milli-volt meter.

In the case of steam dryers with ample heating surface, the temperature need not be considered and the only remaining factor is the regulation of the velocity of the air through the tunnels by varying the speed of the fan. When a stack is used this should be of ample height, giving more

*Paper read before Illinois Clay Manufacturers' Association, at Peoria, in January.

draft than is needed, so that regulation becomes possible.

The velocity of the air is measured by means of the anemometer, consisting of a small fan, running in jeweled bearings, which is geared to a recording dial, indicating the velocity of the air current in feet. By placing the instrument at right angles to the current of air, noting the time and releasing the fan, the number of feet may be read off. Multiplying this by the correction factor of the instrument will give the real velocity in the time noted. By measuring the velocity in several portions of the tunnel the average velocity may be obtained. After the proper humidity has been attained the required velocity can be noted, and this should be maintained in the future operation of the dryer. It is by such simple measurements that the best efficiency of a dryer is obtained.

The distribution of the air currents in the dryer may likewise be studied by means of the anemometer and we are thus enabled to place the curtains in the most advantageous positions.

Other instruments might be employed in addition, such as the atmometer, for determining the humidity by means of the drying capacity of the air. One of these instruments consists simply of a counterbalanced shallow metal pan attached to a scale. The pan is filled with water until it indicates a certain weight on the dial. It is then placed in position in the tunnel, the time being noted. After an hour or two hours the weight indicated by the balance is again read and the loss in the weight of water observed. The greater the drying capacity of the air the more water will be evaporated from the pan. Saturated air will not cause any loss of weight. This instrument, though interesting and useful, is not a necessity, the wet and dry thermometer and the anemometer being sufficient.

The regulation of the kiln conditions embraces the measurement of the temperature, draft and composition of the fire gases. The kiln temperature, as we know, may be determined by means of the thermometer, the Seger cones, placed in the bottom and top of the kiln, or the Le Chatelier pyrometer. These devices have been so frequently described, that their discussion seems unnecessary.

During the water smoking period the temperature of the kiln is measured by means of the thermometer, which is best incased in an iron pipe packed with asbestos. At no time during the water smoking should the temperature exceed 200 degrees C, and, if the ware has not been set perfectly dry, the kiln should be held at 150 degrees. The expulsion of all of the mechanical water of the clay is indicated by inserting a cold iron rod into the flue and observing whether any moisture is deposited upon the iron.

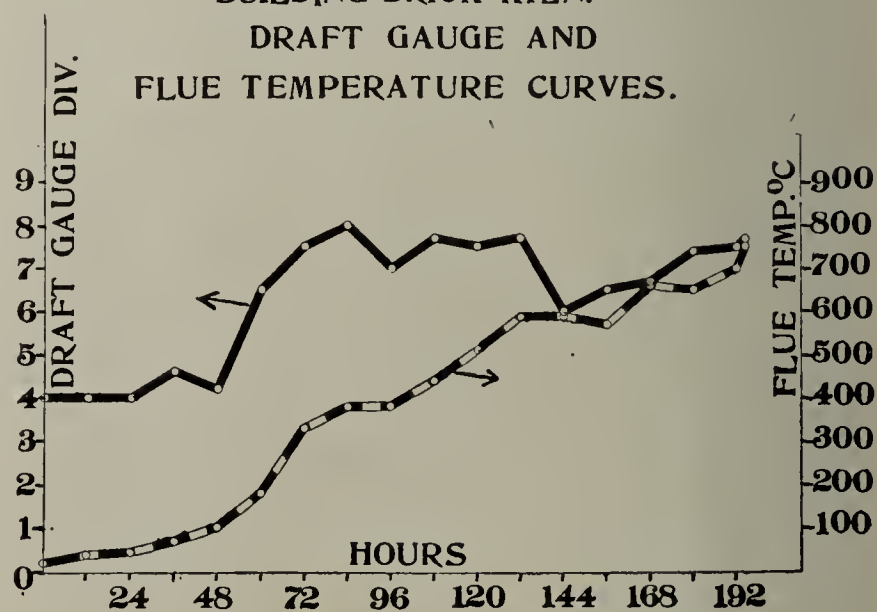
Attention is called only to the manner of reading the temperature from the milli-volt meter. It must be remembered that the thermo-couple measures only the difference between the temperature of the connection between the platinum and copper wires and the temperature at the end of the couple in the kiln, and hence it is necessary to make allowance for the temperature at the spot where the copper joins the platinum wires. It is, therefore, advisable to keep a thermometer at this place. Half of the temperature at the copper junction is then added to the registered temperature. It goes without saying that in this case the instrument should indicate zero when the switch is thrown out. For accurate work the ends of the platinum wires are immersed in ice water. In this case no correction is necessary.

Where the time honored method of measuring the settle is employed for determining the finishing point of the burn and the work is done carefully, it is possible to produce good and uniform burns. The pyrometer lessens the work and anxiety of the burner, and hence is certainly of value. It is especially helpful in enabling the burner to control the oxidation stage of the firing, which is very important for clays

high in carbon. Draw trials when properly used, likewise are very helpful, though they often deceive the unwary. If the porosity of the well burnt product is known the determination of the water absorbed by a trial is very useful, it being only necessary to weigh the piece when cool, soaking it in water for several hours and then weighing it again. The per cent. of water absorbed as compared with the absorption of the well burnt ware, in the same time, gives a useful test in regard to judging how near the burn is finished. It is evident that the draw trials must be cut out of the bar coming from the machine, and must not be hand made.

By draft we mean the pressure caused by the gases escaping through the stack. They are caused to flow up through the stack by virtue of the difference in temperature between the inside of the stack and the outside air. Since cold air is heavier than hot air, the former exerts an upward pressure in the stack, causing the gases to assume a certain velocity. To illustrate: If the outside air has a temperature of 0 degrees C and the mean stack temperature is 273 degrees C, the pressure caused in a stack three feet square on the inside and thirty feet high is 14.2 pounds. The draft of a stack varies as the square root of the height. If, therefore, we call the strength of the draft one when the stack is twenty feet high, the draft is 1.4 when the height is 40', 1.73 when the height is sixty, two for 80' and three

BUILDING BRICK KILN.
DRAFT GAUGE AND
FLUE TEMPERATURE CURVES.



for 180 feet. We see hence that after a certain height is reached a further increase does not produce much more draft.

Similarly the greatest draft is produced when the mean stack temperature is greater by 273 degrees C than the temperature of the outside air. It does not do any good to get the stack hotter.

The instrument called the draft gauge indirectly measures the velocity of the gases traveling up the stack and while we value the readings as indicating the strength of the draft we care but little to know the actual velocity. All we care to know is that we are not maintaining an excessive draft which causes too much air to rush into the kiln. In other words we want to determine the proper draft of a kiln and maintain it by letting down the damper as soon as the velocity of the gases become too great. The letting down of the damper should begin before the mean temperature of the stack has reached 300 degrees C. It is evident that where the stack has only about sufficient draft the use of the damper is unnecessary.

The simplest draft gauge possible is made by bending a glass tube into U shape and filling it partly with water. By connecting one of the open ends to the stack, the atmospheric pressure will push up the column of water on one side. This rise of the column we call the velocity head of the stack in

terms of water. Nearly all draft gauges are modifications of this simple apparatus, the differences being simply due to devices for making the readings more sensitive. This is done by adjusting one limb so that it makes an angle which magnifies the reading as compared with the straight, vertical tube. Another way is to enlarge the tubes on top and using two liquids, one a colored solution of carbolic in water, the other simply a concentrated carbolic acid solution. Illustrating the use of the gauge let us assume that the best draft was found to be five divisions of the gauge. If the gauge should indicate six divisions it is hence best to damper the kiln down to the 5 mark again. The gauge is useful also in finding out whether the kiln has uniform draft all around by simply inserting the instrument through one of the peep holes, closing up the opening and making a reading. If the kiln has a stronger draft on one side this is readily shown by the difference in the readings.

But now the question may be asked: How are we to know when we have the best draft conditions? This brings us to the next question, the composition of the fire gases.

The principal gases coming out of a stack are carbonic acid, oxygen, nitrogen and steam. If the coal were burned perfectly no oxygen would be found in the gases but this is neither desirable nor possible. On the other hand a large excess of oxygen indicates a large amount of air which has

a bad condition, as it simply means that we have an excess of 40% of air. In this sort of calculation, 100% of air stands for perfect combustion, anything above 100% means excess air. Now after the period of oxidation is passed we should aim not to exceed 130% of air as this represents about the best we can do in our kilns. On the other hand unless we wish to produce black colored or flashed ware we should not allow the air to fall below 100%. It is now that we can fix the proper reading of the draft gauge. If the air content does not exceed, at least not to any considerable extent, the amount of 130% after the fires are burning briskly we have about the right amount of draft and we adopt that reading of the gauge as the proper one for the future. We can now put the gas apparatus away. If the per cent. of air continues to run too high we must drop the damper until the proper amount of air is admitted and we again note the draft registered by the gauge. This applies, of course, only to the kiln of which the test was made. In this way we can standardize and fix the proper draft for each kiln, further tests with the Orsat apparatus being unnecessary.

There are on the market devices for analyzing gases which are even simpler than the Orsat apparatus. One of them is the Cramer-Baur burette by means of which we determine only the carbonic acid gas, but can do this in a few minutes. Since most bituminous coal evolves on perfect combustion about 18% of carbonic acid gas we can tell how close we come to the most desirable conditions by simply finding the per cent. of this gas in the flue gas. We should try to maintain around 13% of carbonic acid. However, where coke is used for fuel the theoretical volume of carbonic acid gas is 21% and in this case the desirable percentage is about 16%. Where gas firing is employed the conditions can approach very close to the perfect proportions and we should expect to find but small amounts of oxygen in this case, not over 10-15%. This constitutes one of the advantages of gas over coal-firing.

Written for THE CLAY-WORKER.

BUFFALO BRICK AND BUILDING NEWS.



BUILDING REPORTS IN BUFFALO show an interesting activity in the smaller structures, but leave skyscrapers all on paper. Many buildings are being planned and bids have been opened on several others, but not all of these will be started until people are more certain of the future.

Secretary Stowell, of the Lyth Tile Company, whose offices are located at 666-668 Ellicott Square, Buffalo, and factory at Angola, N. Y., reports that the business of his firm is going satisfactorily this month. The company's factory has been running full time since the completion of repairs.

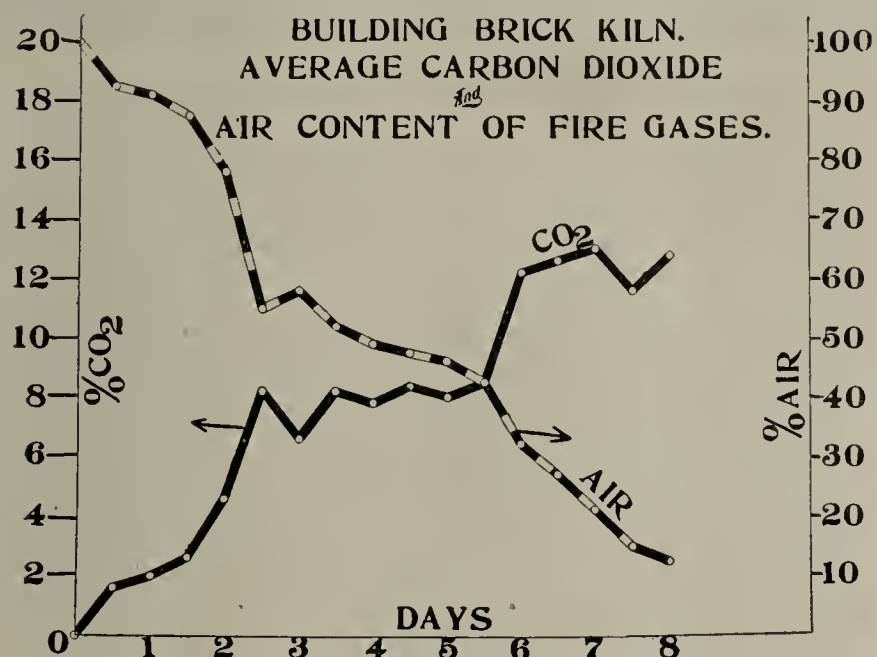
The Manufacturers' Agency in the Mutual Life building has contracts to furnish brick and other material for several buildings to be started in the near future. These include two parochial schools, one in connection with St. Casimir's Church and another for the Parish of Our Lady of Perpetual Help. This firm will also supply material for an addition to the Home for the Friendless, a warehouse to be built by R. G. Wright & Co., at 52 Terrace and a new truck house, No. 11, on Fillmore avenue, for the Buffalo firemen. This last structure will be constructed of brick, at a cost of about \$15,000.

Lyman D. Walrath is busily engaged these days as manager of the Queen City Brick Company, whose offices are located at 7 and 8 Builders' Exchange in this city.

It is reported that Fred Eastley has been appointed superintendent of the Hydraulic Pressed Brick Works, located north of Canandaigua, N. Y. The firm will manufacture brick and will install additional machinery for the making of drain and building tile.

Residents of Lewis street, Binghamton, N. Y., have petitioned for a new brick pavement which they want laid on that street from Chenango to Fayette streets.

According to an official report issued by the New York State museum at Albany, N. Y., of which John M. Clarke



gone through the kiln, robbed it of its heat and carrying it out through the stack. Hence we must find some compromise. First of all, during the oxidation stage of a clay fairly high in carbon we should not begrudge the kiln the excess air it gets. In fact all we need to do during this period of burning is to keep the temperature approximately around 700 degrees C and admitting all the air we can. This is kept up till a trial drawn out shows the absence of the carbon spot, that is the dark area caused by the presence of carbonaceous matter, which gradually becomes smaller and smaller. No burner should omit this extremely important and simple test. As soon as no evidence of carbon is left we must begin to economize and to stop the admission of the large quantities of air. For this purpose we can analyze the flue gases for carbonic acid and oxygen. This is done in a very simple way by means of the so called Orsat apparatus, which any one can learn to manipulate in a short time. This instrument determines the volume of carbonic acid gas and oxygen in per cent. By means of a simple calculation we can now figure the amount of air which we have admitted to the kiln, which is carried out as follows: $(100 \div 100 - 4.76\% \times \text{oxygen}) \times 100$. Illustrating by an example we assume that 6% of oxygen were found in the gases. Carrying out the calculation we obtain $(100 \div 100 - 4.76 \times 6) \times 100 = 140\%$, nearly. In other words we have admitted to the kiln 140% of air. This is not



PANORAMIC PICTURE OF THE WONDERFUL CLAY DEPOSIT OF THE COLUM-

is director, the clay materials made in New York State last year were valued at \$12,688,868, which was somewhat less than in 1906, due to the smaller output of building materials. The report continues in part as follows: "Pottery manufacturers, on the other hand, showed a large increase, the value amounting to \$2,224,895, against \$1,795,008 in 1906.

Many reports of the unsatisfactory condition of cement work are being received. One newspaper report on the subject from Welland, Ont., says: "Contractor Oliver wishes to state that that accident regarding his house in the Garner survey was hardly as bad as represented. As a matter of fact, the whole trouble was caused by the mere crushing of the cement blocks under the weight of the house."

The New York Central & Hudson River Railroad Co. has asked the Public Service Commission of New York State for permission to issue \$4,000,000 3½ per cent. mortgage bonds and \$20,000,000 4 per cent. debenture bonds to cover certain improvements made during 1908, as well as those under way and contemplated for the present year. The

largest appropriation is that of \$16,000,000 for the Grand Central Terminals and other buildings in New York City, while the cost of the new station at Schenectady, N. Y., is given as \$1,475,000. For work already done, contemplated or under way in Buffalo and vicinity the larger appropriations are: Engine house, coaling plant and turn-table, East Buffalo, \$200,000; improvements at Suspension Bridge, N. Y., \$380,000; new boiler shops at Depew, N. Y., \$55,000.

Governor Hughes of New York State has signed Senator Armstrong's bill appropriating \$1,115,000 for highway repairs and Senator Hooker's measure, appropriating \$2,000,000 for highway maintenance in this state. The governor has also signed a bill appropriating \$104,500 for the improvement of the State Reservation at Niagara Falls.

April was the largest building month in Rochester, N. Y., so far this year, the figures in connection with the building permits totaling \$445,822. But the total for April, 1907, was \$786,045, the falling off for April, 1908, thus being \$340,223.

KNICKERBOCKER, JR.



A GLIMPSE OF THE COLUMBUS CONTRACTORS SUPPLI



BUS CONTRACTORS SUPPLY COMPANY'S PLANT, TAYLOR STATION, OHIO.

Written for THE CLAY-WORKER.

COLUMBUS CONTRACTORS SUPPLY COMPANY'S PLANT.

One of Ohio's Best Common Brick Manufactories.



AT TAYLOR STATION, eight miles from Columbus, Ohio, is located a fine common brick plant, owned and operated by the Columbus Contractors' Supply Company, whose main office is in the Buckeye capital. The location of the plant is ideal; the raw material is abundant and of high grade quality; the railroad facilities are of the best, both the B. & O. and Pennsylvania railroads passing through their property, skirting the stock piles of brick; there is a superabundance of gas in the vicinity which is utilized in the burning, and the close proximity of Columbus, the center of the brick market of the central states, gives this company every advantage for the manufacture and marketing of a good grade of ware.

The raw material is covered with a subsoil from eighteen inches to three and one-half feet in depth, which must be stripped. Beneath this subsoil, there is a vein of red burning shale averaging twenty feet in depth overlying about the same amount of a grey red burning shale. This shale rests on a hard bed of black slate. The shales are of a hard flint-like consistency, and must be dynamited from pockets. A Marion No. 20 steam shovel is employed to good advantage. One of the accompanying illustrations shows the steam shovel at work. The shale is dropped into bottom dump cars and drawn by cable up to the plant some distance away on a long trestle. Here it is dumped into a large storage shed.

The shale is ground in three dry pans, two of which are the Phillips-McLaren make, while the third is the Hayden. The ground material is elevated to three inclined Richards-Lovejoy Engineering Company screens, from which it is dropped into a large bin of thirty tons capacity.

From the bin the clay is dropped into a Freese pug mill and from thence goes through a Freese brick machine, and



COMPANY'S BRICK PLANT SHOWING GROUP OF KILNS.

onto the Freese automatic cutting table. The green brick are taken from the off-bearing belt and hacked on Cleveland Car Company cars. When the cars are loaded they are pushed into a fourteen-track dryer of 80,000 capacity. Waste heat is used here. A furnace is installed for use in emergencies. This dryer is the old Sharer dryer.

The ware is burned in sixteen kilns, four of which are up-draft rectangular kilns of 500,000 capacity each, and the twelve, round down-draft kilns, being of the thirty-foot diameter type, of 80,000 capacity each. Thus the kiln capacity is 2,960,000. The four rectangular kilns are of the Swift pattern, and have proven to be very satisfactory in their long period of usage. Gas is used as fuel, with the result that rich colors are obtained. One of the illustrations of this article shows the manner in which the kiln is constructed, with the pipe lines to the fire boxes.

The power of the plant is furnished by means of a 250 h. p. Atlas engine, and three 150 h. p. boilers. A 65 h. p. engine is employed for fans and dynamo. Electric lighting is used throughout the plant. An electric pump is used for pumping water from Big Walnut Creek, one-half mile away.

The company owns its own stable, where the horses are cared for in suitable fashion. The men are well housed, the company having erected in the past years a five-room apartment house, two double houses, a fourteen-room boarding house and five dwellings. The superintendent lives in an eight-room residence. The company employs sixty men, all told; four men are used in the shale pit, two men on the shovel and the remainder about the plant proper. A number of negroes and foreigners are employed. Fifteen to twenty shanties are rented out to the colored men.

This plant turns out a fine red building brick, which finds a ready market. The officers of the company are: President and treasurer, C. A. McAllister; vice-president, E. Doddington; secretary, E. R. Graves, and superintendent, F. M. Morrison.

Written for THE CLAY-WORKER.

FACE BRICKMAKERS FILE COMPLAINT.

CHARGING THAT THE freight rate on face and building brick from points in the Central Freight Association's territory to the eastern market has been raised from \$1.25 to \$1.50 a thousand, the officers of the newly organized Ohio Face Brick Manufacturers' Association have filed a formal complaint with the Interstate Commerce Commission, in which seventy railroads are made defendants. The disposition of the case, it is thought, may result in a solution of the trouble at present existing in the freight rates throughout the central territory.

The complaint relates that the railroads make a charge on brick from Chicago to New York on a basis of 22½ cents per thousand. This is called unreasonable and discriminatory, and is alleged to put the complainants at a great disadvantage with the eastern brick manufacturers in marketing their product. It is submitted that a rate of 16 cents would be a just and equitable charge.

Attorneys Henry & Couse have been engaged to represent the face brickmakers in their fight for lower rates. The filing of the petition marks another chapter in the trouble which has been brewing since the Stowe-Fuller Company, of Cleveland, filed a complaint against the general rate of 25 cents. The fire brick was dropped to 22½ cents and the face and paving brick raised to 22½ cents. It is pointed out that fire brick constitutes a very small percentage of the amount of brick transported to eastern markets, and that it is unfair to make the other brickmakers pay a higher rate. It is alleged that it raises the price of paving and face brick fully \$1.50 per thousand.

W. H. Hunt, of Cleveland, is president of the Ohio Face Brick Manufacturers Association and J. R. Charles is secretary. It represents over 50 per cent. of the face brick output of the state.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



THE BUILDING SEASON is now fairly on, and there are few indeed, who feel that they have much room for a "grouch." Frankly considered from every view point, last season had practically no advantage over this. One week the record here for permits issued will drop below that of the corresponding week for last year, but the very next week the record for 1908 shoots far ahead of the same week of 1907, and thus the average week in and week out runs just about the same thus far for the two seasons. There was not much to complain of last season, and unless there is an unexpected change in events and conditions there ought not to be much to complain of this season.

The outlook is decidedly encouraging. Big building enterprises are once more freely discussed, and almost every day announcement is made of some new warehouse or factory or sky-scraper, bids for which are being sought, and work on which is soon to commence. Prices are favorable, labor is willing and active to an unusual degree, a degree in fact which materially lessens the cost of most labor employed on



Rectangular Gas-Fired Kiln at Plant of Columbus Contractors' Supply Company.

structural jobs. Better still the money market is getting progressively easier as the weeks roll by. Money is now fairly easy to get for building mortgages, and rates are going down. A decided weakening has been noted in the past week in the interest rate on loans and five per cent. is becoming rather common. This, of course, is the very best possible stimulus to building activity. "Money makes the mare go," is an old and familiar saying, but it is equally true that the magic wand which makes brick and terra cotta and fire-proofing fly together in a beautiful wall firmly braced by steel and bound in mortar is also chiefly golden.

Almost every department of the building material business is in a more or less satisfied, and certainly in a hopeful and expectant mood. Terra cotta men report conditions promising and the start for the year excellent. Paving brick manufacturers say there is no reason so far as they can see yet, why 1908 will not be one of the best if not the very best year in the history of paving brick. There is going to be lots of brick paving done in and around Chicago this year. The Purington Paving Brick Company report an order for 3,800,000 paving blocks for Blue Island streets as one of their starters. If the mayor can induce his legislative friends in Springfield to come out of their political trance long enough to complete

the work of passing two bills calculated to add about \$15,000.000 to the city's borrowing capability there will be some big improvements in a municipal way here, and more brick-paved streets are likely to be among them.

Reports from the roofing tile men are also encouraging. Demands are being made upon them by architects which tax the ingenuity of the designer and practical tile maker to the utmost limit, and of course this makes for improvement in the line and better business now and in the future. A conservative tile man in this city, who is in touch with every job figured within a radius of several hundred miles, says there have drifted into the Chicago market more requests for estimates on roofing tile thus far in the season alone than there were during the bulk of last year. And last year was a good year for the tile men too.

About the only fellow who feels he has the right to kick much is the common brick man. Common brick prices just now are not up to where experienced men in the trade think that they might be without hurting the builder beyond repair or remedy, due to the common brick war which went on merrily enough for a while between the National and the Illinois brick companies, and brought prices very close to earth after they had been soaring around the \$8 mark for quite a spell, and before the worst of the war was over the knife had been used on

ducts material dealers is easy to be seen. From the very nature of the business the interior finish will have to be in white glazed brick and tile, and a complete heating and freezing plant will be installed. Brick will be used largely in the construction throughout. This is a hurry-up job. Contracts for the buildings have already been let, and the stores are to be ready for their tenants by August 1.

Another tall building in the down town district is assured by the terms of a lease which was filed for record only a few days ago. The lease runs from the L. C. P. Free estate to John R. Thompson and affects the ground at 105 to 109 Madison street. It runs for 99 years and by the terms of the transfer Mr. Thompson is to remove the present antiquated structure and replace it with a modern twelve story which is to be fireproof and to cost not less than \$250,000.

Among the warehouses which are being planned or which are under way is a six story structure which is to be put upon the piece of ground 60 by 151 feet at 117-119 West Washington street, extending back to Waldo Place. The warehouse will be for the use of the Crucible Steel Company, and will cost in the neighborhood of \$100,000.

SCRIP.

Written for THE CLAY-WORKER.

CLEVELAND AND NORTHERN OHIO BRICK AND BUILDING NEWS.



Interior View of Rectangular Gas-Fired Kiln.

prices with an effect that lasted for a long time, and which still, in the opinion of many, is having its effect. An experienced brick man who is now quite independent of interest in common brick is authority for the statement that under the conditions of today common builders cannot be made and put onto the Chicago market at less than \$6 a thousand, and they have been selling recently in the neighborhood of \$5 a thousand.

One of the bigger of the new projects is to be a wholesale fish market, the first of its kind in the city, which is to be constructed along the east side of North Union street, between West Lake and Fulton streets. It will bear the name of the Union Fish Market and will be occupied by the principal wholesale fish dealers of the city. It is the intention to make this one of the finest markets of the kind in the United States and in accomplishing this the expenditure will run close to \$500,000, it is expected. The deal which insures the construction of this market has just been closed by Alex. Friend & Co., brokers who have just negotiated leases from Fraser & Chalmers to A. Booth & Co., the fish commission merchants. The lessees are to put up twelve two-story stores along this block. J. E. Braband is the architect.

The importance of this enterprise to brick and clay pro-



RICE CUTTING HAS BEEN the most noteworthy feature of the past month in the brick industry in Cleveland. There has been a slashing of prices, according to some of the dealers which has been altogether unwarranted. It is feared that if it continues it will demoralize business, for several of the big supply companies promise to join in the game if it continues.

Backward weather, as well as the deplorable condition of the money market continues to retard the building industry. Much of the business being done in Cleveland is coming from outside points, although there are some good orders being secured from local jobs. The volume of public building continues good and considerable stock is being disposed of. The new west side market house job will be let within a short time and a number of Cleveland dealers are figuring on it.

Considerable inquiry is being made for brick for use in residence work and in this respect the situation is more satisfactory than it has yet been this season. Scores of homes are being built this year, despite the general scarcity of money and the disinclination of banks to help out in the matter.

The paving outlook is a good deal better than it has been for several months. In Cleveland a large number of streets are being paved, mostly with brick. During the month bids for the paving of about twenty miles of streets were opened by the Board of Public Service and were found to be somewhat lower than they were a year ago. The bids for the most part were acceptable, and work has commenced. The bids were lower on account of the item of labor, hundreds of men being willing to go right on the job when wanted. On May 1 the city's record had been broken, twenty streets having been finished as against three last year.

The city having passed favorably on a bond election to spend \$750,000 for new sewers, the Board of Public Service secured legislation through the Council to advertise for bids for the work. The bonds will be offered for sale at once. Of the \$725,000 about \$500,000 will be expended on the gigantic intercepting sewer now building in Cleveland.

Several large stores, two churches, a new theater and several good sized apartment houses have developed during the month and contracts have been let on several of them. The most pretentious is probably the new Sterling & Welch

store on Euclid avenue, which is to be five stories high, sixty feet wide and 500 feet deep. The front will be of a light colored terra cotta, the exterior walls of brick and the interior construction of steel and concrete. Contracts have not yet been let, though several concerns in this city are hot on the trail. The building will cost over \$300,000. Excavating has been finished and foundations are being put in.

Foundations have been completed for the new Pope building on Euclid avenue, almost opposite the place where the Sterling & Welch building will stand. Work has been in progress on these for nearly a year. Forty feet of earth has been excavated and the foundation surrounded by a steel cofferdam. A new ten-story building is now in course of erection. It is of steel and concrete with brick and terra cotta face. The entire building will be devoted to mercantile purposes. It has not been announced as yet who will get the fancy brick and terra cotta contracts.

Bids will be opened on May 25 for the new twenty-room Mayflower school. About 80,000 shale brick are specified for use in the structure, which will cost \$110,000. This school will replace an old firetrap which has been torn down, following the Collinwood horror. An effort is to be made to have the building ready for occupancy for the January term next year.

The Masons' Supply Company has secured the order for 100,000 Forest City shale brick for a new apartment building to be erected by William Able on Superior avenue, near East Seventy-ninth street. Plans for the building were prepared by Architect Paul Matzinger. The general contract went to C. N. Griffith & Co.

The Cleveland Builders' Supply Company was given the order for 80,000 shale brick for a new apartment house being erected by E. E. Bauman on Ford Place, N. E. Edward Smith designed the building, which is very modern throughout. It will be four stories, with sixteen suites.

Contrary to expectations, brick has been eliminated as a material for the light courts of the new county court house. Owing to an adverse report of the supervising architects against using brick in a monumental building of granite, at least where it would show, caused the commission to vote against its adoption. Brick had four of seven votes, but as five were needed the commission proceeded to investigate the value of sandstone for the purpose. Carload after carload of Kittanning brick are being delivered on the site for use in the foundations and interior walls. The building is rapidly progressing.

Baldwin Bros. & Graham captured an \$82,000 contract for the paving of the Cleveland-Worsted turnpike. The road to be paved runs from the city limits to York road in Parma Township, and goes through Brooklyn and Parma Townships. This is one of the country roads the county is improving this year.

Considerable criticism and comment has been raised over the falling out of a large concrete panel from an upper story of the Williamson building some days ago. Fortunately the panel dropped on the roof of a neighboring building and no one was injured. Builders are wondering if concrete is going to make a practice of acting this way and whether it can be regarded as a perfectly safe material to use. It is believed that the vibration caused by men erecting a fire escape caused the panel to drop out from the steel framework of the big skyscraper.

A large new \$200,000 brick factory and office building is to be erected for the Cleveland Worsted Mills. The plans include a new six-story brick and steel factory and a one-story office of the same material. The general contract for the work has been let to John Gill & Sons.

Architects Badgley & Nicholas have completed plans for a new brick church for the Mayfield Heights Presbyterian congregation, and the contract has been let to Samuel Vokes & Sons. Shale brick will be used in the structure.

The Deckman & Duty Collinwood Brick Co. has started

deliveries on some big paving brick orders secured at Detroit a month ago. Most of the paving brick used in that city comes from around Cleveland.

The common brick plants are working, but are not finding a great deal of demand for stock. They are stocking up their yards, however, in the hope of an improvement later on.

BUCKEYE.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE BRICK AND terra cotta trade which was slightly depressed has improved during the past two weeks. There is now a very fair demand for face brick and white glaze brick required for finishing the numerous new buildings under construction in this city.

The soft mud brick plants are still shut down in most localities, there being a large carry over of common brick. The demand for fire brick was slack for some time, but is now improving.

The Carnegie Brick and Pottery Company is quite busy at its big plant at Tesla, Cal., on high grade face brick, white enamel brick and terra cotta. This company has a \$60,000 contract for ornamental terra cotta, etc., for the new Santa Rosa court house. A number of large contracts for white enamel brick, which are worth about \$80 per thousand, are being filled for the new eleven-story Phelan building, a Class A steel frame structure faced with terra cotta. This company has already supplied 130,000 white enamel brick, and as many more are yet to be laid in the light wells and court.

For the twelve-story Addison Head building on the southwest corner of Post street and Grant avenue, 75,000 white enamel brick were furnished for the light wells. This fine steel frame building is faced with white terra cotta manufactured in the east.

Nearly all the kilns of the Gladding, McBean & Co.'s pottery at Lincoln, Cal., which were idle because of threatened trouble between the men and the employers, have started up again, a satisfactory adjustment as to the wage scale having been reached. Owing to the depression in building lines in many places where the pottery goods are sold, the company found it necessary to make a reduction of about 5 per cent. in the wages of some of the skilled mechanics. The pottery is now working a full complement of men.

The Los Angeles Paving Brick Company has been organized at Los Angeles, Cal., with a capital stock of \$10,000, and is beginning operations at Montebello, near that city. The plant has a capacity of 60,000 paving blocks per day.

George Mowatt has sold his half interest in the Chewala Brick Yards at Chewala, Wash., to Russ Bros., of the same place. The yard was opened for the season on April 13.

The Board of Supervisors of San Francisco have finally passed an ordinance calling for a bond issue of \$3,000,000 to be spent in reconstructing the city's sewer system. A special election to vote upon the bond issue has been called for May 11th.

On May 16th the voters of Elmhurst, Cal., will vote upon the question of issuing bonds to the amount of \$75,000 for the construction of the sewer system.

Charles A. Bartz, a brick manufacturer and contractor of Tacoma, Wash., says that there is no brick shortage on Puget Sound. He says that by the time the building season is actually under way, there will be plenty of brick to meet the needs of the builders. He says: "I expect to see brick cheaper this year than for a long time. I have leased my yard at Centralia, Wash., to Charles Sturges for five years, but am still in close touch with the manufacturers. The Centralia yard alone can turn out 30,000 brick daily, and, as the freight rate from Centralia to Tacoma is only four cents per

hundred the brick can be laid down here for \$9 a thousand, as compared with \$13 and \$14 a thousand, the prices which ruled a year ago. I would not be surprised if the price went as low as \$7 before the season is over, notwithstanding the fact that general business conditions have started out more briskly than was anticipated."

Driskill & Bachus have opened a brickyard at Vollmer, Idaho.

J. R. Schupham, president of the Pyrmont Brick Company, which is planning to begin operations at Lincoln, Cal., has been at that place arranging the preliminaries of construction. He states that building the new plant will begin not later than June 1st.

Cotton Bros. & Co., of Oakland, Cal., have secured the contract for the construction of the outlet sewer in Grove street, Oakland, on a bid of \$15,880. C. D. Vincent has been awarded the contract for the Webster street sewer, in Oakland, on his bid of \$4,848.

J. F. Miller & Bros., of Bellingham, Wash., began operations for the season on April 25th. The plant is now turning out 25,000 brick per day.

The Astoria Clay Products Company has been organized at Astoria, Ore., to manufacture brick, terra cotta, pottery, drain tile and other clay products. The capital stock of the company is \$15,000. Lew Ogan, formerly of California, is one of the principal movers in the new company. The other directors are: Noris Staples, Dr. W. C. Logan and C. R. Higgins, all of Astoria. The company's plant will be erected at Alderbrook, near Astoria.

Clarks & Prizer are rushing development work on an eight-acre tract of clay deposit near Corona, Cal. A forty-five-foot tunnel has been driven and a number of openings have been made.

W. Ernest Dickson, secretary of the Humboldt Clay Manufacturing Company, announces that the company has secured a lease on the Crow water front property at Eureka, Cal., on which its brickmaking plant will be erected.

The Steiger Terra Cotta and Pottery Works at South San Francisco are running with a fair demand for pressed brick, glaze brick, terra cotta and sewer pipe. This plant is of great capacity, as was proven by the large output during the rebuilding boom of last year. Architectural terra cotta pieces of very elaborate workmanship have been turned out in considerable numbers, as well as the ordinary run of ornamental terra cotta used in the exterior finish of Class A buildings.

The Carquinez Brick and Tile Company's plant at Eckley, Contra Costa County, Cal., is running at its full capacity, and is unable to fill all of the orders for its red shale brick. A contract for 6,000,000 common brick for the Palace Hotel is being filled. These brick have been supplied for the reconstruction of the Chronicle building in San Francisco, and for the new Taft & Pennoyer building in Oakland, Cal. Manager McKay is arranging for enlarging the brick manufacturing plant to double its present capacity, in order to take care of the increased business.

SUNSET.

San Francisco, Cal., May 5, 1908.

BRICK MADE OF MAN'S ASHES BURIED IN GRAVE.

Probably the strangest human burial on record took place recently in the Hebrew cemetery at Woburn, Mass. When Herman Unger, a Pittsburg traveling man, committed suicide in Boston last May he directed that his body should be cremated, the ashes molded into a brick and the brick buried.

For months the brick has lain in an oak box in the office of the cement company that molded it, but at last the Order of Odd Fellows, of which Unger was a member, has obtained a cemetery plot and given it burial.

The brick is inscribed, according to the suicide's direction: "Herman Unger, Died May 3, 1907. Leave Me in Peace."

Written for THE CLAY-WORKER.

ST. LOUIS BRICK NEWS.

HERE SEEMS TO BE a betterment in the brick industry. Nearly all the leading plants are working in order to have stocks on hand when building operations, which have had a setback, owing to the financial stringency, and more recently because of wet weather, begin. When building operations do they may not be up to the average, but there will be enough done to create a pretty fair demand for material and supplies.

The April report of the Building Commissioner shows that building operations amounted to \$2,033,200, against \$2,560,447 for April last year. Of this amount, \$1,793,403 was for new brick structures, against \$2,267,984 last April; \$118,067 brick additions, against \$178,900; \$107,702 new frame structures, against \$97,906, and \$14,026 frame additions against \$15,567.

The body of Calvin M. Christy, who was president of the Christy Fire Clay Company, before it was merged into the Laclede-Christy Clay Products Company, and who died at his winter home in Datona, Fla., last December, where he was spending the winter with his family, was brought to St. Louis recently and buried in the family lot in Bellefontaine Cemetery.

The father of Richard E. Becker, a well to do merchant of Milwaukee, Wis., was here a short time ago, assisting the Police Department in trying to find his son, who had been employed for a year as a clerk by the Evens-Howard Fire Brick Company. The last heard from him was when he telephoned to the office that he was ill and could not work that day. The next day he left his rooming house, leaving his belongings, and since then no trace of him has been found.

The St. Louis Street Commissioner recently made public a statement of street improvement work to be done under contracts let by his department. The work aggregates \$1,500,000. The length of the aggregate improvements are 31.24 miles. All of the contracts for the work have already been arranged for. The class of improvements follows:

	Construction.	Reconstruction.
Asphalt	.76	...
Brick	21.56	3.81
Bitulithic	1.78	...
Granite	2.36	.63
Wood Blocks	...	.34

The reconstruction where wood blocks are to be used is mostly in the downtown district, where cobble stones will be removed from the street crossings and replaced by the smooth pavement.

This shows that nearly two-thirds of the street improvements will be of brick.

Andrew Sproule, vice-president of the Evens & Howard Fire Brick Company, in speaking of business conditions, says: "We are enjoying a good business and it is steadily on the increase. I look for better times all over the country. Within the next six months I believe all lines of trade will be greatly increased and prosperity all over the country will be the result."

Anthony Ittner, president of the Anthony Ittner Brick Company and chairman of the Committee of Industrial Education of the National Association of Manufacturers, has completed his report, and will leave Saturday for New York to attend the convention to be held next week. His report will be a most interesting one.

The Laclede-Christy Clay Products Company report a satisfactory business. They have been making a number of improvements in various departments of their plant and have increased the capacity of the plant.

A SAINT.

Architect A. C. Westover, of Kieth's Theater, Philadelphia, the designer of the new Mozart Theater, Elmira, N. Y., recently visited the latter city to arrange the details for finishing the contract. The foundations of the building are about completed.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



ABOUT NEW YORK CITY business has improved during the past month, but is not yet up to the usual volume at this season. Building conditions are not entirely satisfactory yet, though they have changed for the better since last reports. The market for brick has improved in just that proportion, but sales are not yet what they should be at the opening of the season. The truth is, and there is no use attempting to disguise it, the building trades are not where they ought to be and not where they expected to be at this time. But the fact that they haven't gone to pieces entirely is looked upon as encouraging. It is understood that contracts are pending which will make a material difference with the situation, but there is little likelihood that they will go through in time to help the situation much before the middle of the summer. Conditions in other business are so much worse

section adds to the interest, and will increase the quantity of brick to be used there.

The brick market has improved but slightly in the past month. The quantity of brick left to come into market as soon as navigation opened was so much heavier than usual at this time that the price has been kept down, and, in some instances, has been little more than nominal. Some of the lower grades have sold, it is said, for about what buyers chose to give.

Not much news has come down from up the river so far since last month. Barges, canal boats and schooners have come down in considerable numbers, laden with brick, but the principal point of interest has been the unusual quantity left in the yards. That these supplies are becoming more and more reduced is some gratification, but the quantity held here now is sufficient to create some uneasiness. The yards will reopen shortly, though they haven't begun very extensively as yet.

The use of reinforced concrete doesn't worry brickmakers as much as it did a year ago. It did seem last spring as though concrete might supersede brick in some ways, but



An Excellent Brick Paved Street, Central Avenue, Paris, Ill. Laid in 1903.

than they are in building that the builders feel more or less gratified that they can see as much promise as they do now.

Bids have been opened for additional subways, to cost something like \$15,000,000. Of course, these will require a large quantity of brick, but they will not get to using them for a year or two yet, at the earliest, and sales can not be increased because of them before that time. Still, if the outlook has something as promising as future subways, it will be something to look forward to and make a difference with some manufacturers. These additional public works are such as will have a tendency to make the city grow in certain directions, and that, too, will increase the demand for building material. The effect is, therefore, cumulative and will be important for those manufacturers who benefit by it.

The development of the Hunt's Point section, up the East River, is to be developed this coming summer, and the buildings planned for that sections are likely to include a number of large brick structures. Just how extensive this construction work may be is not wholly decided as yet, but that it will be more than ordinarily heavy seems probable. The fact that one branch of the new subway will run through that

there doesn't appear to be any immediate danger of it as yet. The use of concrete, cement, or whatever else the material may be, doesn't appear likely to make any material difference with the situation. It is, therefore, attracting comparatively little attention. "The indications are," said one large builder, who should know whereof he speaks, "that concrete for anything excepting one-story buildings or the lower part of double-story buildings, will shortly become a thing of the past. It is not slightly material. It doesn't wear well. It doesn't weather well, consequently the qualities wanted for a substantial, neat appearing building are entirely lacking, and some other material will be selected in a majority of instances. The same gentleman pointed out that the scarcity of lumber, which is daily becoming more marked, will have an important bearing upon this situation. The market for brick will improve as the market for lumber becomes more stringent. Under these circumstances, which are so apparent that every one should know them, the outlook for brick is most promising. It is worth while considering these phases of the business, inasmuch as there is some depression now, and the market is not as active as those engaged in the business might wish to see.

BURTON.

Written for THE CLAY-WORKER.

AN OBJECT LESSON IN BRICK PAVEMENTS.

Superiority of Brick Pavements Clearly Demonstrated—True Economy Found in Perfect Construction—Paris, With Eight Miles of Paved Streets, Pays But \$25 for Repairs in Nine Years.

THERE IS NO CITY in the United States that has better paved streets than the City of Paris, Ill., and very few have as good. This thrifty city of 10,000 inhabitants has been enjoying a surcease from the tribulations incident to the repair of streets, which are common to most municipalities, for the past nine years. During this period, the insignificant sum of \$25 only has been expended on repairs of pavements, and this was due to the tearing up of streets for the repairs of sewers, etc.

There is not a foot of any other kind of pavement to be found in Paris, the people being thoroughly awake to the fact of the many advantages of the brick pavement over its competitors. City Engineer W. T. Blackburn is strongly adverse to any paving material other than brick, and declares that the people stand back of him in saying that brick pavements are the most durable, sanitary and economical pavement that can be built.

He says it is not a fact that brick streets are any noisier



Bricks Removed From Pavement.

Shows Adhesiveness of Cement Filler and Excellent Condition of Brick After Nine Years' Use.

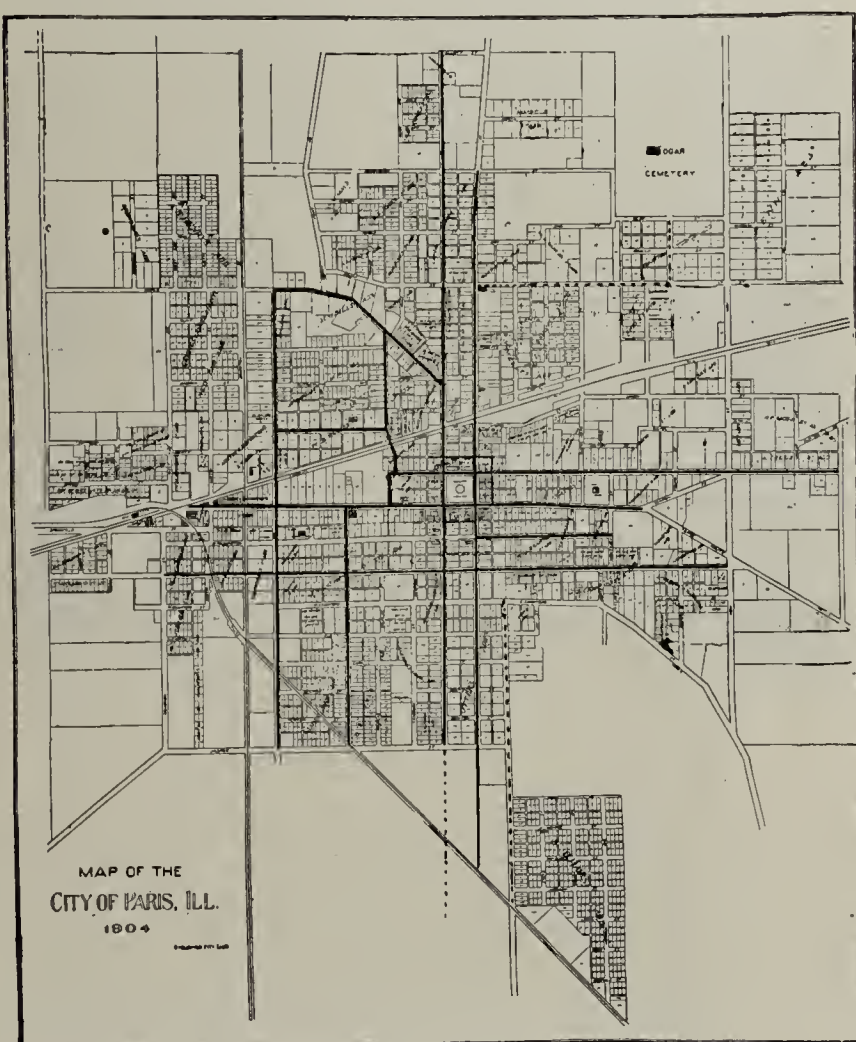
than other pavements when constructed rightly. Where the people make a mistake is in judging some poorly laid brick pavement as being the best that can possibly be constructed of that material. With proper care, right materials, and close observation to every detail in the work by the constructor, a brick pavement can be made as free from noise as any other pavement, and has the added advantage of being far more durable, sanitary and economical. A good brick pavement should last for ages. With proper foundation, cushion, filler, expansion joints and good vitrified brick, a pavement can be laid that will stand the heaviest of traffic, insure a good foothold for horses and be comparatively free from noise.

In the city of Paris this fact is exemplified, that good brick laid on a good two-inch sand cushion spread on a six-inch cement gravel and stone concrete foundation, with the employment of one to one cement filler and a No. 6 pitch expansion joint every seventy-five feet, makes the smoothest, most easily cleaned and most durable pavement possible. Those who visit this little city of Paris, where all the main streets are of brick, will find over eight miles of excellent pavements, some of which have been down for nine years and receiving the heaviest traffic of the city, and you will find them in as good condition as when put down.

City Engineer Blackburn is of the firm conviction that the strength and life of a pavement consists in a large part in the use of a good cement filler. In the construction of the

streets of Paris, he uses the best of Portland cement, in the proportion of one to one for the filler. Recently he had occasion to remove a small section of pavement for the correction of a defect in a sewer. It was with great difficulty that he was able to remove the brick, the cement having formed a bond that would allow the brick to be removed only after some had been badly shattered. A solid section about two feet square was removed, which showed the wonderful strength and life of the pavement. This part of the street had been down nine years, and there was no perceptible wear on the surface, the brick being practically the same size as when first laid. The brick from which one of the pictures illustrating this article was taken, were separated from the mass only by demolishing the surrounding brick. The illustration shows the fine condition of the brick and the adhesiveness of the cement filler. The brick and filler are worn uniformly to a smooth surface.

The brick are laid according to the National Brick Manufacturers' Association's fixed specifications, and every detail



Map of Paris, Ill.

Black Lines Indicate Brick Paved Streets—Dotted Lines Indicate Pavements to Be Laid This Year.

is watched with greatest care. Were the authorities of other municipalities to give their time and energy to the perfecting of their pavements, by closely observing the rules and regulations made by an association which has had long experience in the promoting of good brick streets, and know what really constitutes the best construction, better results would be the rule. Those municipal authorities who desire specific specifications for the construction of a good, lasting, economical brick pavement will receive same by corresponding with the secretary of the National Paving Brick Manufacturers' Association, Mr. W. P. Blair, whose offices are in Indianapolis.

The paving of the streets of Paris demonstrates that it is not the make of the brick alone that makes the pavement a success, but, instead, that the construction is the important thing. Good brick are necessary, of course, and the Paris authorities have proven there are scores of manufacturing factories of a high grade paving brick or block in this section.

In Paris, there is no favorite brick; nearly every firm in western Indiana and eastern Illinois has furnished brick for the splendid pavements of that city. Mr. Blackburn says the brick of this locality are all of fine quality, and more than stand the tests required by the N. B. M. A. specifications.

About the year 1900 the first brick pavement was laid in Paris. In that year, 9,444.80 square yards were put down, costing \$14,766.73, of which the city paid one-third. The next year showed an increase in paving, 10,898.60 square yards being laid. In 1902 this total was nearly doubled, 27,869.80 square yards being added to the list of paved streets. In 1903, 18,339.00 square yards were laid, while in 1904, the yardage was 16,851.26. Last year over 35,000 square yards were laid, costing less than \$1.82 per yard. Over two miles of brick pavement will be put down this year, which will make the total amount of brick paved streets in Paris of nearly eleven miles. Of the present eight miles and 3,048 feet of pavements, the city paid \$75,646.93, the remainder was as-



A Square of Fine Paving Being Laid on Chestnut Street.

sessed against adjacent property. The method of bonding the city is unique, the bonds being issued every year, thus giving the city better credit than were the city to be completely bonded for ten or twenty years. The contractors receive payment immediately after the work is completed. No guarantees are needed, as the pavements must be laid according to certain specifications, and operations are closely watched by City Engineer Blackburn, thus doing away with any need of a guarantee. The accompanying table shows yearly totals of paving, with cost.

Year.	Sq. Yards.	Total Cost.	Paid by City.
1900	9,444.80	\$14,766.63	\$4,922.24
1901	10,898.60	20,627.00	6,396.78
1902	27,869.80	47,392.09	15,092.13
1903	18,339.00	31,382.02	9,298.86
1904	16,851.26	31,714.02	9,775.78
1905	11,055.33	19,362.14	5,148.41
1906	13,837.80	25,064.42	6,879.70
1907	35,725.00	65,167.09	18,132.99
Total	144,021.59	\$225,480.51	\$75,646.93

J. E. R.

CLAY PRODUCTS FOR FIREPROOF CONSTRUCTION BEST.

When it comes to fireproof construction, and that is what it is coming to right along in the building world, clay products stand out distinctly above all would-be competitors. This is a fact that shows up more prominently from day to day, as severe tests are made under various conditions.

Written for THE CLAY-WORKER.

PAVING BRICK MANUFACTURERS BEFORE INTERSTATE COMMERCE COMMISSION.

AN EFFORT TO GIVE a jolt to the Interstate Commerce Commission's decision that "a brick is a brick," was made at Cleveland on May 4, 5 and 6, when preliminary hearings were held on the complaint of the National Paving Brick Association against the increase on paving brick, effective the first of this year. Much interesting information was brought out and considerable attention paid to the entire question of railroad rates, as applied to the transportation of the different kinds of brick.

The complaint and hearing were the sequel of the raising of the rates on paving and face brick to 22½ cents from Chicago to New York, on which are based all the rates in the Central Freight Association territory. It arose over the railroads' method of construing the decision of the commission relative to the Stowe-Fuller Company's complaint regarding fire brick. The latter was lowered and the paving and building brick rates raised, the general rate of 22½ cents being fixed.

If the commission finds in favor of the paving brick-makers it must reverse itself on the previous decision. In any event, the outcome of the investigation will be watched with interest.

Many paving brick manufacturers attended the sessions at Cleveland, to which were called representatives of a number of the railroads engaged in hauling brick.

One fact the attorneys for the railroads endeavored to



A View of East Wood Street, Paris, Ill.

bring out the first day was, that paving brick are used frequently in the building of churches, stores and residences. Secretary W. P. Blair, of the paving brick association, of Terre Haute, Ind., who has offices in Indianapolis, was asked if there were any reasons why paving brick could not be used for such structures. He said there were no reasons. In describing the difference between paving and building brick, he said that any one at all familiar with brick could tell in an instant the difference. He also declared that every railroad agent knew what kind of brick was being shipped over his line.

John F. Lent, of Pittsburg, traffic manager of the paving brick association, went into the history of paving brick rates for the past ten or twelve years, and showed that there were but comparatively few consignees and that the brick must be hauled long distances.

Mr. J. G. Barber, Assistant Secretary of the Metropolitan Paving Brick Company, of Canton, said that his concern last

year shipped 472,000,000 brick to 200 consignees. He said the brick business has been able to compete favorably under the 20-cent rate with asphalt and other paving materials. He said that the profit on brick selling for \$7.50 per 1,000 was less than \$2.

The second day's hearing developed the opinion from the railroad men themselves that brick rates generally should be changed and the hint dropped that perhaps an effort would be made to do this some time in the future. R. C. Wright, General Freight Agent of the Pennsylvania Railroad suggested that different kinds of brick be charged different rates. He said he would take into consideration the use and cost of each class and fix the rate accordingly. In response to a question Wright admitted that the increase on some kinds of brick had been made because the railroads needed the money. He said the roads thought brick could stand the increase better than

THE CEMENT PRODUCTION IN 1907.

An advance bulletin, issued by the U. S. Geological Survey gives the total production of all kinds of cement as 52,230,342 barrels in 1907, valued at \$55,903,851. The total production in 1906 was 51,000,445 barrels, valued at \$55,302,277. This shows an increase for 1907 of 1,229,897 barrels, and an increase in value of \$601,574.

These figures show that cement during 1907 didn't sell at quite as high a price as in 1906, also that the production, while it exceeded that of 1906, was a very slight increase as compared to the increase shown during the various other years through the past decade. There has been an annual increase of approximately 10,000,000 barrels in that time, but seemingly what might be termed the high water point has been reached and the production of cement has become



West Madison Street, Paris, Ill. A Street That Will Last for Ages.

some other commodities. Wright declared that it cost 20 per cent. more now to equip and operate a train than it did six years ago.

James P. Orr, another Pennsylvania freight agent, was examined closely on the increases in freight rates on various materials. Orr produced figures showing a falling off in business this year, and said that the railroads had contemplated boosting their freight rates anyway. He contended that materials have raised from 15 to 25 per cent. in 6 years, and that the cost of labor has also increased 20 per cent.

Brick men from many points in Ohio were present to watch the work of the examiners and take points on the evidence submitted. The preliminary evidence will be submitted to the members of the interstate commission.

large enough, as compared to consumption, that prices have suffered in consequence, and unless the consumption materially increases, which it is not likely to do this year, the cement trade is up against a pretty stiff proposition. It is easy to understand from the figures on the cement production, why the cement manufacturers lend aid to every movement that gives promise of encouraging the more extensive use of cement. They need a wider market or else there will have to be a letup on the cement producing capacity, or some one will have to go out of the business. Quite a lot of the increase in production has taken the place of imported cement, and, while there is still some cement imported, there is not so much as there was, and there is, probably, on the other hand, enough exported to practically balance it.



Transparent Porcelain Glaze.—A good transparent porcelain glaze which matures at Cone 11 can be made as follows:

Broken Porcelain Biscuit.....	45 parts
Whiting or Marble Dust.....	25 parts
Feldspar	15 parts
Flint	15 parts

—Keramische Rundschau No. 9, 1908.

White Brick Manufacturing.—The best clay for the manufacturing of a good white brick is a calarius one. Such clays are usually plastic and can be handled easily. Quite often such clays contain 44 per cent carbonic acid, and the brick matures at a temperature of about 900 degrees. In case a white plastic clay is used the temperature will be about 1,350 degrees before the brick will show signs of fusion. At that time the brick are fully vitrified and will stand any kind of weather.—Il Cemento No. 2, 1908.

International Clayworkers' Congress.—The plan to have an international clayworkers' congress in connection with the international exposition of the clay, cement and lime industries has been abandoned, according to a resolution passed recently at the annual meeting of the German Association of Clay, Cement and Lime Manufacturers. The exposition will be held in 1910. However, it was voted to invite all organizations of the world to take part in the exposition and visit same in duly appointed representative bodies.—Keramische Rundschau No. 8, 1908.

French Freight Rates on Kaolin.—Quite a great deal of French kaolin is exported to Germany, England and Spain. In order to increase the exportation to Spain, the French railroad officials have under consideration the reduction of the freight rates, which, when successful, will also be applied to other sections of the republic. The proposed rates will apply to shipment of 10,000 pounds and over. The rate is calculated according to the distance the kaolin is to be shipped. For the first twenty-five kilometers (15.5 miles) eight centimes (\$0.016), for every kilometer in addition to fifty kilometers (31 miles) four centimes (\$0.008), for every further kilometer till 100 kilometers (62 miles) two centimes (\$0.004). Further till 800 kilometers (500 miles) one-fourth centimes (\$0.0005) and for every kilometer beyond 800 kilometers gain two centimes. These rates apply for shipments per 2,000 pounds.—Tonind. Z. No. 18, 1908.

The Burning of Porcelain.—The method of burning porcelain in a down-draft kiln, with three stories, containing 2,300 cubic feet, is described as follows: The kiln has eight fire holes, which have a grate surface of 3x2 feet. At the proper start of the firing, the eight fire holes are giving about 100 pounds of coal each. It takes about one hour between firing, and the coal should be burned nearly complete in order to give the best results. From the very start until the vitrification of the body it should be burned nearly always with reducing atmosphere. The white color of porcelain bears very close relation to the reducing atmosphere. It has been found that a yellow cast in porcelain will always be observed in case the firing was done with oxidizing atmosphere, even if the reducing period was started with cone 010. After the first firing every fire box is charged with about 150 pounds of coal and fired at regular intervals, so that after the kiln

has been under fire for ten hours Seger Cone 010 should be melted down. In the first part of the burning lignite coal can be used. After the fire has reached the above stage regular bituminous coal should only be used. The stage of full fire starts now, and the fire should not be allowed to burn entirely down. About fifty pounds of coal should be given to each fire box at proper intervals until cone nine temperature is reached. After cone nine, all danger in regard to the yellow cast of the body is over, and the firing can take place with oxidizing atmosphere. The total duration of the firing is thirty hours, divided into two periods, the slow firing of thirteen hours, and seventeen hours full firing. The coal consumption was seven tons of lignite, and eight tons of bituminous coal for the total burn.—Tonind. Z. No. 153, 1907.

Flower Pot Manufacturers.—A new organization has been formed in Germany which is known as the German Association of Flower Pot Manufacturers. Its first annual meeting was held in February in Berlin, and was very well attended. It is the intention of the organization to bring the flower pot manufacturers closer together in order to maintain prices, and also to obtain proper protection in regard to duties, freight rates and other points of mutual interest. No technical papers were read at this meeting, but as the association is closely affiliated with the national organization of clay manufacturers, the future appears to be very bright for this branch of the clayworking industry.—Keramische Rundschau No. 10, 1908.

The Lippe Brickmakers.—Regarding the brickmakers from the little duchy of Lippe, who every year to the number of 1,700 to 2,000 leave their country to work on the different brickyards throughout Europe in the summer time, we find the following additional data. These people work on contract, and are usually divided in groups, which are made up of a foreman, burner, pressman, setter and laborers. The foreman makes the contracts with the yard owner on a certain price per 1,000 brick. The foreman pays his men by the day labor scale and the amount of the difference is later on equally divided. There is now a movement on foot to do away with this system, as it is detrimental to the individual laborers. As a rule, the Lippe brickmakers are hard workers, working from twelve to fourteen hours per day, in order to make as much money as possible in the short time they work. They usually start to work in April and finish up in October. In order to test the new method of employing these people, a large brickmaker at Werder-on-the-Havel has employed this year his men on the individual contract system, and works only eleven hours per day. This experiment is being watched with great interest by all brickmakers and yard laborers.—Tonwaren Fabrikant No. 6, 1908.

Historical Mortar and Brick.—In order to make room for new improvements, there was recently taken down, in Berlin, the old French Orphans Home, which was built by King Frederick William I, between 1720 and 1725. The Technical Laboratory for the clayworking industry in Berlin has obtained some of the old brick and also some of the mortar used in building this home. The brick used at that time were the ordinary backing-up brick as used today. They were manufactured from calcareous material, and very soft burnt. The porosity of the brick is very great. The determination was made by inserting ten brick in water and determining the increase in weight by the absorption. It was found that these brick on an average absorbed 30 per cent. of their dry weight. The crushing tests of ten brick gave an average value of 92.6 kilo per square centimeter (1,317 pounds per square inch), which is rather low. While these brick do not come up to the present standard specifications for official buildings, being too porous and rather weak, they have stood the tests of the weather for nearly 200 years and fulfilled the purpose for which they were used. The mortar was sub-

jected to analysis and found to be equal to the ordinary lime mortar of today.—Tonind. Z. No. 14, 1908.

German Insulator Patent.—In the manufacturing of high potential insulators, it has been found very difficult to combine the different parts which are manufactured separately in green state. Some manufacturers use a glaze to fuse the parts together in order to obtain the desired results. The porcelain manufactory of Hentschel & Mueller, in Meuselwitz, has obtained a German patent, No. 193,408, in which the technical composition of different pottery bodies plays an important part. Porcelain will shrink quite considerable, and different mixtures have different shrinkage. In order to make the different parts of these large insulators, such as used for high potential work, stick together, this patent applies to the shrinkage of two or three porcelain mixtures. The outside and top part will have greater shrinkage than the inside or under part, and in that way the two parts will adhere tightly together after being burned.

Casting Process of Fire Clay Bodies.—Dr. Emil Weber read a paper before the annual meeting of the Austrian Clay-workers' Association in regard to the casting of fire clay bodies. The addition of alkalies to a clay slip will materially help to make the body fluid. It will take less water, however, without the addition of the alkalies. It also has been found that grog will stay in suspension better in fluid bodies which were treated with soda than in bodies which were only made in slip state by the mere addition of water. Weber applied this system to the manufacturing of gas retort and glass pots, utilizing the benefit of this suspension of the burned grog materials. The results have been very gratifying. It is without doubt that retorts thus made have been found better than hand made ones. The process could also be used to a large extent in the manufacturing of terra cotta, but has not as yet been tried.—Baukeramik No. 7, 1908.

Matt Glaze at Cone Two Temperature.—After many experiments in order to arrive at some conclusion regarding crystal glazes, the following mixtures for matt glazes proved to be all right. They were burnt at a temperature of cone two. The body was a mixture of 37.14 per cent. clay substance, 50.28 per cent flint, and 12.58 per cent. feldspar, burnt to cone 10 and will be slightly absorbant.

The glaze has the formula of

0.2 K ₂ O	
0.2 Na ₂ O	1.7 SiO ₂ , 0.3 TiO ₂ , 1 B ₂ O ₃
0.6 ZnO	
Salpetre	40.46 parts
Borax	76.46 parts
Oxide of Zinc.....	48.84 parts
Flint	102.68 parts
Rutil	24.03 parts
Boracic acid.....	74.40 parts

This glaze will turn a yellow matt. In order to get different colors add for a silver gray color on every 100 parts of glaze 0.5 of oxide of cobalt. For matt green one part of oxide of copper to every 100 parts of glaze, and for matt brown on every 100 parts of glaze add 0.3 of oxide of chrome.—Keramische Rundschau No. 51, 1907.

The Ceramic Industry of France.—In a very interesting article, Mr. F. Graham, honorable secretary of the American Chamber of Commerce in Paris, reviews the present situation of the ceramic industry in France. According to the last statistics, the French porcelain industry employs nearly 15,000 people. In 1896 the exportation was 5,770,910 francs for white porcelain and 4,829,493 francs for decorated porcelain. In 1906 the exportation of white porcelain increased to 7,512,000 francs, while it reached its extreme height in 1904, with 7,826,000 francs. The faience industry is also in very prosperous condition. The total employees in this branch was 12,450 persons. There were two potteries in this line, which have been manufacturing for over a century and a half. The pottery at Luneville was founded in 1729, while the one at St. Clement was started in 1756. The exportation in 1906

in this class of ware was 4,348,000 francs, while the importations in the same year were only 132,000 francs. The manufacturing of fine art pottery attained quite a height, and was, in 1906, 1,585,000 francs.—Moniteur de la Ceramique No. 5, 1908.

Written for THE CLAY-WORKER.

THROUGH NEW ENGLAND.

NEWS FROM New England, as a whole, has not varied much during the month. Without naming specific instances, it is, perhaps, sufficient to say that the outlook is somewhat influenced by general business conditions, which have not been the best for the past six or eight months. That improvement is coming with warm weather is certain. That so far as the southern portion of the section is concerned, the improvement has already begun is equally certain, but it is useless to attempt to disguise the fact that there is plenty of opportunity to make further improvements without bothering about the extraordinary development which characterized the business for years. None of the states will enjoy the development which they have enjoyed heretofore, but all will do something. It is apparent that the boom which was a part of New England life for a number of years is over for the present, and that trade will be limited to probably ordinary consumption.

The Boston market is uncertain. Demand has improved, but the supply of brick on hand is so heavy, as compared with previous years at the opening, that sales have not brought up the price any as yet. Perhaps as the season settles and trade improves the quotation will advance, but for the present it looks much like a relatively low price for substantially everything offered. The building contracts which take any considerably liberal quantities are few, and sales are governed accordingly. Business will feel the impulse of improvement almost immediately, and sales which mean the transfer of any quantity will force up prices accordingly. This much is conceded by the most pessimistic, but it isn't quite so easy to obtain accurate information as to when this improvement is to begin.

Concrete will cut some figure in construction work this season, but not nearly so much as seemed likely earlier. Last year it looked like an epidemic of concrete. Now, little is heard of it. Failures of concrete buildings, the ugly appearance of those which hold together long enough to be finished, and the general unsuitability of the material for any important or dignified building have all helped to put the stuff out of business. Most builders will not be sorry to see the stuff go, and there are a good many who will be glad if it does go. Concrete doesn't suit the ideas of the average New England builder. It looks too cheap and conveys the impression that it is going to fall down at the least provocation.

The New Hampshire brickyards, which depend largely upon Boston for their patronage, are busy getting ready for the summer campaign, but they have not yet advanced far enough to make any material change in their situation. They are working slowly, in numerous instances, with a reduced force, as compared with previous years, and they do not act as though they intended to put any considerable quantities on the market until the present supply is consumed. If, therefore, New Hampshire seems dull at present, it is because of uncertainty, not because there has been a change in the general ideas of brickmaking. It is recognized that brick and other clay products will combine to the most important building material, and the market will improve rather than otherwise. New Hampshire forests, which have supplied immense quantities of timber for construction purposes for many years, are virtually exhausted, and the coming structural material for the ordinary builder will, of necessity, have to be brick. The effect upon the industry will be readily understood from that and sales will no doubt improve in the future proportionately.

HIRAM.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE TWIN CITIES AND THE NORTH-WEST.



HERE HAS NOT been much change in the building situation in Minneapolis and St. Paul and throughout the northwest during the past month. Summed up in a few words, the situation may be said to be one of excellent prospects and promise, but with very little yet being done in actual construction work, except on residences and other smaller buildings. Those people who have been planning to erect large structures continue to feel too uncertain about the general business and financial conditions to start actively at work, and the result is that things are quite dull for this time of the year, but with promise of great activity later in the season. The somewhat reduced cost of building materials has caused the work to hold up better than it otherwise would have done, and it is believed that at the present time there are more residences being built in the Twin Cities than at the same time last year. It is also considerably of an incentive to those contemplating the erection of more pretentious structures, and as soon as it is settled that no further financial fears need be entertained, it is thought that there will be a heavy rush to get started on the new work. The fact that this is the year of a presidential election has unsettled things to a considerable extent, and capitalists are nervous about starting building on this account also. The general business outlook, however, is not bad, and the excellent weather which has prevailed, having permitted the farmers to do their spring work quickly and properly, has done much to restore the general confidence. It is not thought likely, however, that the record of last year can be equaled.

The labor situation has also caused some uneasiness and has increased the unwillingness to start work on large buildings. Owing to the general conditions, it became necessary to reduce wages in many cases and to refuse to advance them in others. This occasioned much discontent, and for a time it looked as though there would be a general building strike in the Twin Cities. It was thought by many of the master builders that the present time was an excellent one to come out flat-footed for the open shop, and in a number of trades this has been done. Generally, however, such radical action has not been taken, though there is a general tendency among individual contractors to hire whom they please and in the open market. It is altogether likely that this action will be followed by others in the very near future. The Twin Cities have never been very strong union towns and there is a growing sentiment among the general public in favor of the employers, caused largely by the unreasonable demands of labor. Most of the other branches of labor have accepted the slight reductions which have been made, and even the establishment of the "open shop" has not met with the opposition which might have been expected.

While there are a number of good sized buildings projected in St. Paul and Minneapolis for this season, the greatest amount of preliminary talk is centered on the erection of a large hotel for the latter city, an improvement long and imperatively needed. There are several plans at present being considered and it is altogether probable that at least one of them will materialize before long. The first of these to reach the possible stage was the plan formulated by J. E. Rogers, proprietor of the Rogers Hotel. Mr. Rogers has already had a preliminary sketch made by a firm of leading architects here, which calls for a thoroughly modern ten-story building at the corner of Nicollet avenue and Fourth street, and an option has been secured for the site. The land will cost about \$500,000 and the building proposed about the same amount. Another plan is for the erection of an eight or ten-story building on the half block bounded by Fifth street, Sixth street and First avenue, South, by L. M. Stewart, one of the leading capitalists of the city and the present owner

of that site. Sketches have also been made for such a building, and, like the former, calls for a modern, fireproof structure, which, with their pressed brick and ornamental terracotta exteriors, would make very ornate additions to the business district of the city. The second plan calls for a million dollar building, twelve stories high, and Geo. Hyser, of the Hyser Hotel, would be in charge.

Work has also been resumed upon the two Catholic cathedrals at St. Paul and Minneapolis, and will furnish employment to a large number of men. In the St. Paul structure, it is expected that some of the steel beams can be installed this season. In Minneapolis, Pike & Cook are the contractors, and the foundation is being rushed to completion. The corner stone will be laid about the first of June. E. L. Masqueray, of St. Paul and New York, is the architect for both buildings. Work will also be started very shortly on the new church building for St. Mark's Episcopal Church, which will be one of the largest houses of worship in the city.

A number of new additions are also planned for several St. Paul schools, bonds for \$75,000 having been issued for four-room additions to four of them. This is in addition to the extensive high school plans for that city. Other buildings of an educational nature will be a \$60,000 dormitory for St. Thomas College, E. L. Masqueray having been delegated to prepare plans.

Minneapolis building permits for March numbered 435, aggregating \$412,400, as against 363 permits last year for \$684,735. In St. Paul there were 209 permits issued this year, as against 198 in 1907, the cost also decreasing from \$711,364 to \$370,890.

As was reported last month, the Red Wing Sewer Pipe Company will start a new plant near Minneapolis. Since then, it is announced that the village of Hopkins, or West Minneapolis, has been selected as the location, and thirty acres of land have been secured for the purpose. The plant will be the largest in the country and will manufacture sewer pipe exclusively. The clay at Red Wing used for this purpose covers a fine pottery clay, and the amount of sewer pipe that could be manufactured profitably was limited by the demand for the output of the pottery works. The new plant will do away with this difficulty, which has been a serious handicap to the company in extending its business.

The Minneapolis Builders' and Traders' Exchange has voted to change its name to the Minneapolis Builders' Exchange. At the present time the organization is moving into its new quarters in the Warner building on Sixth street, near Hennepin avenue.

Work is progressing on the new enamel brick plant at Oskaloosa, Iowa, and they are already taking orders for their product.

A new brick plant is being constructed at Sheffield, Iowa, at a cost of about \$50,000.

Another brick and tile plant is being talked of at Mason City, Iowa, some Ohio promoters being back of the proposition.

The Albert Lea (Minn.) Brick and Tile Company has nearly doubled the capacity of its plant.

A. J. Carl and others have incorporated the Porcelain Enameling Association, at Sheboygan Falls, Wis. The company is capitalized at \$150,000.

The Commercial Club of Moose Lake, Minn., is endeavoring to secure a brickyard at that village.

There is some talk of establishing a brickyard at Airlie, Minn., by local parties.

U. S. G. Williams is planning to start a brick and tile plant at Mt. Pleasant, Iowa.

The Richardton (N. D.) Clay Product Company has been organized, with L. H. Bussen as president and C. S. Bowser as manager. Capital, \$25,000.

The Heron Lake (Minn.) Brick and Tile Company has made numerous improvements and enlargements to its plant, greatly increasing its capacity.

The Missoula (Mont.) Brick and Tile Company has recently incorporated. Capital, \$10,000. W. F. Carey heads the list of incorporators.

The North Iowa Brick and Tile Company, of Mason City, Iowa, has installed some new kilns, greatly increasing the capacity of the plant.

T. WIN.



A FEW EXAMPLES OF THE BENEFITS OF TILE DRAINAGE.

(From Bulletin No. 138 of the Wisconsin Experiment Station we extract a few instances of the benefits of tile drainage.)

On Marsh Areas.

DR. CARL FOLL, of Deerfield, Wis., had about fifteen acres of marsh land, 70 per cent. of which was useless. Cattle often got mired in an attempt to cross it. The soil consists of black muck and peat to a depth varying from five to ten feet, underlaid by a gravelly subsoil. After laying the tile in 1901, the first crop planted was corn, which was injured by the spring frost, but finally ripened well. The corn when husked from the entire field averaged seventy-five bushels per acre. The first crop was sufficient to pay for the tiling, while the improvement was a clear profit. On the following year the yield of green fodder was seventeen tons per acre, and the field was seeded to timothy and red top, which yielded, in 1905, three tons of hay per acre.

Mr. Zabel, a neighbor of Mr. Foll, has tile-drained about twenty acres. On about half of this, the yield has been increased about 100 per cent., but on the remainder the benefit can not be put at more than 50 per cent., on account of a faulty outlet, and the fact that the tile are a size too small, and do not remove the water quick enough to prevent injury to the crop.

Other farms were visited—at total of 500 acres of tiled land was investigated, on 80 per cent. of which the money invested yielded 50 per cent. of itself in increased crops each year. The foregoing examples have had a wide influence. In the localities named, other farmers and land owners have become interested in tile drainage, so much so, that for many miles around there are few farms that do not have more or less tile laid, some of them aggregating four or five miles.

Fifteen years ago, the writer attended a number of Farmers' Institutes in the State of Wisconsin and talked about farm drainage. At that time only a few had heard of the benefits of under-drainage; in fact, there were many who thought that we overestimated the profits to be derived from this important improvement of soil conditions. Today the state is fully alive to the need of doing much more than has been done.

In the bulletin before referred to, it is estimated from statistical reports that there are 132,191 acres of land in 129 townships reported, which are practically worthless for agricultural purposes because of the lack of drainage. That there are 1,500,000 acres in the entire state of this class of land. Then there are at least 1,000,000 acres of marshy land which are only partially productive on account of too much surface water to allow proper cultivation. In addition to this, there are at least 2,000,000 acres of upland clay soil, which will require under-drainage to allow it to produce maximum crops.

The bulletin then remarks: "We believe that the thorough drainage of this four and a half million acres would increase its value \$100,000,000. That which is true of the State of Wisconsin is true also more or less of other states where much has been done in the way of drainage."

It would be a surprise to many in this state (Indiana) to know how many thousands, yes, a million or more of acres that are practically worthless for farming purposes on account of the need of drainage, and the millions of acres that do not and can not produce maximum crops without sufficient under-drainage. Besides, think of the increased value that would be added to the land for agricultural uses.

In addition to the foregoing examples as to the benefits

of drainage accruing to those who have done something in the tile drainage of their lands, the writer will add one more example that has come under his own observation:

About 40 years ago, Mr. S. J. Woolley, of Hilliard, Ohio, purchased, to use his own words, 600 acres of swamp land in Franklin County, Ohio, three miles south of Hilliard. He says: "I commenced at once a system of drainage, which I continued, using drain tile, as I had money to spare, always laying the tile myself, making sure that every tile was laid exactly right. There are fifteen miles of tile on my farm. The low, wet, swaley land has been drained at a depth of from three to six feet, and the higher land at a depth of three to four feet. The drains have been laid from four to six rods apart." He further says: "On the black wet swaley land, it has paid many fold, while on the higher clay land, my most sanguine expectations have been more than realized." This system of drainage has been in operation for 35 or 40 years; and is in splendid working order today. The actual cost of thoroughly tile-draining this land was approximately \$12 per acre, (Mr. Woolley manufactured his own drain tile, besides he made tile for his neighbors), which enabled him to lessen the cost of draining his own land.

It is reasonably probable that the investment has paid him an annual profit of 25 per cent., which, if true, aggregates over \$60,000. To this add the increased value of the land, which we estimate to have at this time a cash value of \$100 per acre. The first cost, as we remember, being less than \$10 per acre, the entire gain, less the taxes and interest on the purchase money, aggregates a large sum of money as a result of his efforts in the drainage of land that otherwise was unfit for agricultural purposes.

The fact remains that there are thousands of examples where like results, smaller or larger, have resulted from like efforts. It may be added that there are thousands of acres of wet or swamp lands that need to be reclaimed and brought into use for agricultural purposes where the per cent. of profit would be very gratifying in a financial sense, to say nothing of the increased value of the state's wealth.

The Government is expending millions of money for irrigation to make available the arid lands of the great west, where the conditions are not the most promising, to say the least. Why not turn some capital to the reclamation of our swamp lands and rich areas of valley lands that need only to be drained to insure a bountiful harvest in the years to come, without any possibility of trouble from alkali or want of water supply?

TILE DRAINAGE.

It is not apparent to many farmers that in the tile drainage of clay land that the crop yield will be increased from 20 to 60 per cent., which would be a net profit on the cost of drainage, without any increase in the cost of cultivating the crop; in fact, the cultivation is more easily done; the land is made more open by drainage and may be broke and pulverized and made ready for planting or seeding with much less labor of man and team.

Benefits of Drainage.

Considered in detail, the benefits of drainage are as follows:

- (a) Allows cultivation of land otherwise not available for farming.
- (b) Allows earlier working in spring.
- (c) Allows the soil to warm up more rapidly in the spring, thus increasing the length of the season and lessening the danger of frost.
- (d) Produces good ventilation and tilth in the soil.
- (e) Increases the amount of water available to crops.
- (f) Aids nitrification, retards denitrification.
- (g) Lessens surface washing.
- (h) Allows fields to be made uniform in outline and hence worked to better advantage.—Bulletin 138, Wisconsin Experiment Station.

Distance Between Lateral Drains.

In close, retentive soils and subsoils, laying the tile at a depth of three and one-half or four feet deep, fifty or sixty feet is not too great a distance apart for the lateral drains.

If the soil or subsoil contains a considerable portion of sand, one hundred feet is not too great an interval between the lateral drains.

In case the soil is open and the lateral drains are placed wide apart, the size of the tile needs to be larger, so as to carry the water away as rapidly as it reaches the tile.

The deeper the tile are laid the wider the area from which the surplus water will be drawn, and the wider apart the laterals may be placed, other conditions being the same.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Brick Plant Wanted in Oklahoma.

Publishers THE CLAY-WORKER.

Can you put me in correspondnce with men interested in the establishment of clay products plants? We have in Oklahoma a large amount of various kinds of clay and cheap fuel, including coal, oil and gas. Practically all the clay products we use, however, are shipped into the state. The demand will increase constantly. Capital is not difficult to secure, providing we can get hold of the men who understand running the business.

Very truly,

CHAS. N. GOULD,

Norman, Okla.

State University of Oklahoma.

A Busy Philadelphia Firm.

Editor THE CLAY-WORKER:

We write to give a little information regarding our business. We are quite busy at present and will be for the next five months. We are at present supplying about 1,000,000 hard brick to the public school at Feltonville, and about 900,000 hard brick to the public school at Montgomery avenue and Wildey street. We have just completed a large addition to the Hutchinson Bakery at Tenth and Sedgely avenue.

Our house work is also good at present; we are furnishing twenty houses in Feltonville, twelve at 12th and Fischer's Lane and a number of houses in single lots. We have installed a new Martin machine this spring, and are making the best brick we have made for years.

Philadelphia, April 27, 1908. F. SEITTER'S SONS.

Will Change From the Soft Mud to the Stiff Mud Process.

Editor THE CLAY-WORKER:

We are expecting to put in a stiff mud and tile plant this summer and are at a loss to know what make and size machinery to use. We want to have our clay tested and know what machinery to use that will work our clay satisfactorily. We also want to erect a dry kiln, and would like suggestions as to kind of kiln giving best satisfaction at a reasonable cost. Please give your price for testing clay, how much it will take for a test of each, the clay and the soil, and I will send clay prepaid at an early date. We are at present making soft mud brick and want to change to stiff mud and tile, and will appreciate any information you will give us on this subject of making stiff mud brick and tile (underdrainage tile), and the kind and erection of a dry kiln.

CASTLE & STEPHENS.

Fairfield, Ill., April 16, 1908.

A Good Paper for Missionary Work.

MY DEAR RANDALL:

It was with much interest that I read the paper by Architect F. W. Fitzpatrick before the Washington Convention of Architects and Builders. He makes some strong, but too truthful statements about buildings that are called fire-proof, being utterly lacking in that important character, and his figures on the annual fire losses of the United States are simply appalling. It is certainly a fine paper for the clay people to do valuable missionary work with, and it should

be presented to every capitalist throughout the United States. He has great courage when he makes the following statement, yet it is none the less too true, and this can not be too forcibly impressed on every architect and engineer:

"In lower buildings, if you insist upon it, and believe that by prayer and much wakeful attention you can supervise every detail of it, then use reinforced concrete. At the very best, in its most perfect state, it is an extra-hazardous material with which to work, subject to all the ills of other materials and workmanship and uncounted ones of its own."

Yours cordially,

St. Louis, Mo., April 30, 1908.

H. A. WHEELER.

Move Into Larger Quarters.

Editor THE CLAY-WORKER:

Please note that we have moved from Nos. 62-64 William street to No. 68 William street, and make the necessary change in our advertisement. We have taken advantage of the temporary low rentals to secure larger offices, to be in better position to take care of the large business we know will soon follow the present hesitancy on the part of purchasers to place orders.

While business for the past six months has not been as heavy as that of last year, we have had sufficient orders to keep our entire organization together, and already see indications of returning normal conditions in our particular line.

Yours very truly,

New York City.

AMERICAN PROCESS COMPANY.

Is it Feasible?

Editor THE CLAY-WORKER:

I am operating a small lumber mill in North Carolina, and in looking over the pages of THE CLAY-WORKER, it occurred to me that I might run in connection with same a small brick and tile plant with moderate success. Do you think it will be economical for me to use the slabs from the lumber mill for fuel in the tile plant? Would this be feasible? If so, could you put me in touch with parties who would furnish a moderate cost, second-hand outfit for making tile and brick on a small scale?

What I have in mind is in the nature of a temporary plant, one that might be moved from one point to another, as I change my base of operation occasionally. If you think my idea is practical and that I could operate a small plant in the manner suggested, I would be very glad to hear from parties who could furnish a low cost outfit, whether new or second-hand. Thanking you for your assistance in this connection, I am,

Milwaukee, N. C.

Sincerely,

J. H. SUMNER.

Wants to Promote the Use of Clay Products.

Editor THE CLAY-WORKER:

Enclosed find \$2.00 for THE CLAY-WORKER for another year. I wish you would send me a list of your books on clayworking. I want to get something in the way of an up-to-date clayworking manual, and perhaps you can help me to a selection from your stock. I am only familiar with the old-fashioned way of making brick, and am about to install a stiff mud outfit and want a practical treatise on same. You may also let your advertisers know that I am about to do this, so they can send me advertising matter and catalogues if they care to. This market has been supplied mainly with soft mud brick, burned in the old-fashioned scoved kiln. The stiff mud brick has not taken well with masons here on account of their not cutting straight when struck with a trowel, and also because they have not stood the weather well when laid in the wall. These two defects I should like to overcome, as, if I can do so, I am in a good position to get my share of the business. I am more than pleased with THE CLAY-WORKER, as I find a good deal of useful informa-

tion in each issue. I am going to try later on to get the brickmakers and contractors of our vicinity to co-operate in the matter of placing clay products before the public, and especially before prospective builders, in a proper manner, showing relative cost of construction and up-keep cost as compared to frame buildings. I am satisfied that if this is done, and a practical demonstration given, that good results will follow. As has been said by various writers in THE CLAY-WORKER, there is hardly an industry that is as little pushed as the building brick business. I should be pleased, if you should issue anything of this kind in the future, to get a copy of same. Trusting you will be able to help me out on the manual, I am,

Saginaw, W. S., Mich.

Yours respectfully,

F. J. LOHMANN.

QUESTIONS OF CONTROVERSY IN BRICKBUILDING.

Editor THE CLAY-WORKER:

There are a number of questions that come up in the selection and use of brick, especially of facing brick, that cause considerable controversy between the manufacturer of brick and the architect, or user of brick. To bring these questions, as nearly as practicable, to some harmonious adjustment, and secure greater unanimity in effort and greater uniformity in practice, as well as for other reasons, it is wise for face brick manufacturers to unite in an association and hold annual meetings for discussion and for social intercourse. Such an association has recently been formed among the face brick manufacturers of Ohio, but it ought to be a national association and it ought to include also the terra cotta manufacturers, since the interests of the manufacturers of terra cotta are identical with those of the manufacturers of face brick, in regard to most of these questions at issue, and in regard to the promotion of the use of clay products for the facing of buildings. In Germany, such an association, the German Association of Face Brick and Terra Cotta Manufacturers, recently held their seventh annual convention. One of the addresses before this convention, by a prominent German architect, was upon the subject given in the heading above. A portion of this address by Architect Hasak should be of interest to many in this country also.

It should be said in explanation, that in the past few years there has been a fad in Germany for the large size of brick for facing that were used in the middle ages, the so-called Cloister brick (Klosterziegel), which originated in the Gothic time. The dimensions of these brick are about 11.2x5.3x3.35 inches. It should also be understood that nearly all face brick in Germany are made by the stiff mud process, with holes running through them, longitudinally in the stretchers and crosswise in the headers, a feature that can be commended; and that machine brick are made by the stiff mud process, soft mud brick being nearly always made by hand. Believing it will interest the readers of THE CLAY-WORKER, I have translated Mr. Hasak's paper for you.—W. D. Richardson.

Excerpts from Architect Hasak's Paper.

"In the first place, there is no agreement among us as to the size of brick, the dimensions that a brick should have in order to produce the most artistic effect. All the blame has been put upon our so-called standard size (9.84x4.72x2.56 inches), and especially upon the general custom to face only with stretchers. The latter is the cheapest method, but the cheapest is naturally not always the best or most beautiful. He who commands larger means uses both headers and stretchers. Yet, if the headers are not binders, the facing with headers and stretchers is a false pretense from the viewpoint of artistic truth. Why create the impression that whole brick are used for headers? That is deception.

"Let us consider, first, the question of size. It has been held that the standard size brick is too small to produce a

handsome appearance, and many have gone back to the large brick of the middle ages. Others do not like this, but get satisfaction from the thin brick of the Roman buildings, and as is still similarly done on the North Sea coast, best known in the Netherlands. Gentlemen, this is a matter of taste, and let us not quarrel over taste.

"As manufacturers, you will make what your customers demand. As an architect, I maintain that the size of the brick is quite indifferent, but, with this limitation, that certain effects can be produced with different sizes of brick, and that for different kinds of buildings perhaps one size may be preferred to another. I maintain, however, that for the general appearance of a structure, it is immaterial what dimensions the brick have. The question simmers down to a matter of taste, and let's not quarrel over this. So, I may be properly excused from arguing it. But, nevertheless, the point can be proven. I just want to call your attention to three examples. There are, first of all, the Roman brick buildings of the Mark. The dimensions of the brick in these buildings are not much greater than our standard size, the thickness only being somewhat greater. I have surprised with this fact more than one enthusiast of the large size. They had admired the buildings without noticing the small size of the brick. The same is true of the buildings of the German Renaissance. Also, the much admired master works of Dantzic have brick of almost exactly our standard size. These buildings make a fascinating impression upon everybody, and the interdicted size of brick is not noticed by anyone. Look over Berlin and pick out the master works of the Berlin School, in the seventies and eighties, the Art Museum, the Anhalter Railroad Station, the War Academy, the Chemical Institute, the Ministry of Finance Building, the Synagogue, the City Hall, the Imperial Bank, etc. Observing carefully, you will see in these buildings brick of standard size, or approximately standard size. The general appearance is not influenced by the size of the brick, and only upon approaching nearer to the brickwork is the size of the brick noticed.

Use of Different Sizes of Brick.

"It must, of course, be admitted that special effects can be produced by the use of a larger or smaller size of brick. Thus, for buildings of large surfaces, as, for example, churches, it is possibly better taste to select the larger brick. The old Roman buildings, however, with their large surfaces, have only small sized brick. I think that all this shows that there is absolutely no reason for quarrelling on account of the superiority claimed for one size over another. It may be that in the great heat necessary for the production of brick lies the reason that discussion of brick questions bring forth such hot speeches, since such is not the case with the cold sandstone.

"Let us consider, now, the second very troublesome question—the surface of the brick. Before our machinery age, all brick had a more or less rough surface. When hand-molded brick were produced by us, the roughness of the surface came from the method of manufacture. After brick machinery (stiff mud) was invented, the brick showed a smooth surface, which resulted, naturally, from the method of making. The smooth surface of the machine-made brick and the rough surface of the hand-made brick are both natural and proper characteristics. Now comes in the element of taste, which decrees that only rough surfaces are beautiful, that the smooth, slick surfaces are not to be endured. But how is it with other materials, as, for example, the cold building stone? Is the same view held? Twenty, thirty years ago sandstone surfaces were ground smooth. By their side were set trimmings or rough surfaced stones, or even a smooth-surfaced stone with rough edges. No one got excited about this. All at once there appeared the rough style, and its adherents banished and outlawed, in a rough way, every-

thing smooth. How about paint? Are there not smooth and rough paints? Nowadays everything has to be made as rough as possible. The rough mode is seen everywhere, even of things not rough by nature. Metal surfaces, even, must be hammered by thousands of blows in order to give them a rough surface. Why, now, shall not the machine-made brick pay homage to this style, and dress themselves in a rough garb, in order to be able to further support their producers? Architects, as Schinkel and Persius, who had only the rough, hand-made brick, did not like them at all. They sought in different ways to get as smooth a brick as possible. Anyone can see that in the Academy of Architecture, the Werder Church, the Feilners House, and the Military Prison. The smooth surface was often obtained in a very costly and unnatural manner. I have been told that in the Marienburg great pains were taken to make the hand-molded brick as smooth as possible by means of water. Why should not, then, the smooth machine brick be made rough to please so many architects? Only this must be done in a cheap and natural way. I believe, indeed, that I have obtained such a brick through the help of Director Scharmann, of Sauen. I used this brick first here in the St. Boniface Church, and I am now building the houses and tower of the Corpus Christi Church in Thorner street of the same brick. A new method naturally meets with many opponents and few followers. But I believe, nevertheless, that it is a very good and practical way, since the treatment of the brick has the advantage that a kind of glaze is formed that permits all dirt to be washed off.

Machine vs. Hand-made Brick.

"Hand-made brick, which were formerly cheaper than the machine-made brick, are now one-fourth to one-third dearer. The machine brick plants would therefore be on the right track, if, in their own way, not by any hand operation, they would try to produce the rough brick, which would bring out, in a similar manner, the beautiful color effect of the hand-made brick. The machine-made brick have the advantage of the denser structure, and therefore do not absorb so much dirty water, but keep their beautiful original color.

"The holes through the machine-made brick, especially the face brick, are objected to by some, but the criticism is not justified. The holes are made mechanically, without effort or additional expense. They cause the brick to dry easier and quicker and to burn better, thus producing a better building brick. There is probably also less waste in the manufacture of the hollow brick. (Mr. Hasak might have said, also, that the hollow brick give less trouble from efflorescence). These brick are lighter for shipment, which saves in freight and cartage. Why should one throw away money uselessly? Last, but not least, the hollow brick provide an excellent insulation against heat and cold, as well as against moisture, thus making a more sanitary building. Why can anyone take objection to these holes?

"It is an error to believe that only red brick are authorized for facing. Every clay color has the same right as red. All colors should be used according to the individual taste. If no one quarrels over the color of sandstone, granite and limestone, why should there be this strife over the color of brick? Color is a matter of individual taste, and, properly so, since many consider that red is too gloomy and darkens the street.

"With red brick inseparably belongs the white joint, but since the white joint holds its color even less than the red brick, one should, therefore, take great pains to obtain a durable white joint. I have in recent years painted over the fresh lime mortar joint with lime paste, which gives an excellent color. If the white joint is rejected, then the method of the Berlin School is to be commended, namely, to cut out the mortar from the joint deeply in the face of the wall. To blacken the joints, however, I consider a mistake. Also, in regard to the thickness of the joints, no one-sided preference should be shown. As white joints do not resist our

soot and dirt, but lose their color, it is best to keep down the thickness of these as much as possible.

Glazed Brick and Terra Cotta.

"I have laid claim to your attention already so long that I must express myself briefly in reference to terra cotta and glazes. Terra cotta with colored glazes is the ideal building material in our latitudes. This construction would give to the Capital of our Empire, and to other more distant sections where clays abound, a distinctive art of its own. But those who have authority over public buildings can not be interested in such preliminary determinations, because they have not the artistic ability to inspire such ideals. And yet it would be worth the toil of the highest to strive with all their abilities to create a distinctive art for their country, instead of imitating foreign art.

"Were our most worthy and highly honored Emperor the prince of a small state, he would achieve this, as he has done so many things; for his interest in burned clay is great. But we must be content for a time to arouse the interest of architects in brick building, to place brick building in the foreground of our daily speech, until the state and city magistrates come to follow us."

Written for THE CLAY-WORKER.

HERE AND THERE IN NEW JERSEY.

A LONG THE Hackensack work has begun in all the yards. Some are farther along than others, but all are busy. Schooners have been busy during the past month taking the surplus stock to market and nearly all sheds are virtually bare of stock left over from last year. Manufacturers are now busy attempting to get their yards in shape, ready for immediate use. Rains have been unusually heavy all the season and the brickyards have suffered with the rest. Perhaps they have suffered worse. Some of the Little Ferry yards have been washed in places by the heavy downpours which have been noted during the past few weeks. Up to May 10, over four inches of rain had fallen and three inches of it came within 12 hours one day. Manufacturers have been compelled to put their yards in shape in some instances, and there has been some remodeling to do when the brick were all out of the sheds. These labors have kept the workmen employed. They have begun making brick on some yards, but not in all.

For example, the Merhoffs, at Little Falls, have begun to make brick. The plants have been running at least a week, and one or two yards have fresh brick laid out on them. Of course, these first burnings are not large, but they are sufficient to begin the work, and later the development will begin. The Merhoffs will not do much developing in the way of machinery this season, but they have stripped a large area of new clay, some of which will be required before the season closes. The market for the Merhoff brick is constant and they always obtain the highest price.

The Gardners are not yet doing much, though the pumps are running at all these yards. The pits were full of water and the rains have compelled keeping the pumps busy so far this spring. The outlook is considered fair at these yards. They are shipping some old brick, but as yet have not made much new.

At Carlstadt operations were begun about a month ago. The electric pump was started and the pit was emptied. Meanwhile the force was busy clearing additional clay area and now the yards are at work. One burning, or a part of a burning, is in the sheds and the fires will probably be started before very long. The company has not felt the hard times so far. It opened as early as usual and has been running full time ever since. It has, therefore, been impossible for any accumulations to be made. The brick made by this firm is in demand because it is a solid grade, that meets all the requirements of successful and dignified structural work.

At New Durham the operators have not hurried about getting ready for this month. The force is busy clearing out and getting in readiness for anything that comes along, rain or otherwise.

A. L. B.

Written for THE CLAY-WORKER.

BUILDING OPERATIONS LAST YEAR AND THIS.

THAT THE BUILDING operations for 1907 of the principal cities in the country were short of 1906 was due, in a large measure, to a heavy falling off in the work in some of the principal cities, notably in New York and St. Louis. This is probably accountable for on the ground that the larger cities were more seriously affected by the panic. Building operations in New York decreased 26.84 per cent. in 1907 as compared to 1906, and in St. Louis the decrease was 26.87 per cent. Chicago, Philadelphia, Boston and Brooklyn also showed a decrease, which, though not as marked as in New York and St. Louis, amounted to several million dollars. It should be noted in this connection, however, that some of the good cities in the large class did commendably well in 1907 and had no decrease. Cleveland, for example, seems to have fared better than any large city, and shows an actual increase in building operations for 1907 of 22.47 per cent., or nearly \$3,000,000, and Milwaukee also shows an increase of over \$1,000,000, but it seems that a good part of this increase is due to these cities having erected more fireproof class of structure, which added somewhat to the cost. That is a commendable example that should be followed by other cities.

The total reports from the forty-nine leading cities in 1907 show building operations to the amount of \$661,076,286. This is a little over \$17,500,000 less than 1906, but is slightly in excess of building operations of 1905.

We find, however, that this decrease as compared to 1906 is more than accounted for by reductions in the building operations in New York City alone. So apparently the country at large built more in 1907 than in 1906. We may assume also that building operations so far this year are something like 1907, in that certain of the larger cities are the ones which are the most backward and the country in general is doing very well.

There is one feature about this report of the U. S. Geological Survey on building operations that should have the particular attention of brick manufacturers, and that is, over 60 per cent. of the buildings erected in point of number were built of wood, whereas less than 40 per cent. were built of brick, stone, concrete, etc. This speaks plainly to the effect that there is room to expand considerably the use of brick in building operations and it is a decidedly unsatisfactory condition from a brickmaker's standpoint, even though the total cost of the more permanent structures is much greater than those made of wood. The figures showing the difference as to cost are: Brick structures, \$409,434,858; wooden structures, \$154,500,626. The average cost of brick and stone buildings in 1907 was \$9,490 and the average cost of wooden buildings \$2,294.

Philadelphia is one city that should be commended in regard to its building operations, as it shows the largest number of brick or stone buildings erected with the exception of Reading, where no wooden buildings were erected whatever. That's pretty good for Reading, and brick manufacturers from far and near might do well to go and find out how they did it, and get some light on how to expand the market for building brick by encouraging the building of better and more permanent homes.

There is room for some mission work here, and especially in quite a number of cities of some prominence, where not only the number, but the actual cost of wooden structures exceeded those of brick, stone, etc. The Geological Survey names fifteen cities in which the cost of wooden buildings exceeded that of fire-resisting buildings, among which were Atlanta, Buffalo, Detroit, Grand Rapids, Indianapolis, Kansas City, Kans., Los Angeles, Minneapolis, Newark, Providence, Rochester, Scranton, Seattle, Syracuse and Worcester. The

brick manufacturers in these cities and in the surrounding territory should bestir themselves and see if they can't get this report to show up better next year, and also, while they are about it, develop a larger market for their products.

NEW SHOPS OF H. BREWER & CO.

This Old, Well Established Firm Makes Room For Its Enlarged Business.

THE CONSTANTLY INCREASING business which has in late years prevented the officers of the H. Brewer & Co. from taking any extended vacations has finally resulted in the letting of a contract for the erection of new shops on a piece of land, recently purchased, lying east of the Anthony Fence Company's factory, in Tecumseh, Mich.

A plant of large and handsome buildings, which will be well lighted and ventilated, and equipped with all sensible modern labor saving machinery and tools, will be constructed. To provide the means for these improvements and to take care of the steadily increasing business of the firm, which, during 1907, was the largest in its history, and so far this year is even greater than in 1907, the volume of business done in the month of March being the largest it has ever known, the capital stock of the company has been increased to \$250,000, of which \$175,000 will be paid in cash, principally by the original stockholders of the concern.

Since its inception in a small way in 1849, the firm of H. Brewer & Co., manufacturers of clayworking machinery, has occupied the same site with its machine shop and foundry, at the corner of Shawnee and Evans street, increasing their capacity as the needs of their business demanded it. But the business of the firm has finally increased to such an extent that the old, poorly lighted and arranged shops and foundry have become entirely inadequate to their needs.

A brief description of the new shops is as follows: The main building is to be one story high, 16 feet to the eaves, 322 feet long and 90 feet wide. It will contain the offices, machine shop, woodworking shop, forge shop and warehouse. It will be built of brick in the manner known as slow burning construction.

Adjacent to, but independent of the main building, will be the boiler house and coal bins, which will contain the big tubular boiler, 5x16 feet in size, which will supply the steam for the two Atlas engines, 40 and 75 h. p. respectively, that will also supply steam to heat the buildings.

Twenty feet in the rear of the main building will be the foundry, 100x60 feet, having an appendant cupola and blower house 30x30 feet, and a room for the manufacture of foundry cores 25x25 feet. The roof of the foundry will be a truss roof, so that there will be no posts on the floor.

Still further in the rear will be a two-story brick pattern storage house 50x60 feet in size, isolated as much as possible from the rest of the plant to decrease the risk of fire.

At different points on the ground will be located such buildings as coke bins, sand bins, oil house, etc. All the buildings will have gravel roofs, and all will be fully and adequately lighted.

The equipment of the shops will be fully in keeping with their other fine appointments. The machine shop will be equipped with all sensible, modern labor saving appliances and tools, traveling cranes and tram tracks running throughout the shops for convenience in handling heavy machinery and castings.

The foundry will be supplied with jib cranes and tram tracks, the latter connected with the main building, thus affording easy transportation for heavy patterns, flasks and castings.

The H. Brewer & Co. are to be congratulated on their new move. This firm has held a prominent position in the clayworking world for over 50 years.

RECEIVER FOR THE CARBON CLAY AND MINING COMPANY.

An unfortunate instance is that of the Carbon Clay Plant, Carbon, Ind., which was build over a year ago by a stock company of Carbon citizens.

It was well built of the best material and equipped with splendid, up-to-date machinery for the manufacture of pottery, but the cost of building was greater than expected, and no money was left for operating the plant. The citizens of Carbon gave a cash bonus, with free coal and clay for five years, and were much disgruntled over the idle plant. Dissensions arose among the stockholders and they were unable to agree upon a sale.

The receiver will arrange at once for a private sale, and as it is under the court's jurisdiction, the stockholders will have no voice in the sale of the plant.

DOING A GOOD BUSINESS.

"This bids fair to be a very good year for us," write the Illinois Supply and Construction Company, of St. Louis. "The alleged financial depression has affected our business but little, if any, we are glad to say. We are doing a good business and expect to continue to do so right through 1908. We recently shipped one of our one-mold Little Giant brick presses to the Sioux Falls (S. D.) Press Brick Company, for making high-grade sand-lime face brick, and have lately received an order from the Aledo (Ill.) Brick and Tile Company for a two-mold Little Giant brick press, and have pending an order for a couple of Grath four-mold special brick presses, which will be closed within a few days."

They have also done a large business with the Grath special hand-power brick press, of which they now have thirty-five in use. The last one sent out went to the Elgin-Butler Brick and Tile Company, where it is running very satisfactorily, as is shown by a letter recently received, of which the following is a copy:

ELGIN-BUTLER BRICK AND TILE COMPANY.
Elgin, Texas.

Illinois Supply and Construction Company, St. Louis, Mo.:

Gentlemen—Inclosed please find our check to cover your invoice for the Grath hand press. We believe that the Grath hand press is the best press on the market, and, since placing same some ten days since, we have found it to "live up to your guarantee," and thus far we are very well satisfied.

Yours respectfully,

ELGIN-BUTLER BRICK AND TILE COMPANY.

March 12, 1908.

The Illinois Supply and Construction Company's special 1908 catalog can be had for the asking. It shows a full line of pressed brick and roofing tile machinery, and also shows cuts and gives descriptions of the Grath kilns and furnaces. Some of the former are pictured on pages 652 and 653 of this issue. When writing for catalog, please mention THE CLAY-WORKER.

EVER NOTICE IT?

Even with all the claims that some color manufacturers make for their goods, it is very strange that when any one wants to meet a standard, or deal on an old tried and true color's reputation, they always claim to have something as good as, or openly offer their goods as Clinton Hematite Red.

This should show the consumer what these manufacturers, who really know the value of color, consider to be the best brick and mortar coloring on the market.

The genuine Clinton Hematite Red, which bears a little yellow side label on every barrel, is made by the oldest and largest firm in the business, the Clinton Metallic Paint Company, Clinton, N. Y.

OBITUARY.

William Harkness, Philadelphia, Pa.

For many years Wm. Harkness was secretary of the Master Builders' Exchange of Philadelphia, and was personally known to almost everyone connected with the building interests of the east. His cordial, cheery nature made him very popular with all who knew him. His death occurred May 13th.

H. C. Dunn, Erie, Pa., Dies of Heart Failure.

The Silent Reaper has again invaded the ranks of the N. B. M. A. H. C. Dunn, of Erie, Pa., after spending the winter in Florida and other Southern health resorts, in hope of finding relief from physical ailments that had threatened him for some years, returned to his home April 25th, having stopped at Philadelphia and other eastern cities enroute and visiting with members of the N. B. M. A. and other friends, and passed away the following Tuesday. For nearly a score of years Mr. Dunn was a conspicuous figure at all the national conventions. He was among the first to earnestly advocate the use of the continuous kiln for burning common building brick, and emphasized the economy in fuel



The Late H. C. Dunn.

he had realized by that method of burning by exhibiting a small shovel, such as is commonly used for domestic purposes, and holding less than a pound of coal, "This is what we use in feeding our kiln," he would say. The idea was so novel that it invariably held the attention of brickmakers, and lead to investigations that lead many to adopt the continuous method of burning. Mr. Dunn was a large man, large in physique, large in intellect and large in heart. He looked on the brighter side of all the affairs of life and so was a most genial companion and a sturdy, helpful friend. His daughter, Jessie M. Dunn, survives him, and will continue the brick business so successfully established by him.

Brick drying installations are being furnished by the Massachusetts Fan Company, Watertown, Mass., as follows: For L. L. Stevenson, Birmingham, Ala., one 90-inch, three-quarter housing fan in connection with direct heat furnace system; for the Peoria Brick Company, Peoria, Ill., one 160-inch three-quarter housing fan, to exhaust waste heat from kilns and force into dryer; for the Dillonvale Brick and Tile Company, Dillonvale, Ohio, complete drying outfit, consisting of one 120-inch exhaust fan, direct connected engine, heater and complete equipment.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

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Six copies, " " " " " "	10.00
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Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. XLIX.

MAY, 1908.

No. 5.

CURRENT COMMENT.

He who never carries a burden is not fitted for the enjoyment of rest.

* * *

A man must take pride in his business if he ever expects to accomplish enough to be proud of his work.

* * *

Many a man wastes lots of time trying to cultivate the good opinion of others, whose opinions are really not worth having.

* * *

It is said the cream of compensation is never missing from the milk of human kindness—that's the way with some people—always looking for compensation.

* * *

A building paper says it has been found that concrete containing broken brick has stood almost as well as any concrete. Sure, and if you'll just put brick enough in the mixture—and in the right way—you will find it stands better.

* * *

D. V. Purington, president of the Purington Paving Brick Company, has returned to his Chicago home, after spending the entire winter at his southern plantation at Ocean Springs, Miss. He says he was never in better health in his life, and he certainly looks it.

* * *

Wm. Conway, of Philadelphia, Pa., ex-president of the N. B. M. A., made a trip west the first week in May. His first stop was Indianapolis, from which point he went to Chicago, and on his return trip visited the immense plant of the Bessemer Limestone Company, at Youngstown, Ohio, of which vice-president Crook is general manager, and spent a day with President Gregory at Corning. It was a pleasure trip—a sort of an associational family roundup, during which he hob-

nobbed with an active minority of the members of the executive committee of the National Association.

* * *

Coloring matter is an important element to our well being both in clayware and in sentiment, so there is nothing like making it attractive and cheerful.

* * *

The toughest place in the problem of economy in the brick business is when it comes to laying the brick in the walls. We are approaching that problem wisely when we advocate trade schools.

* * *

It is part of the duty of some of the Government departments to experiment with different kinds of building material, and quite a lot of good for the trade and for the public at large has been accomplished through Government experiments. Yet, if the Government has to turn promoter of one kind of building material at the expense of another, as is charged in relation to an appropriation to develop the use of concrete, it might better discontinue such experiments.

TAKE TOO MUCH FOR GRANTED.

Because the manufacture of brick is one of the oldest industries of the world, it seems to have been taken too much for granted that everybody knows about the superiority of brick and doesn't need to be informed or instructed on the subject from time to time. Probably people do know it, too, but humanity is prone to forget unless continually reminded, and the best of things have to be conspicuously advertised one way or another to keep them before the public and in favor. There is hardly any question but what the brick manufacturing trade should have taken up before now, in a systematic manner, the work of publicity, which is now under way. Now that it has been started, we hope everyone will respond promptly when they hear from this publicity committee, and let us set the good work going, modestly at first, and then increase it as the returns seem to warrant.

THE N. B. M. A. PUBLICITY COMMITTEE AND ITS WORK.

The first formal meeting of the N. B. M. A. Publicity Committee was held at the Willard Hotel, Washington, D. C., April 15, 16 and 17. After canvassing the situation thoroughly, a line of policy was determined and the members of the association have been apprised of same by circular letter. It was agreed from the very start that some form of active, aggressive public work in the interest of all structural clay materials is needed, but how to provide ways and means of doing it proved a many-sided problem. The plan determined upon provided for the dissemination of information through the daily press and magazines. Through these channels it is hoped to reach the eye of all the building public, and by setting forth clearly the superior merits of burned clay building materials of all kinds and persistently dinging this into the ears of prospective builders, it is hoped to stimulate and increase the demand for all structural clay wares. In just the measure in which the movement is successful will the clayworkers of the country generally profit. Those who are not members of the association will, of course, profit with those who are. When this becomes apparent, and the work accomplished demonstrates a practical dollar and cents value, it is anticipated that many who have not heretofore identified themselves with the N. B. M. A., because, from a utilitarian viewpoint they could see no benefit to themselves, will become interested. If such proves to be the case, the association will be able to extend its work at so small an expense to the individual members that the tax will scarcely be felt, and yet the clay industries throughout the land will feel the beneficial in-

fluence and effect of the Publicity Bureau's services. Much will depend on the interest manifested and the support given to this movement by our clay manufacturers. Those who are not members of the N. B. M. A. are requested to communicate with the chairman or other members of the committee, if further information is desired. The committee is composed of J. Parker B. Fiske, New York, N. Y.; W. D. Gates, Chicago, Ill.; Will P. Blair, Terre Haute, Ind.; Charles Bloomfield, Metuchen, N. J.; John W. Sibley, Birmingham, Ala.; M. E. Gregory, Corning, N. Y., and Theo. A. Randall, Indianapolis, Ind., any of whom may be consulted by manufacturers in their several localities.

OUR NATURAL RESOURCES.

The Government and the people who are worrying so about the depletion of our natural resources haven't yet reached the point of being concerned about the supply of clay for brickmaking. They are more particularly concerned about wood, coal and iron right now. Now, while there is really no need to worry just at present about the clay supply, there is room for serious thought on the subject of the loss of soil and the elements that produce vegetation each year through erosion. This is not only a big problem, but a complicated one, to figure out how to prevent the waste incident to the carrying off not only of absorbent elements of the soil, but also a lot of the solid matter itself. It is difficult to even figure how much is being carried away each year and left to settle in the bottom of streams, lakes and in the ocean beds. It is easy to understand, however, that it is enough to amount to a mighty big item, and there is room for a lot of excellent work in devising ways and means to reduce this soil loss and we commend this thought for study, both by scientists and landscape engineers.

MAKING SUNSHINE.

There has been organized at St. Louis, The National Prosperity Association, with some of the most prominent business men of the country at its head, and to business interests the purpose of this association is to keep the dinner pail full, to keep the pay car going, to keep the factory busy all day, to keep workmen employed, and to keep the present wages up. If the carrying out of this purpose in any measure doesn't do more to bring the sunshine in the hearts of people, and also the heart of the industrial world than anything else, we don't know just what constitutes sunshine in the sense of brightening up things. It is a very timely organization, too, and there ought to be something like it in every city of the country, and, with prominent business men in the lead, not only because it will give encouragement to others and stimulate enterprise, but it will make even these same business men compare notes and count the good things we have and realize that the country is, in fact, in a splendid condition, and we should cheer up instead of commiserating over the hard times. As stated in the circular of this prosperity association, there is nothing fundamentally wrong with the business situation, financial clouds have rolled by, the crop prospects, the basis of all things for all of us are excellent, and the belief is expressed that we can get back to normal conditions quickly if we will. That is getting down to the meat of the matter right; there is no need to set down and wait until the end of the year of 1908, nor the spring of 1909, before pushing business again.

The time to do it is now, and we not only commend the business men of St. Louis who organized this prosperity association, but we recommend to business men of other cities all over the country that they get together and do likewise. Let us be boosters and enthusiastic rooters, and not gloomy and grumbly. There is a special need for those interested

in building material to take a hand and help this good thing along, because building operations suffered worse than anything when the panic hit, and, naturally, therefore, it has more ground to recover and furnishes more opportunities to improve conditions by concerted action in this good work of scattering sunshine and arousing enthusiasm for active work. Push business ahead now, instead of waiting until a new president is elected and waiting to see if he is going to do what is best for the country. The president, no matter how big and good a man he may be, can't alone run the country and make it prosper. It takes the people to do this, and the people, if enough of them will put their shoulders to the wheel, can make things boom and industries prosper, no matter who is president or whether congress acts or not. The whole thing is up to the people in the end, and right now it is up to the business people to help push the prosperity wagon along. Get in, let the political pot cool off, and warm up the industrial atmosphere.

THE FLOODS AND THE FORESTS.

That the clearing away of the forests of the country is responsible for floods in a way goes without argument among those who are informed on the subject. It is well known that where there are forests the roots of the trees serve to retard the rapid escape of water when it rains, and, in this manner, the forests at the head waters of streams act as reservoirs to hold a part of the water falling, letting it discharge gradually. What is true of the head waters is true of every branch, tributary and every creek in every part of the country. A great part of these forests that have been cleared, that is, cleared so completely as to bare the ground, have been cleared for the sake of farming, and, consequently, small streams that were once pretty good size and were fed regularly from the reservoirs of the forests, now become raging torrents when it rains, and in a little while the flood is gone and when the dry season comes the stream practically dries up.

This is because the ground under cultivation does away with the forests and the farmer usually cuts ditches or otherwise drains his land, so that it won't stay wet too long after it rains.

While, of course, it is practical and would help some to retain the forests at the heads of streams, this does not much more than begin to solve the problem of floods and the proper handling of rainfall, because every little tributary of the stream and every little valley is a head water, or source of supply, and wherever these forests are cleared away for farms the effect is just the same as if they had been cleared away at the head of the main stream itself. So this setting apart of forest reserves at the heads of certain streams is not, by any means, a cure for this trouble, nor the solution of this problem. The only logical solution—and one that people will have to take up sooner or later—and one, if gone into thoroughly, will be found of more importance even than country roads, is the building of reservoirs to retain excessive rainfalls of certain seasons, so that it may be used for irrigation throughout the dry season. This will serve the double purpose of preventing excessive floods and of preventing droughts, ruining the crops. How the problem may be worked out in detail is a matter for consideration, and the sooner it is taken up, the earlier we will be able to get light on this matter, and maybe relief. The central features seem to be reservoirs and tile drainage. In some localities the reservoirs may be on a large scale, and in others they may be smaller, but however they are, it will take enormous quantities of them to retain the water that was formerly retained or checked by the forests in earlier days. There is no need to use this as an indictment against forest destruction, either, because the only absolute

call for the destruction of forests is when the farmer clears the ground for cultivation, and it would be rather foolish to contend that land should not be cleared for cultivation. What we need is to figure out how this water may be practically retained and reserved during the rainy season, or, at least, such portion of it as may prevent excessive floods and then be available for use afterwards in irrigating farm land when the dry season comes. This will not only prevent floods, but this idea carried out in connection with tile drainage will do much to relieve the damage done by excessive washing on hillsides, along public roads and surface drains. This is a big problem when we come to look at it, but it is one that sooner or later the country will have to face and solve.

TRADE LITERATURE.

SEGER'S COLLECTED WORKS is a volume that should find a place in every clayworker's library. Dr. Herman Seger, who was professor at the Royal Technical Institute, Berlin, and chief of the Chemical Technical Experiment Station, Royal Porcelain Factory, Berlin, gave to the world ceramic literature which is, without doubt, the most valuable we possess today. This volume of 304 pages contains forty-four finely written articles by Seger. It is bound in cloth covers, selling for \$3.50, postpaid. Send your order direct to THE CLAY-WORKER.

SIDE DUMP CARS is the title of the Atlas Car and Manufacturing Company's latest bulletin, No. 1,065. This is a twenty-page leaflet setting forth the merits of their various makes of side dump cars. On the cover page is a fine illustration, showing the cars in line awaiting their turn to be loaded by a large steam shovel that is eating its way into a bank of clay. There are twenty-two illustrations all told, finely printed on a highly glazed white paper. Any one contemplating buying cars should write for this catalogue, mentioning THE CLAY-WORKER.

COLORING AND DECORATION OF CERAMIC WARE is a valuable volume translated from the French by Geo. J. M. Ashby. It deals in a comprehensive way of the coloring and decoration of all grades of ceramic ware, treating at length the preparation of all coloring materials in the ceramic industry. The study of the nature of fluxes and their uses, the detailed discussions of over and under-glazed colors, and articles on the many influences surrounding the glazes, such as physical influences of the body, or ground difference in expansion, "crazing," "molting," and influence of surrounding smoky and acid vapors during burning makes this volume one of value. The author of the original work is Alex Bronghiart, whose writings have received a prominent place on the shelves of ceramic literature. This volume of two hundred pages, bound in cloth, will be sent, carriage prepaid, by THE CLAY-WORKER to any address on the receipt of \$2.00.

WOULD YOU RATHER HAVE THE MONEY OR THE MAN?

In talking with the Chicago Brick Machinery Company, at their office the other day, in regard to modern brickyard appliances, they stated that one of the most progressive brickmakers in the west recently told them he would pay \$1,000 at any time for any machine or device that would save the labor of one man on the yard. He figured on the basis of interest on his investment in the plant, as well as the decrease in the cost of manufacture, stating that a man's wages, even for one season, amounted to big interest on a thousand dollars. This, of course, is true and some of our brickmaking friends, who hesitate over the cost of modern appliances for the yard, should figure on this basis. The tendency of the times is certainly toward automatic appliances on brickyards, as well as in other industries.

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ESTABLISHED COMPANIES, as well as beginners, find our services profitable. We correct faults of manufacture and keep plants up-to-date. Engagements for special service, or by the year.

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ENGINEERING CO.

[See page 730.]

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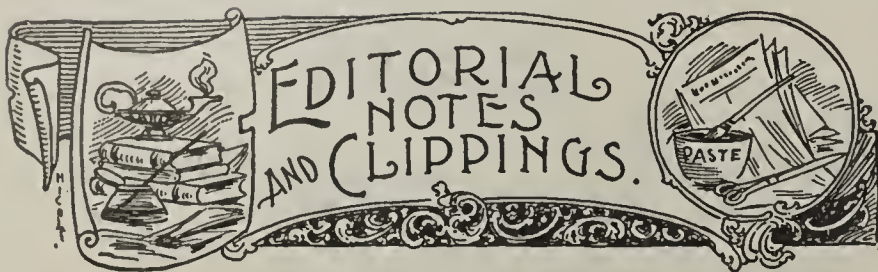
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THE C. W. RAYMOND CO., Dayton, Ohio, U. S. A.



J. J. King, of Troy, Idaho, will engage in the manufacture of brick at Grangeville, Idaho.

J. B. Wilson, of Arp, Texas, is in the market for some three-brick molds for making brick by hand.

George Scovil and Alex Moore will manufacture brick at East Pana, Ill., where they are now erecting a brick plant.

H. J. Brazee and others of Hollandale, Wis., are interested in a movement to establish a brickmaking plant at that point.

The plant of the Norfolk Brick Company, Norfolk, Va., was sold at public auction recently to W. L. Simpson. The purchase price was \$30,150.

D. R. Ingram, a contractor and builder of Kansas City, Mo., is interested in a company that is being organized to manufacture sand-lime brick at Turner, Kans.

The Malakoff Brick Company, Malakoff, Texas, of which E. C. Hoadley is the principal stockholder, has let a contract for a new plant, to cost in the neighborhood of \$50,000.

The United States Encaustic Tile Works, Indianapolis, Ind., are in the market for a hand repress machine, either new or second-hand, but if the latter, it must be in good condition.

The Genoa Brick and Tile Company has been incorporated to manufacture brick at Genoa, N. Y. Charles J. Foster, Frank Starner, J. H. Banker, Charles Lester and Dr. J. W. Skinner are the directors.

Wm. Stewart is erecting a brickmaking plant at North Mankato, N. D., where he has forty acres of good clay. He will start on a small scale, and increase his capacity as the demand for his product increases.

The C. P. Mayer Brick Company, Pittsburg, Pa., would like to correspond with manufacturers of standard rattlers, such as adopted by the National Brick Manufacturers' Association, with a view of purchasing a standard rattler.

A new brick company has organized at Crawfordsville, Ind., to take the plant formerly known as Ferguson & Everson Co. The new company has a capital of \$25,000, and will be known as the Crawfordsville Shale Brick Company.

The Greenpoint Fire Brick Company, of Brooklyn, N. Y., has incorporated with a capital of \$50,000 to manufacture brick and tiles, etc. The incorporators are: John Cooper, of Huntington, N. Y., Andrew and Clarence Cooper, of Brooklyn Manor.

The Spalding Brick, Tile and Manufacturing Company has been incorporated by James H. Wann, Charles A. O'Connor, of Spokane, Wash., and H. W. Pentecost and G. V. Pattison, of Guthrie, Okla., to manufacture brick at the latter point. The capital stock is placed at \$75,000.

The drying sheds of the McAvoy Vitriified Brick Company were destroyed by fire April 23, entailing a loss of \$4,000. By hard work on the part of the firemen, the flames were prevented from spreading to the rest of the plant. The burned portion is being rebuilt as rapidly as possible.

The Farr Brick Company, Cleveland, Ohio, has increased the capacity of its plant in response to a larger demand for the company's production. Within a few weeks the company expects to be able to turn out 120,000 brick daily. At the same time the standard of the output has been raised to the highest point. The concern controls one of the best clay beds in the country for the manufacture of substantial and uniform building brick.

Three brick manufacturing companies of Ottawa, Ont., Canada, have been consolidated into the Peerless Brick and Tile company with an authorized capital of \$150,000. The new company asborbs the Odell Brothers, Morris & Ballantyne and the T. M. Mulligan companies. The three brick plants will be operated as usual this summer, and in the meantime a large plant will be constructed at the Morris & Ballantyne yards, in Billings' Bridge, which will be one of the largest and most complete of its kind in Canada. The officers of the company will be: Mr. W. S. Odell, president; Mr. J.

A. Ballantyne, vice-president; Messrs. W. D. Morris, T. M. Mulligan and Mortimer Odell, directors.

Thomas Driskill and F. S. Bachus have formed a partnership and will manufacture brick at Vollmer, Idaho.

Mitchell, S. D., is to have a brick plant of 50,000 daily capacity. Work on the plant has already been commenced.

Luther Kemp writes that he is interested in a company that is being organized to engage in the brick business at Uniontown, Md.

Wm. M. Barr, of the B-K Brick Company, of Denver, Colo., is investigating the clays in the neighborhood of Cheyenne, Wyo., with a view of establishing a pressed brick plant.

Fire, which is supposed to have started from a spark from a passing engine, caused a slight damage at the plant of the Manitowoc Clay Product Company, Manitowoc, Wis., recently.

The brick factory of the New England Steam Brick Company resumed work April 29, at Barrington, R. I., after a shut down of all winter. The factory employs 150 hands when running at full time.

Charles J. Monroe, a brick manufacturer at Anville Island, twenty miles from Vancouver, B. C., died May 1st at Vancouver, of pneumonia. He had been engaged in the brick business 25 years. He is survived by two sons.

Green Bros., of Appleton, Wis., have purchased the plant of the Streator Clay Manufacturing Company, Streator, Ill. The plant is well equipped for the manufacture of sewer pipe, drain tile, etc., and has a well established business.

Mr. Thomas J. Johnson, superintendent of the Chesapeake Brick Company, Baltimore, Md., died suddenly at his residence, Curtis Bay, May 10th. Mr. Johnson had been ill for four months. He leaves a widow and four children.

Mr. P. L. Youngren, of Milwaukee, Wis., builder of gas-fired continuous kilns, is building a large gas-fired continuous kiln for the National Drain Tile Company, at Summitville, Ind., making the sixth kiln he now has in course of construction.

C. A. Batchelor has sold his brick and tile plant at Angola, Ind., to a stock company composed of a number of the business men of Angola, including Mast Brothers, John Knisely, Charles Wickwire, T. R. Gilbert and others. The new company will erect an additional kiln and make a number of other need improvements.

The plant of the Gem Clay Forming Company, at Sebring, Ohio, was completely destroyed by fire May 8. The loss is placed at \$20,000, which is partly covered by insurance. The plant will be rebuilt without any delay. The plant made novelty ware, the principal product being a base for mantels for electric and gas lights.

The city of Dayton, Ohio, will soon purchase a brick tester of its own and discard the habit of visiting foundries about town and getting the pavers rattled. City Engineer Cellarius believes that the city should have a rattler of its own, and the members of the Service Board have endorsed his ideas. He has been instructed to go ahead and get prices on the rattler.

The Farmers Co-operative Brick and Tile Company, of Mason City, Iowa, will erect a \$200,000 brick and tile plant at that point. W. Colby is president; G. C. Messerole, vice-president; W. Gleason, secretary, and Ed. Barr, superintendent of construction. It is the ambition of the company, so Mr. Barr writes, to make the plant the largest and most complete in the west.

A. S. Speece, president of the Speeceville Brick Manufacturing Company, Speeceville, Pa., writes that they have the plans and machinery for the new plant all contracted for, and expect to make a first class clay brick. Mr. Speece is the owner of a large deposit of red shale, and would like to correspond with parties who would like to take part interest in a plant for the manufacture of shale brick. They have good railroad accommodations and a good market.

Brick manufacturers of Hartford, Conn., have in contemplation the organization of a merger under the name of the Capital City Brick Company, for the purpose of securing more united action in the production of their product. The firms interested are the Wilson Brick Company, Dennis & Patzner, Eugene D. Mills, Michael Kane, Jefferson Conklin, Cephas Dorr and Thomas Dennis, representing the principal brick concerns of Hartford. The proprietors of the individual plants will continue to manage them as heretofore, but the yards will

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LET US FIGURE WITH YOU.

PORTSMOUTH, OHIO.

Mention The Clay-Worker.

EDITORIAL NOTES AND CLIPPINGS—Continued.

be conducted under a general agreement, and there will be a united policy in the matter of selling the product.

John B. Rose, the well known brick manufacturer of Roseton, N. Y., has been nominated for senator by the Republicans of his district. Here's wishing him success.

The Ohio Terra Cotta Brick Company has been organized at Fredericksburg, Ohio, by J. B. Hammond, A. J. Peterman, James B. and R. C. Taylor and Elmer S. Landes, with \$60,000 capital.

Clay suitable for pottery and fire brick making has been discovered near Port Moody, B. C., an analysis of the soil proving it to be exceptionally valuable for terra cotta and other like purposes.

The Pillatzke Brothers Brick Company, Barnum, Minn., has been reorganized and will be known from now on as the Barnum Brick and Tile Company. A number of changes will be made in the plant.

Articles of incorporation have been granted the Nowata Brick and Tile Company, of Nowata, Okla. The incorporators are: M. F. Wilkinson, H. C. Campbell, John Earl, John Forsythe, J. A. Wettack, W. L. Moore and J. B. Pollard.

H. E. Snyder, of Nevada, Mo., has purchased the plant of the Iowa Brick Manufacturing Company, Des Moines, Iowa. Mr. Snyder is an experienced man in the manufacture of brick and tile, and it is understood that within a very short space of time he will enlarge the plant so as to increase its capacity nearly one-third of what it is now.

The Drury Brick Company's plant at York City, Pa., was recently purchased at receiver's sale by John Diehl, of that city. Mr. Diehl was a stockholder of the old company, and one of the heaviest creditors. He will make a number of improvements in the plant, including the erection of four kilns, and expects to have it in operation in a short time.

The brickmaking plant of the Victoria Brick Company, Victoria, B. C., which was destroyed by fire the latter part of April, will be rebuilt without any delay. New machinery and appliances have been ordered by telegraph, and the completion of the new plant will be pushed forward as rapidly as possible. The buildings will be fireproof throughout.

The New Era Vitriified Brick Company, of Detroit, Mich., of which E. G. Gearheart, of Detroit, is the secretary, purchased the plant of the Michigan Vitriified Brick Company, Bay City, Mich., just outside of this city, and will have it in operation within 30 days. The plant has been idle for about a year. The new concern will employ from thirty to forty men.

The plant of the Newberg Pressed Brick Company has been sold to the Newberg Brick and Tile Company, which has recently been organized by J. A. Crawford, Dr. H. A. Littlefield, E. Fuller and George H. Rogers, all of Newberg, Ore. The latter gentleman will be general manager of the company. The Newberg Pressed Brick Company erected a new plant at Willamina, Ore., recently, and so disposed of its plant to the new concern.

D. B. Yarnell, of Napoleon, Ohio, had a remarkable escape from instant death recently when he was caught and whirled around the line shaft at his brickyard. He was oiling the machinery and his coat caught on the rapidly revolving shaft. An inch board casing was broken out by the pressure of his body against its side. The machinery was stopped and his clothing was cut away. Several physicians were summoned and they found his right knee and left hip to be dislocated, the ligaments of his right knee and ankle torn away and his scalp gashed in several places.

The directors of the Pacific Coast Pottery and Terra Cotta Company, at San Jose, Cal., are a unit in the belief that within a few months San Jose will be the center for pottery of the Pacific slope. The company has a force of men at work installing machinery just purchased, and will have its plant in operation, making eight sizes of sewer pipe, within the next 30 days. A new 26-foot kiln is now being built and a 20-foot kiln is already constructed and ready for operation. This company will also manufacture electrical conduits, chimney pipe, flue linings, roofing tile, vitriified building blocks, terra cotta lumber, drain tile and ornamental pressed brick and plain and ornamental terra cotta of all kinds. The company proposes, it is stated, to start work on a moderate scale and to extend its operations gradually and healthfully until it has the largest and best equipped plant of this kind in the west.

The officers of the company, which is capitalized at \$500,000, are: President, A. W. Hastings; secretary, W. K. Jenkins.

The Berlin Heights Brick and Tile Company, of Berlin Heights, Ohio, has been authorized by the secretary of state to increase its capital stock from \$10,000 to \$15,000.

The Purington Paving Brick plant, at Galesburg, Ill., which was forced to close down about the middle of April on account of being unable to secure coal, resumed work May 11th.

The Minnesota Paving Brick Company has been incorporated at Minneapolis, Minn., with \$150,000 capital stock. The incorporators are: Samuel J. Hewson, Peter J. Mayer, Charles J. Rockwood.

Newell C. Ridgeway, for many years a well known brick manufacturer of Middletown, N. Y., died at his home there recently of Bright's disease. He was 76 years old and left a widow and three children.

F. J. Lohmann, Saginaw, W. S., Mich., who has been making brick by the soft mud process for a number of years, expects to change to the stiff mud process, and is desirous of receiving catalogues and price list of stiff mud machinery.

The Barr Clay Company, Streator, Ill., resumed operations May 11th, after being closed down six weeks for the purpose of making extensive repairs. The firm is stocked with orders enough to continue full operations for a long time. The repairs have all been completed and the plant is in excellent condition for turning out work.

One of the largest contracts ever placed for apparatus for schoolhouse heating and ventilation has just been received by the Massachusetts Fan Company, Watertown, Mass. This covers the equipment for the Central High School and Annex at St. Louis, Mo. It comprises two 200-inch exhausters, one 220-inch exhauster, one 120-inch exhauster, 22,000 lineal feet of one-inch pipe in the heating coils, and a large quantity of sheet iron distributing pipe.

A company has been incorporated at Hot Springs, Ark., to be known at the Hot Springs Clay and Products Company, the principal business of the company will be the mining of clay and the manufacture of pottery of a high grade. The officers of the company, which is capitalized at \$1,000,000, are: Lee Worthington, president; C. L. Shattuck, vice-president; E. H. Johnson, secretary, and J. B. Henderson, treasurer. It is the intention of the company to erect a large plant at once for the manufacture of pottery.

STANDARD RATTLER FOR PAVING BRICK.

Every paving brick plant in the country has, or should have, a rattler barrel to test their brick. The rattler barrel made by the Portsmouth Machine and Casting Company, of Portsmouth, Ohio, is the standard rattler made from specifications adopted by the National Brick Manufacturers' Association. Further information and prices can be secured by writing them direct.

The Starkey Automatic Brick Counter.

Patent Applied For.

It gives the number of wheelbarrow loads absolutely correct. To forget or to swell the count are both impossible.

Will sell a limited number of machines on trial and at a low price to introduce them.

Send for descriptive catalogue, terms and price. Address

John Starkey,

Minerva, Ohio.

Mention The Clay-Worker.

NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.

BRICK BEST IN TEST BY FIRE.

Stone Was Destroyed in Government Experiments, But Clay Material Was Uninjured.

Common brick has proven itself the victor over many newer and more fashionable building materials in a severe fire test conducted by the geological survey at Chicago.

Two samples of brick were subjected to very severe heat, one taken from an old foundation and the other practically new. The older brick stood the test the better. Fifty per cent of the new brick were split, while 60 to 70 per cent. of the old brick were not damaged. The brick at the back of the panel were entirely unaffected.

The hydraulic pressed brick stood the test better than any other material. No damage was apparent whatever after the firing and before the water was applied, and although a number of the brick cracked, 70 per cent. of them were found to be whole after quenching. There was apparently little difference in the strength of the brick before and after firing. The natural building stones behaved the worst of all the material tested. The almost complete destruction of these stones precludes any comparison between them. The sandstone panel entirely collapsed soon after the test was started.

Testing engineers report that it was difficult to determine whether the concrete made of limestone, granite, gravel or cinders sustained the least damage. Their surfaces were all rather badly pitted by the fire and washed away by the stream of water. The granite concrete probably behaved the best.

Thirty panels of various building materials, including concrete building blocks, common, hydraulic pressed, and sand-lime brick, concrete of gravel, cinders, limestone and granite, glazed building and partition terra cotta tile, sandstone, granite and marble building stone was tested.

The building materials were placed in a sliding panel, which, when arranged for the fire tests, formed one side of the furnace. In the furnace gas flames were formed by a blast air against one side of the panel. After two hours, the panel was brought from the furnace and the water turned on from a hose with pressure of fifty pounds to the square inch.

The Federal Government, owner of buildings valued at more than half a billion dollars, and spending twenty million dollars every year for new structures throughout the country, conducted these tests in order that its architects and engineers may have information concerning the fire resisting qualities of the different materials of construction.

Government engineers have long contended that with present methods of construction a conflagration resulting in the destruction of millions of dollars' worth of property and the sacrifice of human life is possible in every city of any size in the country. The Government does not insure its buildings against loss by fire.

THE SUCCESS OF THE WHITE PRESS.

The Chicago Brick Machinery Company are getting some very flattering testimonial letters from the users of the White press, which has been making a fine record on both clay and sand-lime brick, and the company is feeling correspondingly good. The following letter was recently received by them from Mr. John W. Sibley, who is well known to the readers of THE CLAY-WORKER as the treasurer of the N. B. M. A., and is one of the oldest dry press brickmakers in the country:

"Last summer we bought one of your new improved White presses and the same has been in operation for something like six months and has given perfect satisfaction, and the brick made on it are equal in every respect to brick made on our other press.

"We have been highly pleased with the simplicity of the

operation of the White press; and the ease with which the mold boxes can be changed is a feature that is of paramount value to any concern making more than one kind of brick, where changes have to be made frequently and with rapidity, as is the case at our factory.

"Believe you are aware of the fact that we manufacture red brick from shale and also manufacture buff brick and various speckled brick from fire clay.

"Another strong feature about the White press is the fact that the weight of all the gearing rests upon the foundation, rather than upon the side frame of the press. We understand that this is a feature possessed alone by the White press.

"We take pleasure in saying that we are satisfied in every particular with our investment, and wish you much success.

"Yours very truly,

"SIBLEY-MENGE PRESS BRICK COMPANY,

"John W. Sibley, President."

American Blower Company Increase Their Foundry Capacity.
Publishers THE CLAY-WORKER:

We beg to announce that we have purchased the foundry formerly operated by the Northwestern Foundry and Supply Company, of Detroit, who were manufacturers of cast iron soil pipe and fittings and plumbers' specialties.

We expect to operate this foundry for the manufacture of blower, exhaust fan, engine and heater castings, and desire to dispose immediately of all of the soil pipe and fitting patterns and foundry equipment complete, and also a large stock of finished pipe fittings, bell traps, etc. We will make a genuine bargain to anyone interested. Perhaps the above would be of interest to your readers.

Yours very truly,

Detroit, Mich.

AMERICAN BLOWER COMPANY.

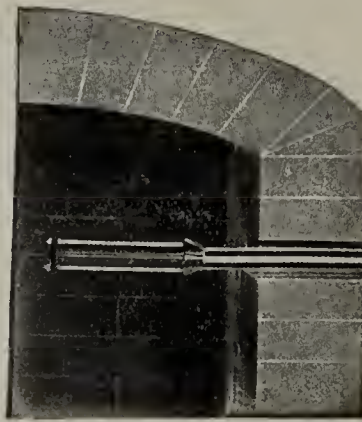
Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

Pittsburgh Kiln Construction Co.,
West Elizabeth, Pa.

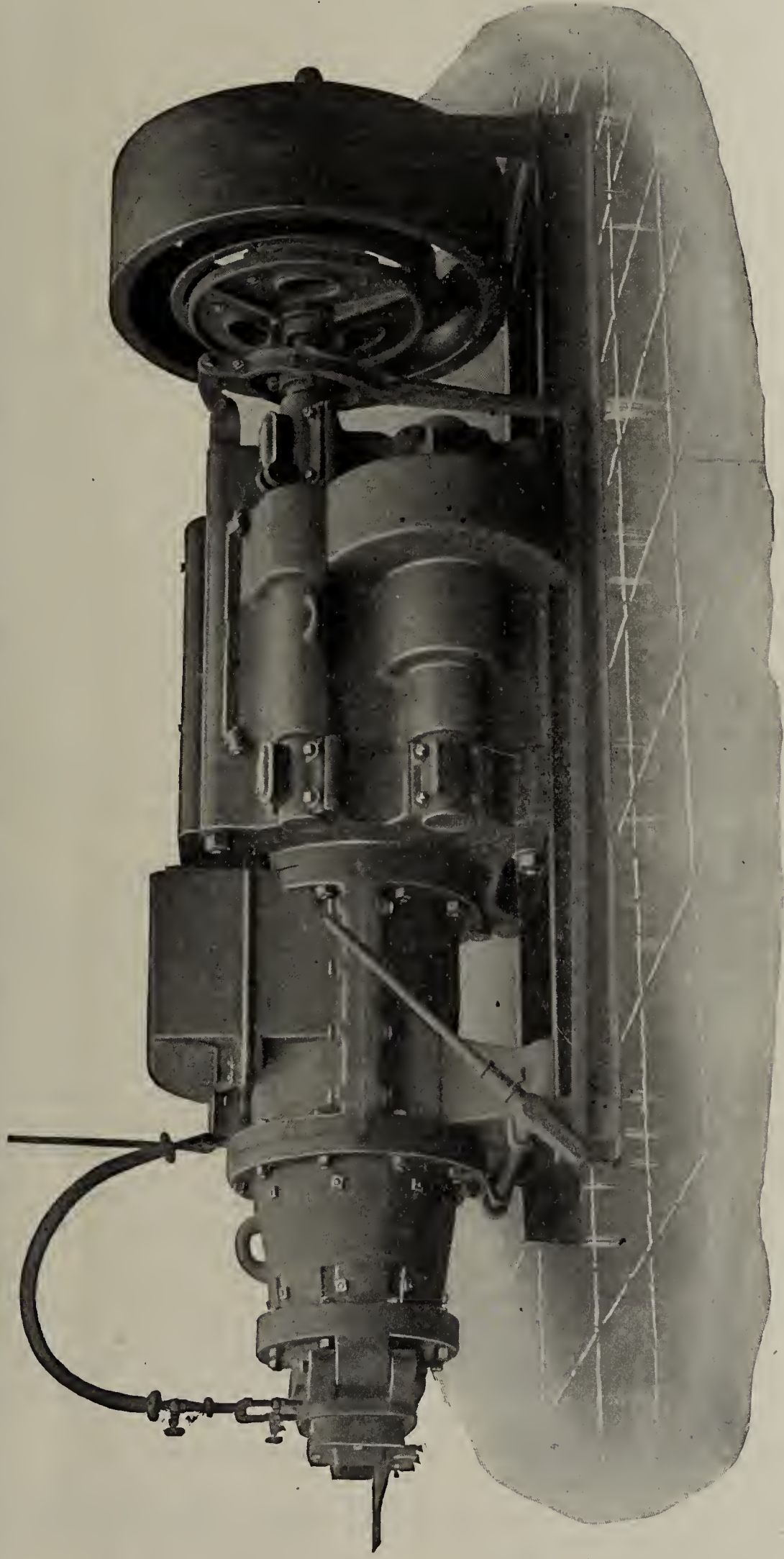
PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

EDWARD
BROWN
& SON,
311
Walnut St.,
Philadelphia,
Pa.

Modern Stiff Mud Brick Machinery.



We've been building Brick Machinery a good many years and have naturally been brought into contact with a variety of clays and conditions and have been able to produce machinery more and more nearly adapted to the requirements of our customers. Our motto in this work has been "Prove all things and hold fast to that which is good." Consequently the features in our products which have not been found good have been discarded and improvements from time to time have been substituted.

Let us get acquainted with your troubles or your wants, and if we cannot do you good we will tell you so. We build Brick Machines in many sizes and patterns.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

(See ads on pages 754 and 755.)

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



IT IS VERY EVIDENT that from a building point of view this city is not going to experience any hard times this year, even if it is a presidential year. Every month of the year so far has shown an increase over the corresponding month of last year, and April shows the greatest increase of any. Builders did not expect this last fall, after the financial flurry, and some buildings which were nearing completion were temporarily stopped, but it seems that building operations were the first to revive, and they have been moving right along ever since, with the exception of the very few extremely cold days of the winter season.

According to the records of the superintendent of buildings, April is the banner month, the permits reaching a total value of \$1,659,050, an increase over the corresponding month of last year of \$520,055, and of these permits fifty-four were for brick structures the value of which is given as \$1,024,250. This brings the total value of permits issued in the first four months of this year up to \$3,525,095.

The bank clearings are also another indication of business prosperity, and for April the clearings reached \$154,500,000, which is \$20,750,000 greater than the corresponding month of last year, or an increase of 15.5 per cent.

What Kansas City is enjoying in the way of prosperity comes to it from the country surrounding, and hence it goes without saying that the cities in the surrounding country are also having a corresponding report to make. Down in Oklahoma, at Tulsa and several other points, there is a veritable building boom in progress, and, judging from the requests coming to the paving brick manufacturers for prices, every city of the west is going to do some paving, and some of them a good many miles of it, if they are able to find paving brick enough of the proper quality.

Early this year some of the knowing ones of the trade wagged their heads and declared that this would be the year which would try the nerves of the owners of the Kansas brick plants, as there would be nothing doing and brick would be sold at all kinds of prices. From the present indications the owners of brick plants in the Kansas gas belt will have their nerves tried more severely in trying to fill orders than in trying to get them. This is especially true of such plants as are turning out a paving brick of quality.

It is apparent, from these reports, that there has been enough prosperity in the west in past years to have caused the accumulation of a little money by the people of the cities and towns, and they have, at the same time, grown tired of wading around in the mud, so they all want to spend some of their savings for street paving and sidewalks. Little towns which the average visitor would not think had ten miles of streets are announcing that they are in the market for brick for that amount of streets.

Some brick companies now announce that they are sold up to their capacity for the entire season, and could sell several times that many brick if they could get them suitable for paving purposes.

In times past there has been a prejudice against gas burned brick for paving purposes, the statement having been made that gas used as a fuel destroyed the toughness of the finished product and made it more brittle. Probably from necessity the city engineers of different localities have begun to make tests of different kinds, to see what the quality of the different brick was, and as the result of these tests, it appears that the gas burned brick compares favorably with the coal burned. This confirms the ideas of a great many practical brick men, that quality of shale, combined with correct methods of manufacture and scientific burning, pro-

duces a paving brick that will stand the test of heavy traffic regardless of the kind of fuel used.

There is a growing tendency among the municipalities of the west to insist on all paving brick furnished for their streets being subjected to such tests as are advocated by the National Paving Brick Manufacturers' Association, and this is taken by brick manufacturers to indicate the use of more brick as a paving material. It has been the poor brick used in the past in street paving which has made so many friends for other kinds of paving material. With only first class brick going into the streets, every piece of paving will be an advertisement for the material used, and other kinds of paving material will lose friends as brick gains them.

Both the Flanagan and Lyle yards are busy as they can be in this city, and have their product spoken for far ahead of date of production.

The Buffalo Brick Company, of Buffalo, Kans., has just closed the contract for 3,000,000 of its No. 1 paving blocks, to be used in paving the streets of Salina, Kans., and have a demand in sight for double or trebble the amount of their capacity.

The Pittsburg Vitriified Paving Brick Company reports having just completed overhauling its plant in Pittsburg, Kans., putting in a larger machine, increasing the capacity of the dry rooms, putting in new kilns and changing old ones, and it is now expected that the plant will produce about double what it has been turning out in the past. This company is furnishing a couple of million of its noiseless paving blocks for paving the streets of Emporia, Kans.

The Liberal Brick Company, of Liberal, Mo., is now enlarging its plant, by building additional down-draft kilns, and will soon be in the market with a fine coal burned vitriified facing and paving brick.

The Eadie Building Supply Company reports having an excellent demand, and that sales are showing a handsome percentage of increase over last year. Mr. Eadie also says that the prospects were never brighter for a big business in the brick line.

Mr. Jacoby, who went from Kansas City to Pittsburg, Kans., to take the management of the plant of the Pittsburg Vitriified Paving Brick Company, has resigned his position with them and has been organizing a company of his own, to probably be known as the Pittsburg Brick Company, and to locate a modern plant on a site just north of that occupied by the Pittsburg Vitriified Paving Brick Company, owned by Robert Nesch and others. Mr. Jacoby had his company well under way, having interested a number of Pittsburg capitalists, when sickness in his family called him to this city, and since arriving he has lost his little daughter. Whether this will make any change in his plans for Pittsburg is not known. He has now gone to St. Louis.

K. A. W.

DO YOU WANT SOMETHING?

For cheap machinery the reader is referred to our "For Sale" columns. We do not advise the purchase of cheap machinery. As a rule, cheap machinery is dear in the end, but for some places second-hand machinery answers a very good purpose. Those wanting experienced help will also find the "Wanted," "For Sale," etc., columns a means of satisfying their needs.

CLEARFIELD BRICK MANUFACTURING CO.,
CLEARFIELD, PA.

Works at Krebs, Clearfield Co., Pa.

FIRE CLAY PAVING BRICK.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NOTES OF NORTHWESTERN OHIO.



WHILE THERE IS considerable building going on in this section, it is not rushing for this season of the year, and the building brick industry may be said to be very quiet. It is noticeable that a large percentage of the building which is being carried on at this time is of small residences and cheap buildings, alterations and repairs that require very few brick in their construction. When approached by a correspondent of THE CLAY-WORKER, Adam R. Kuhlman, Vice-President of the Toledo Builders' Supply Company, refused to discuss business conditions further than to say, "It is extremely dull." The same report comes from other sources. A number of important and expensive buildings are in process of building here and in surrounding towns, but the extent of building operations is seriously curtailed as compared with previous seasons, and it is evident that the buildings that are being erected are not of a character to require the usual amount of building brick. There has been no change in prices recently.

The paving brick proposition is a different proposition. There are plenty of orders for paving block, but the shipping orders are being delayed considerably by the fact that a great deal of trouble has been experienced in the selling of municipal bonds. The work has been planned for a big business this summer, but on account of the financial stringency bonding houses have refused to accept the bonds. This condition has shown some improvement recently, and many sales are being made to private parties. The bonding houses are also showing signs of getting back into line in a short time. Paving brick manufacturers look upon the matter as a temporary delay in the business, and so great is their con-

fidence in the future that they have not stopped running their manufacturing plants at full capacity. They have been stacking the surplus up in the yards with the expectation that a little later on, when the financial condition clears up a little, there will be a call for paving brick that could not otherwise be met. Prices on paving brick are considerably higher than they were at this time last year, and, while present stocks are perhaps a trifle above normal, it is due solely to a delay in shipping orders, as most of these brick have already been spoken for to meet the heavy requirements of municipalities which have already passed all the necessary preliminary legislation.

What is true of the paving brick situation may be reiterated with equal force in speaking of sewer pipe concerns. An unusually large amount of this work has been planned for this season throughout this section, the preliminary legislation has been passed and the matter is now only awaiting suitable bidders for municipal bonds to provide the funds to carry the work to completion.

In the city of Toledo over half a million dollars' worth of street and sewer improvements are to be completed during the coming summer. Acting upon the council's suggestion that the board of public service proceed with as much public improving as possible, the city engineer has made a list of all the streets and sewers already under contract and those where the contract will be let as soon as the money is provided in the proper funds. There are now twenty-nine streets in the city where the contracts for the improvement has been let, and on nearly all of these work has been started. The estimated cost of the work on these streets is \$266,645.17. There are sixteen streets ready for contracts, amounting to \$253,900.20, but some of these will have to wait until the bonds are sold, which, it is thought, will be soon. The sewers under contract and contemplated will aggregate \$140,609.92, making the total cost of public improvements for the coming summer reach the sum of \$661,155.29.

Elias Beaumont, of Mansfield, a brick mason, and 29 years of age, deliberately sacrificed his left foot this week to save his life. While walking on a railway track at Marion, Ohio, he was overtaken by a train. His foot caught between a plank and the rail at an alley crossing. He tried to wrench his foot loose, then attempted to unlace the shoe, but not having time he leaned away from the track, permitting the engine to amputate the foot.

Work is rapidly progressing on the Doyle & Lewis block, which is being erected on Huron street to take the place of the one recently destroyed by fire. Doyle & Lewis have also decided to erect another business block on Huron street which will require a goodly order of brick, but the details of the plans have not yet been given out.

At a recent meeting of the Toledo Hollow Brick and Tile Company, the following directors were elected: C. W. Weber, James Leggett, Harmon Bunte, Carston Paulson and Charles Dunn. The plant formerly owned by Mr. Bunte, located at Curtice, has been purchased by the company. The plant has been overhauled and put in first class working order.

The following paving contracts were recently awarded by the board of public service in Toledo: Harrison street to Russell & Jennison, \$8,154.45; Huron street to Bolan & Holland, \$4,884.10; Batavia street to S. J. Pickett, \$6,328.52 and Walnut street to Henry Sheehan, \$8,861.40. Work is now under way on most of these contracts.

The big steamer City of Ottawa is now in the harbor taking on as a part of its cargo a consignment of 50,000 paving brick, which will be used in paving the streets of Montreal this summer. This is the first trip of the big boat, which is one of the largest on the lakes.

The city of Fostoria recently received bids for the construction of a sewer on Columbus avenue. Three bids were submitted, as follows: J. J. Rumsey, \$5,561.55; J. J. Peter, \$5,579.75 and Schouder & Nepper, Tiffin, \$5,610.30.

T. O. D.

The Brick concerns, who have investigated, say that we make the best belt for transmitting power or conveying material under the severe conditions of the trade.

"We find it gives better service and lasts from two to three times longer than the other belts we have been using; these were rubber, leather and cotton duck."

"We recommend your Leviathan belt, especially for brick plants where there is much dust to contend with."

A folder containing many more convincing expressions has just been prepared. Write for it.

MAIN BELTING COMPANY,
1224 Carpenter Street, Philadelphia.
59 Market Street, Chicago.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.



GENERAL BUSINESS in the Pacific northwest is resuming satisfactory proportions, and the year will be quite active in many respects. The spring activity in building operations in Seattle is good. The total estimated cost of all buildings for which permits were issued was \$705,875, and the number of permits 1,123. Alterations amounted to \$104,220; one-story frame buildings, \$155,480; one and one-half story frames, \$78,980; two-story frames, \$163,685; three-story frames, \$41,000; five-story frames, \$12,000; two-story brick, \$47,800; four-story brick, \$20,000; three-story brick veneer, \$16,000, and wharves, \$30,000. The month excelled in home building, and did not lag behind very much in the construction of substantial business property.

The brick yards in and around Seattle are at present in full operation. The Abrahamson Brick Company is now in full operation. This plant, which was damaged by a landslide in January, was completely reconstructed. Mr. G. M. Brewster is the new manager, and everything is running very smooth.

The Denny-Renton Clay and Coal Company are doing a good business so far this year. All plants are in full operation. The construction of new kilns, which was stopped last fall at the Renton plant of the company, has been again resumed, and the new kilns will now be pushed to completion. The firm just signed up a large contract for building brick and terra cotta for a hotel building in Honolulu.

At New Westminster, B. C., near Port Moody, a new deposit of pottery and fire clay has been discovered. An analysis of the clay shows that it is suitable for terra cotta and stoneware purposes.

The Rothluff Brick and Clay Company was incorporated with a capitalization of \$65,000 by A. M. Williams and C. J. Walker. The plant will be erected near Big Lake. It will be a combination wire cut and dry press brick plant. Paving brick will also be manufactured.

At Palouse, the Inland Clay Products Company has taken over all the plant of the burned down Palouse pottery, and is incorporated with a capital of \$100,000. A. R. Patten, cashier of the Palouse State Bank, is the main stockholder in the company. A. J. King, also of Palouse, will engage in the manufacture of sewer pipe, and is preparing plans to start a new company in the near future.

The Pacific Coast Silica and Clay Company, of Portland, is now negotiating for a suitable site to erect their terra cotta plant. The proposed plant will employ about 150 men, and the promoters expect to have the plant in operation before fall. Mr. Beatly, the secretary of the company, has recently stated that the silica deposit which the company owns just across the Columbia River, from Lyle, Wash., will act as a preservative of both trees and animals, turning both into perfect stone within a short time. The matter of burial of human bodies is a custom that in time will pass away. Good ground is too valuable to be used for cemeteries, while the cremation process is not destined to be very popular, owing to the fact that when a vase containing the ashes of a departed one gets knocked down and broken, the ashes are scattered all around the premises. Geo. W. Kummer, who is now our manager at Silica City, has determined positively that the chemical action of silica on the human body will turn it into stone, preserving every feature so perfectly that no sculptor could equal it, and making it into a substance almost identical with pure white marble. The wonderful action of silica which we have found in Oregon leads Mr. Kummer to believe that woman was made from the refined article of clay, and he thinks there is a difference in the

quality of different clays, as there is a difference in men. On the theory that when man's usefulness is finished he should return to clay, I believe the practice of coating bodies with silica and converting them into stone will some day be recognized as the real and only scientific method of treating those who pass beyond the Great Divide.

C. W. Sieg has decided to build a brickyard at Terry Mont. The capacity of the plant has not been determined so far, but will be about 25,000 per day.

J. F. Miller & Bros. have resumed operations at their brick works at Bellingham, Wash. The plant is now turning out 25,000 brick per day, and the brick business promises to be very good this season.

The Astoria Clay Products Company was organized by Astoria capitalists, with Lew Ogan as manager. It is their purpose to manufacture all kinds of brick and terra cotta, also sewer pipe and drain tile.

The Missoula Brick and Tile Company, of Missoula, Mont., has just started operations, and is making a first class brick. This company was organized by W. E. Carey, who is president.

The plans for the new brick manufacturing company at Sumas are well under way. The railroad track connections are nearly graded, and the preparations for the site of the plant will be started in a few days.

The Little Falls Fire Clay Company, of Sopenah, has just signed the contract for a large sewer pipe supply for Chehalis. The company is doing a nice business so far this year, and prospects are very bright for a good season.

The Victoria Brick Works, owned and operated by J. P. Elford, at Victoria, B. C., have been partly destroyed by fire, entailing a loss of \$10,000.

SIWASH.

Seattle, Wash., May 2, 1908.

It is reported that this summer J. C. Henkel, of Corning, N. Y., will build a three-story brick block at Main and Utica streets, Buffalo, at a cost of \$50,000.



KOPPEL PORTABLE RAILWAYS

have been in use all over the world for thirty-five years.

They are labor-savers, time-savers, money-savers.

They are adapted to every class of contract and construction work.

Are practically imperishable, easily laid or removed and readily adjusted to any conditions.

Special equipment for Brick Plants, Claybanks, Quarries, etc.

Full line of cars, track, switches, turntables, etc., always on hand.

Write for catalogue No. 41.

Arthur Koppel Company

NEW YORK
136 Morris Bldg.

CHICAGO
339c Monadnock Bldg.

BOSTON
53 Oliver St.

PITTSBURGH SAN FRANCISCO BALTIMORE
1607 Machesney Bldg. 1515 Chronicle Bldg. 449 Equitable Bldg.

Written for THE CLAY-WORKER.

THE BRICK SITUATION IN KENTUCKY'S METROPOLIS.



HE CONTINUED RAINS in this locality have naturally had a very depressing effect on the brick and other clay specialty lines, and yet there is an increase noted in the demand over that of a month ago. The brick concerns are all noting a slight increase in the demand, and say that if the

weather would improve that the increase would be greater than it has been.

The fact that there has been a panic has had considerable to do with building operations, and still there is a very fair activity noted in the way of business, when we consider the conditions that have existed for the past few months in all sections of the country. There are a number of encouraging prospects here for large structures, and each day adds some to the list, so that there should be at least a fair year in the brick line. The Board of Public Works is contemplating making a number of improvements in the streets here, and there is an assurance that at least a number of these will be paved with brick.

The Hydraulic Brick Company say that there is a slight improvement in the demand with them, and that they are looking forward to a reasonably fair business this year, in spite of the fact that there is some discouraging signs in the atmosphere. They are operating their plants on about one-half capacity, and while they would hope for a better business, they are not complaining, because they are finding an improvement in the demand. If the weather becomes more favorable, then they have reason to hope for a better demand than has been noted in some months.

The Louisville Brick Company say that there is a better demand for clay brick now than has been the case in some

time, and they are satisfied that there will be a very nice business later in the season. They say that there has already been an increase in the demand, and that there is reason to hope that there will be a very fair amount of business done this year, in the face of a very discouraging spring.

The P. Bannon Sewer Pipe Company find a slight improvement in their industry, and are content with the indications for the coming month's demand. They are not at all rushed, but they are keeping things on the go, so that there is reason to hope for a better business a little later. The fact that there is little outside work being done at present is naturally a drawback to their greater prosperity.

The Kentucky Fire Brick Company, Haldeman, Ky., have been doing a very satisfactory business in the past month, and have lately received a number of nice orders for their commodity. One of these was for two million improved steel fire brick for the Tennessee Coal and Iron Company, Birmingham, Ala., and another for forty million for the Louisville Light Company of this city. They are operating full time, and have a very favorable outlook for the future.

C. O. Smith, representing the Miller Brick Company, Owensboro, Ky., reports that he has been enjoying a very nice demand in the past few weeks. He has made a number of nice sales lately, and has just received a sample of something entirely new in the common brick line that will be a surprise to many of those in the industry when the nature of the brick has been made known.

The Louisville Pottery Company says that the demand for their clay wares is slow at this time, though they are operating their plant on full time, preparing to get in shape for the demand later in the year. They have hope of a very nice business on account of the large fruit crop, and have reason to believe they will be busy in the later months of the year.

The Southern Brick and Tile Company say that they are getting more orders all the time, and that the indications are very fair for this industry. They are manufacturing both brick and tile, and say that there will be at least a very fair demand on account of the building indications. They are operating their plant on full time, and have nothing to find fault with at this time, unless it be the weather.

The Burrell & Walker Clay Manufacturing Company report the demand with them to be somewhat slow, though, of course, it could be worse. They attribute the dullness to the conditions existing generally, though the continued rains have naturally had their effect on the business also. They have reason to hope for an improvement soon, and are living in that state of mind.

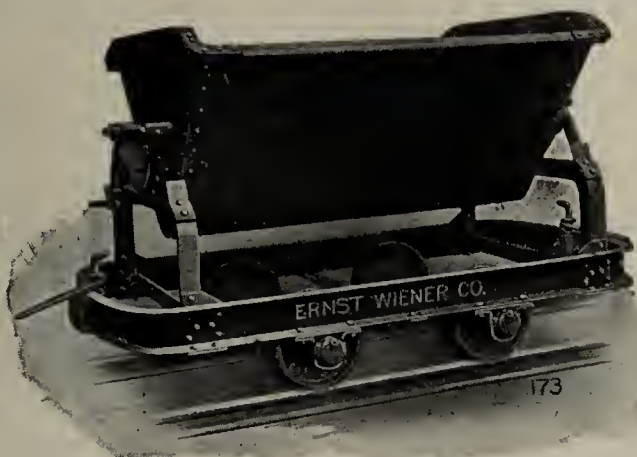
The Kentucky Vitriified Brick Company find some improvement in the demand with them, and say that there are indications that give encouragement of a very brisk demand later in the season. They are hoping for a very nice business, just as soon as there is more encouragement in the weather, and they have every reason to believe that there will be ample business in the way of new streets when this condition arrives.

The Hillenbrand Brick Company say that they are unable to supply the demand for brick at present, and that they are arranging for the installation of another kiln to take care of their business. The prospects with them are very favorable, and there is every reason on their part to look for as much, if not more, business than they had a year ago.

The Louisville Fire Brick Company say that they are not as busy as they could wish to be, but that they have noted a slight increase in the demand with them in the past week or so. They are only operating about one-half time, and while conditions are not as flattering as they would desire, they are hopeful as to the future, and have reason to look forward to an improvement in the demand before very much longer.

COLONEL.

It is estimated that about twenty-five new houses are being built at Elmira Heights, N. Y., this spring.



IT DUMPS BOTH SIDES

either right or left hand, and once the load is dumped the body rights itself automatically. This saves a great deal of time and trouble. The frame of this car is made of one piece of channel iron bent round at the end which acts as a buffer. The advantage of having a one piece frame is, that if the car is derailed it will hold its shape and is stronger and more durable than a square frame.

We always carry a LARGE STOCK of Cars (various styles) **Rails, Frogs, Switches, Turntables**, etc., at our works Brooklyn, N. Y., and Youngstown, Ohio, from which we can make prompt shipment. Write for Catalog 2.

RAILROAD SPECIALISTS FOR ALL INDUSTRIES.
ERNST WIENER
COMPANY.

162 Morris Bldg., New York, N. Y.

BOSTON,
141 Milk Street.

CHICAGO,
Monadnock Bldg.

BISBEE, ARIZ.
DENVER, COLO.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE.

Four-mold, Model "C" dry press, very cheap. Address "X,"
5 1 d Care Clay-Worker.

FOR SALE—Several automatic end-cutters and brick edgers for Chambers Bros. brick machine. Cheap. Inquire

ILLINOIS BRICK CO.,
5 1 d Chicago, Ill.

WANTED—One kiln burner, one pressman and one kiln setter for sewer pipe plant. Must be thoroughly competent men and give references. Good wages. Address

"CANADA,"
5 3 c Care Clay-Worker.

FOR SALE—One 2-mold Simpson dry press. One eight-foot iron frame dry pan. One No. 6 Brewer brick and tile machine, with all necessary dies and cutters. One tile elevator, one clay elevator, one clay disintegrator. O. W. DUNLAP,
2 tf L Bloomington, Ill.

POSITION WANTED.

Auditor and accountant experienced in manufacture of clay products, also cost accounting in this line, desires to locate with some good manufacturing concern. Correspondence solicited. Address

AUDITOR,
5 1 cm Care Clay-Worker.

FOR SALE.

One 45-foot Raymond 14-inch trough belt clay conveyor. Complete with belts and pulleys. Used but one month. Will be sold cheap. Also one Potts disintegrator, complete and in good repair. A bargain. Address

BROOKLYN BRICK CO.,
230 E. Ohio st.,
5 1 d Indianapolis, Ind.

FOR SALE.

A first class stiff mud brick plant at Lawrenceville, Va., on Southern Railway, half way between Norfolk, Va., and Danville, Va. Steele's machinery. 100 h. p. boilers and engine. Up-draft kilns, with grates for burning coal. Capacity 25,000 per day. Eighteen acres of clay land. National Dry Kiln erected spring of 1907, with transfer system and full complement of cars. All in good condition and in shape for ready operation. Full particulars on application to WALTER C. ARCHER, 365 Withers bldg., Norfolk, Va.
5 3 cm

THE RIGHT MAN.

A young man of character with the energy, ability and experience necessary to manage successfully the business end of a brick manufacturing company is open for a position. Prefer a face building or fire brick plant.

If production is below what it should be, or cost is too high, or if there are other manufacturing troubles, can analyze and overcome them. Can build up business.

Am looking for a going concern with a good plant and favorable location. Would invest up to \$5,000 in right proposition.

In reply please state plant's equipment and present annual production. Address U. A. P., Care Clay-Worker.

FOR SALE—Brick and tile plant in the best part of Iowa. Plenty of clay, best quality. Good reason for selling. Price, \$9,000. Address H. L. SWIFT,
5 2 cm Riverside, Iowa.

WANTED—Position to undertake the manufacture of bath tubs, sinks and other enamelled sanitary fire clay ware. Understand the business from start to finish. Fully experienced. Address "ENAMEL,"
5 1 cm Care Clay-Worker.

WANTED.

Position by an experienced superintendent. Understand soft mud, stiff mud, and dry press machinery; up and down-draft and continuous kilns. Have used coal, wood, gas and oil as fuel. Can handle labor to the best advantage, and know all about dryers. Am strictly sober and can give good references. Address FRED,
5 1 d Care Clay-Worker.

FOR SALE—Second-hand sand mold brick machinery, including one Quaker brick machine, one pug mill, one sander, six trucks and barrows, 6,000 wood pallets and grates, doors, brick molds, dump tables, etc. All in good condition. Very low price for cash deal. Address FRANK B. DUNN, Box 474, Conneaut, Ohio.
5 1 c

FOR SALE.

Owing to the death of one of the firm, one-half, or, if desired, entire interest in a brickyard property located in New Jersey, the present capacity of which is ten million per annum.

It consists of ninety acres of ground, with an abundance of clay and sand for the manufacture of common brick, machinery, sheds and buildings in first class order and ready to start at once.

Best of railroad shipping facilities and good freight rates to many of the large cities. For further particulars and terms, Address BOX 153,
5 1 dm Matawan, N. J.

RECEIVER'S SALE.

VALUABLE FIRE CLAY PROPERTY IN KENTUCKY.

Receivers of the Carter County Fire Brick Company appointed by the Federal Court at Covington, Ky., offer for sale

71½ ACRES OF LAND IN FEE.

UNDERLAID BY THE FINEST FIRE CLAY.

Near Soldier in Carter County, Ky., and convenient of access to the C. & P. Railroad, EXCEPTING the fire clay rights under 77½ acres of said land, and certain timber rights for a period on a part of same.

Reported to be the finest FIRE BRICK CLAY in the Country. Valuable vein of ASPHALT AND DEPOSIT OF BARYTES.

NO REASONABLE OFFER REFUSED.

E. L. Painter, Federal Receivers,
Joshua Horner, Jr. 301 St. Paul St., Baltimore, Md.
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FOR SALE.

Modern equipped brick plant. Modern dryer and conveyances, etc. Located on Erie Canal, between Albany and Schenectady, accessible to New York and up state markets. Capacity, about 50,000 daily with power for additional capacity. Seventy acres of land, stone quarry, timber and molding sand. Plant now in operation. Large unfilled order, and brick specified in specifications for many new school build-to be erected in Schenectady.

This plant is exceptionally well equipped with machinery and appliances. Erie Canal runs through brick sheds. Company will dispose of plant as it now stands at a reasonable price to responsible parties.

Reason for selling: Owners are not brick manufacturers and are otherwise engaged and can not give plant personal attention. Enquire of JOHN SCANLON,
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WANTED—Situation as superintendent of a clayworking institution. Applicant has practical experience in the manufacture of face and paving brick, stiff mud process, hollow goods, sewer pipe, drain tile and electrical conduits. Also technical training in other branches of the clay industry. First class references. Address

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One 2-mold U. S. brick press. One 2-mold Boyd brick press. One 4-mold brick press of standard make. One 3-mold Andrus brick press. Dry pan, pulverizer, screen and transmission. One set of plates for 7-foot wet pan. 250 horse power Corliss engine and boilers.

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An absolutely up-to-date first class dry press and stiff mud brick man to oversee installation of new machinery and manage entirely a new plant. Capacity, 25,000 to 30,000 per day. Man to be first class in all respects. Address

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A number of dryer cars.
Two second-hand dump carts, practically as good as new.
All of the above in first-class condition. Address,
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Continued on page 724.

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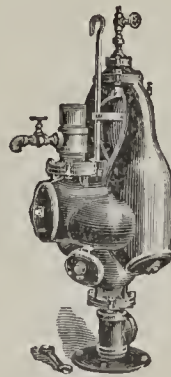
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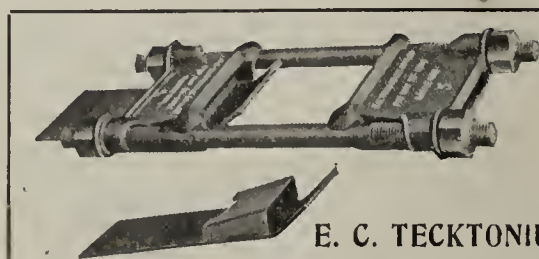
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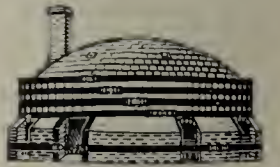


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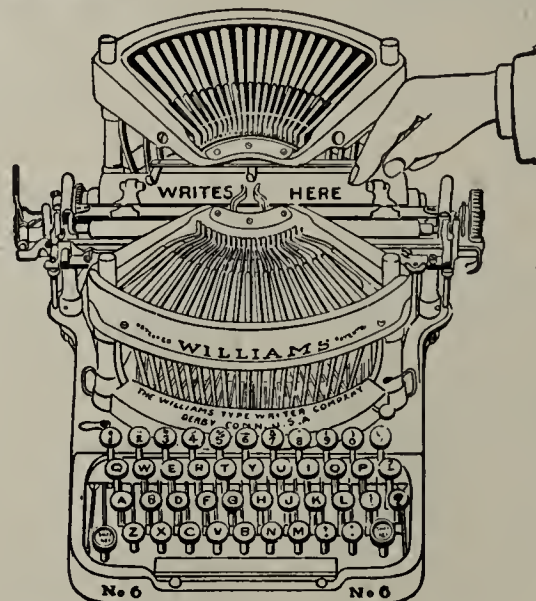
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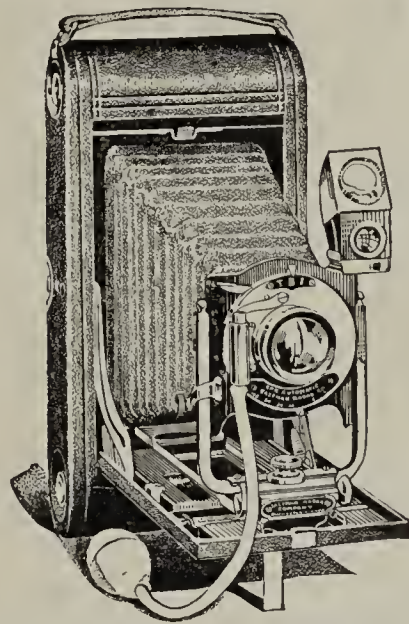
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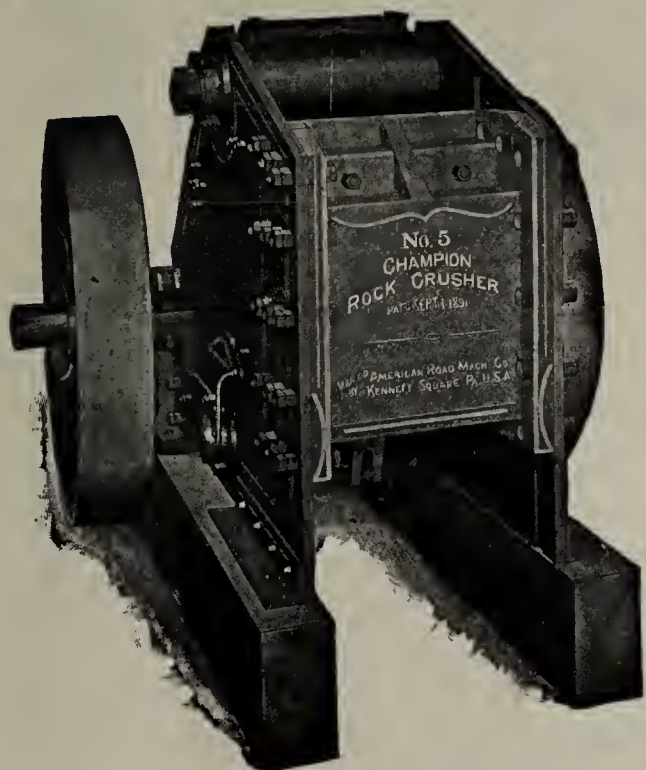
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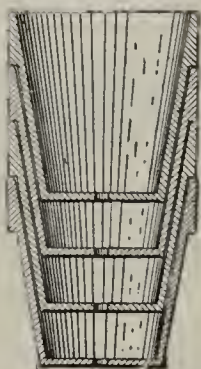
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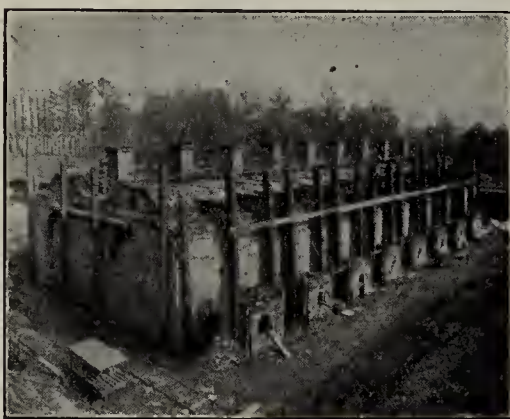
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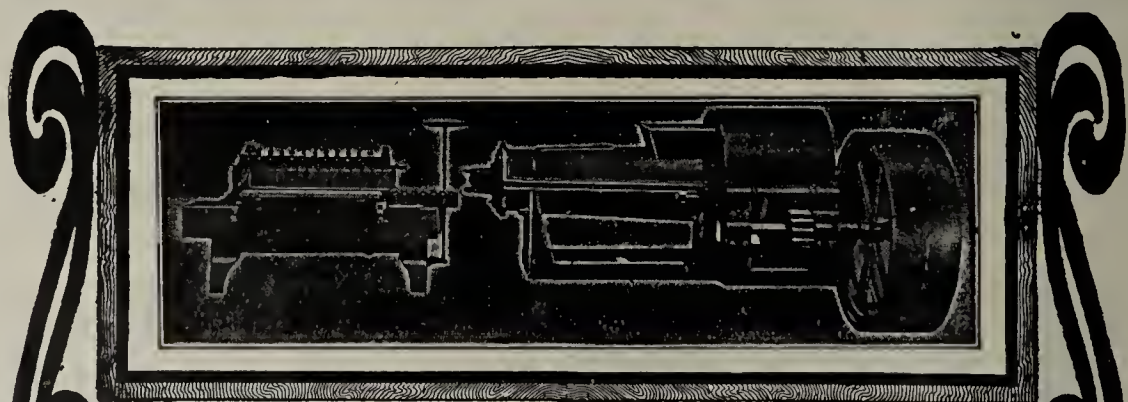
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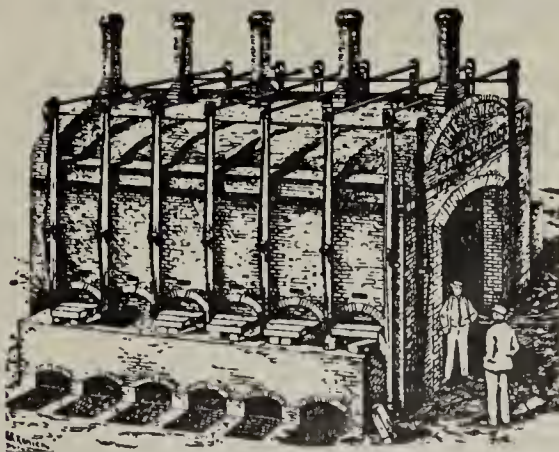
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Absolute Draft Control. Economy of Fuel and Time.
All Hard Brick.

Kiln and Yard Rights, with Plans, Specifications, etc., sold at very reasonable rates. Booklet, estimates and full information cheerfully furnished.

GEO. E. SNOWDEN & CO.,

[Formerly J. P. Bradley & Co.]

New Cumberland, W. Va.

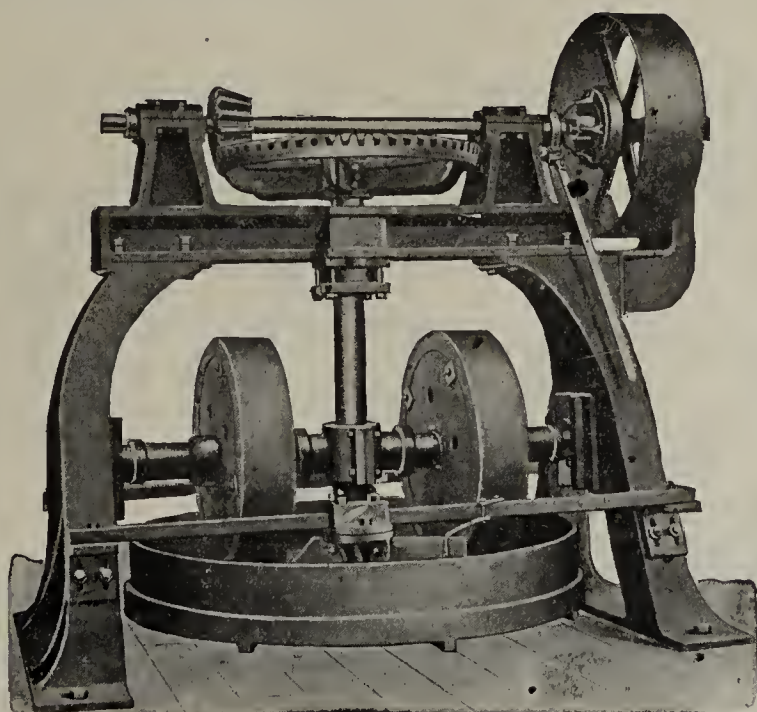
PHILLIPS & McLAREN CO.

PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

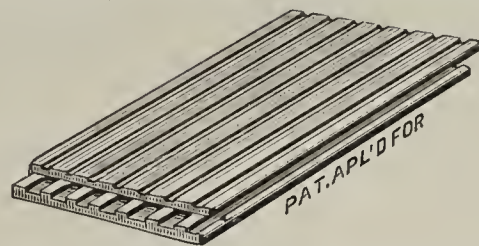
When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



\$2—The CLAY-WORKER One Year in Advance—\$2.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for
Interlocking Tiles, Dies for all shapes,
Hips, etc., in metal or plaster.

Special Roller and Auger Presses for
Shingles, Interlocking Spanish Tiles, Au-
tomatic Shingle Cutting and Punching
Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capa-
city and horse power, stiff mud brick
and hollow block dies, dry press liners.

MUELLER BROS.,

39 South Channing Ave.

St. Louis, Mo.



If...

**You Want
to Sell
or Buy...**

Second-hand Claywork-
ing Machinery, Tile Mills,
or anything pertaining
thereto.

**If...
You Want
a Man**

for any position or a posi-
tion in any connection
with the Clayworking
Trades use the

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and Want
Columns
of...**

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Clay-Worker.**

RATES

For all transient advertisements, such
as "For Sale," "Wanted," etc., the rate
is 25 cents a line per insertion. Aver-
age of seven words to line. Head line
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**The Best, Quickest, Cheapest
Method of Securing Results.**

The Richardson-Lovejoy Engineering Company,
Consulting Engineers and Factory Architects.
Manufacturers of Controlling Apparatus.

Geological Examination of Properties.
Chemical Analyses.
Clay Testing.
Investigation of Manufacturing Propositions.
Plants Designed and Construction Superintended.
Dryers for Any Clay Product.
Kilns of Every Type.
Faults of Manufacture Corrected.
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PUBLICATIONS.
Brick Works Engineering.....Free
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Products.....Free
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Kiln Records.....1.00
Scumming and Efflorescence......50

TECHNICAL BUREAU FOR CLAYWORKERS, 1534 N. High St., Columbus, Ohio.

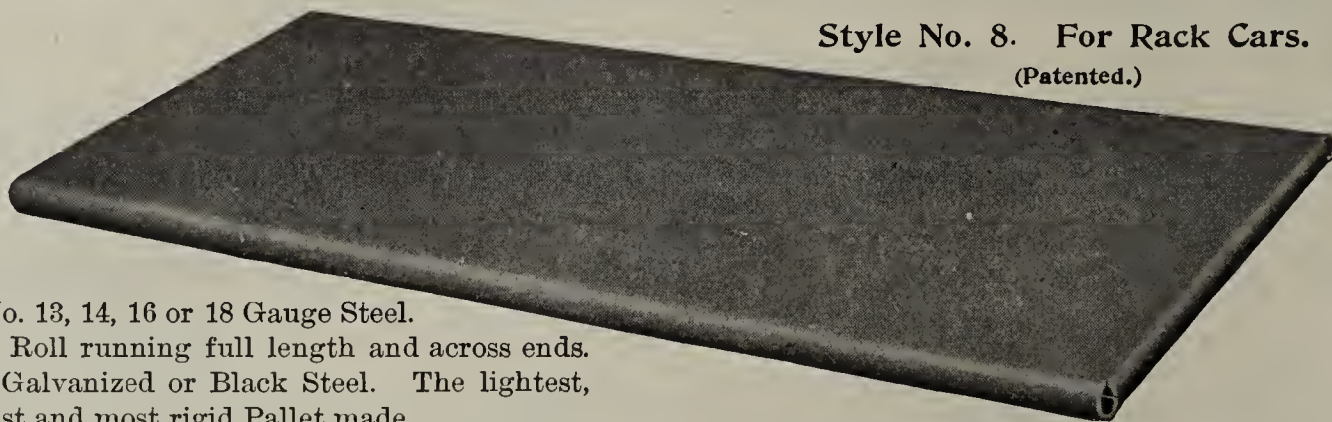
MENTION THE CLAY-WORKER,

WHEN WRITING TO ADVERTISERS,

MENTION THE CLAY-WORKER.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

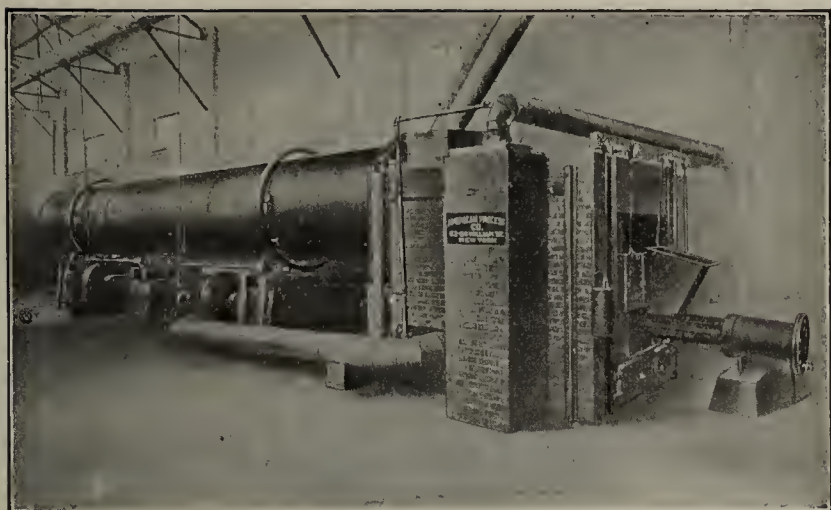
THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

The
ROESSLER-HASSLACHER
CHEMICAL COMPANY,

100 William Street,
NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese
and all Chemicals used by the Clay Trades.



Automatic Improved DRYERS

ECONOMICAL, EFFICIENT, GREAT CAPACITY.

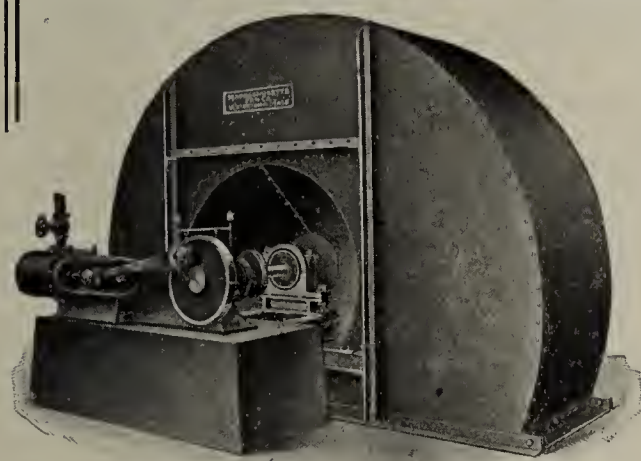
For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

AMERICAN PROCESS CO.,

62-64 William St., New York.

MASSACHUSETTS BALL-BEARING FANS



reduce driving power by 10 per cent. No attendance is necessary, no oiling is required. The bearings are absolutely dust proof. As a substitute for water cooled journals they do away with piping, water service and waste.

Through our branch office in the Rockefeller Building, Cleveland, Ohio, we are prepared to give personal expert service.

Massachusetts Fan Company

General Office and Works, WATERTOWN, MASS.

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2-25

HAIGH'S NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning

ROOFING TILE, DRY PRESSED, FACING, FIRE, PAVING AND COMMON BUILDING BRICK, and Burning from 5,000 to 100,000 Brick per Day.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

THIS KILN CAN BE FIRED WITH COAL, WOOD, OIL, NATURAL OR PRODUCER GAS.

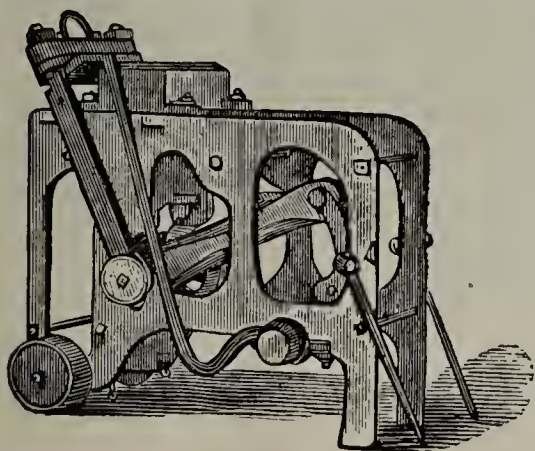
For further particulars address

H. HAIGH, Brick Works Engineer, Catskill, N. Y.

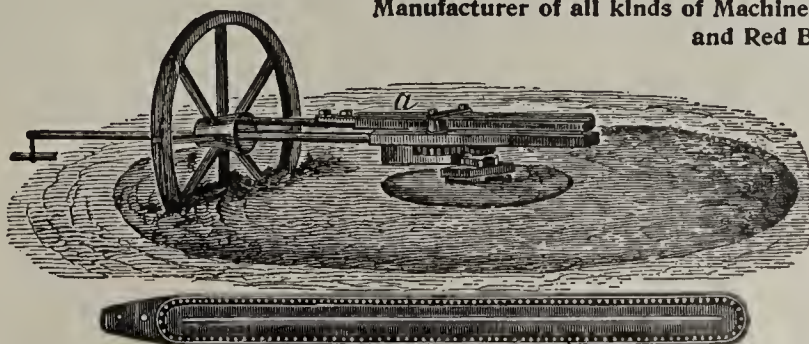
Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



RED BRICK PRESS.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price-List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

THE BOSS SYSTEM OF BURNING BRICK.

WATER SMOKE WITH ALL SLACK
BURN WITH ALL SLACK
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME
LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS COMMON BUILDING BRICK
BURNS PAVING BRICK
BURNS DRY PRESSED BRICK
BURNS HIGH CLASS FRONT BRICK
BURNS TERRA COTTA

Thirty years' experience; will guarantee to burn any kind of clay, including the most refractory fire clay for 40% less fuel cost than by the old method. Can be applied to kilns already built without any alterations. Write for Catalogue.

JOHN C. BOSS,
Office, 404-405 Monger Bldg., ELKHART, IND.



B. E. BECHTEL

We Are PRACTICAL BRICKMAKERS.

We install Dryers that **DRY BRICKS** either open air or artificial.

We manufacture Disintegrators and Automatic Brick, Tile and Hollow Block Cutting Tables. Absolutely no stop for broken wires. Write for our catalogue.

BECHTEL'S,
Waterloo, Ont., Can.

STEAM SHOVELS FOR BRICK YARDS.



We have a large number of Shovels in brickyard service in all parts of the country, and can furnish machines of any dipper capacity desired from $\frac{3}{4}$ to 5 cubic yards. If interested write for catalog.

The Marion Steam Shovel Co.,
Marion, Ohio.

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.

F. H. HOPKINS & CO., Agents
Montreal, P. Q.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.

These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Sqaure Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.

You Can't Afford to Cut Special
Shapes by Hand,

Not when your competitor is using a

BRADFORD BRICK RECUTTER MACHINE

This machine will cut arch and key brick, also track paving brick, uniformly and accurately.

The machine is easily and quickly adjusted to shape desired.

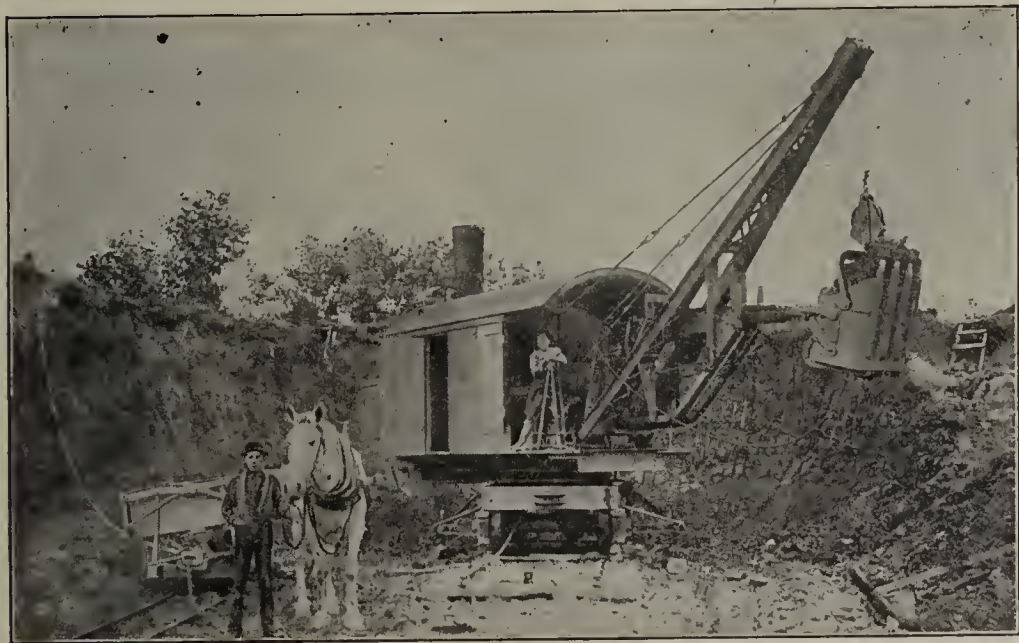
We would like to tell you what it did for the other fellow.

G. W. FLEMING CO.,

BRADFORD, PA.

**Handle Your Clay
With One Man and**

The Thew Steam Shovel.



Type No. 1—Traction Wheels or Car Wheels, $\frac{3}{4}$ -Yard or One-Yard Dipper.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

WRITE US FOR CATALOGUES OR INFORMATION.

**THE THEW AUTOMATIC SHOVEL CO., LORAIN,
OHIO.**

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

Made in four sizes.
Mounted on Car Wheels
or Traction Wheels.

Dryer Cars of Quality.

The Manufacturers' Name Guarantees That Qualification.

The Best is The Cheapest.

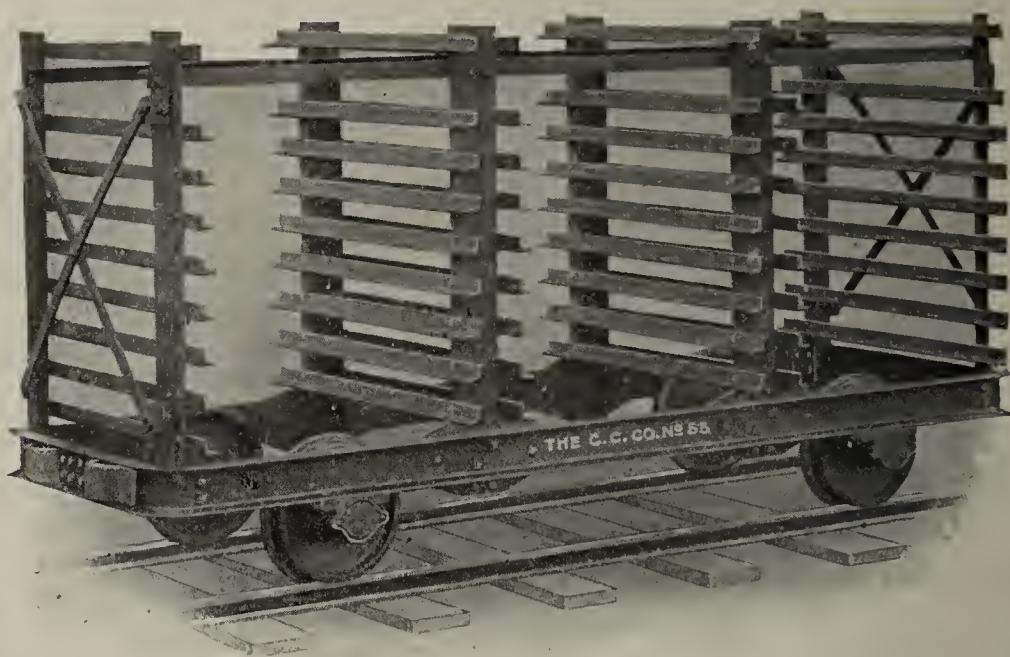
We can satisfy you on that point—To sacrifice quality is no economy—Therefore let us talk to you on the subject. We have something to say. Write us now.

Don't put off that car matter.
Send for catalogue.

The Cleveland Car Co.

West Park, Ohio.

(Suburb of Cleveland.)



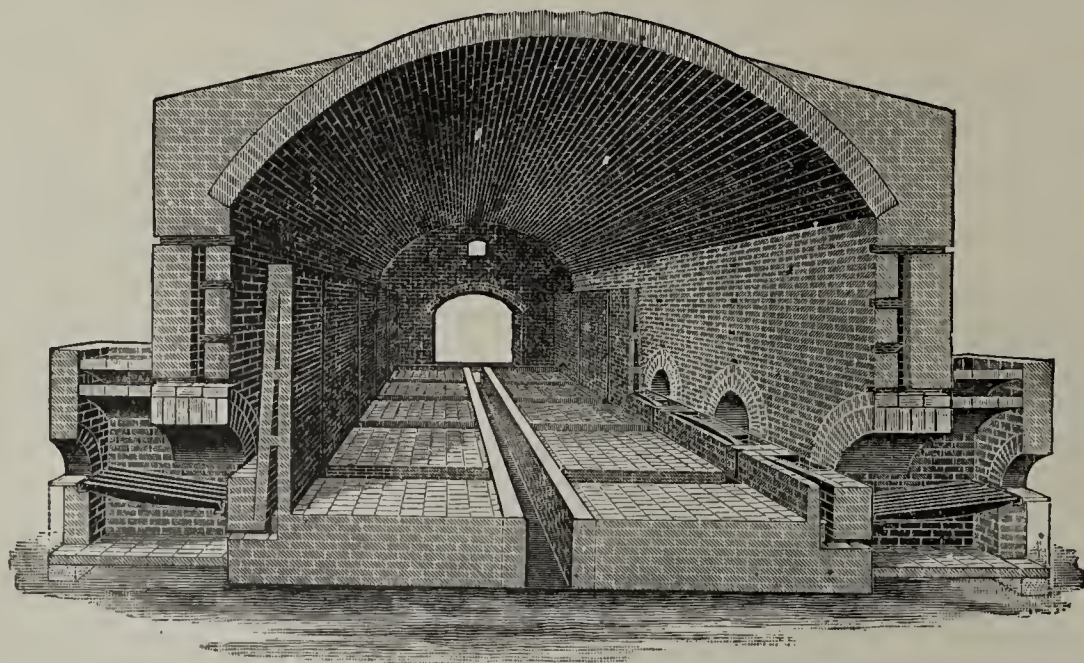
THREE SECTION RACK CAR.

Designers and Builders of Industrial Railways Complete.

CARS FOR ALL PURPOSES, SWITCHES, PORTABLE TRACK, TURNABLES, TRANSFERS, PALLETS, KILN BANDS, TUNNEL DOORS, ETC.

The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

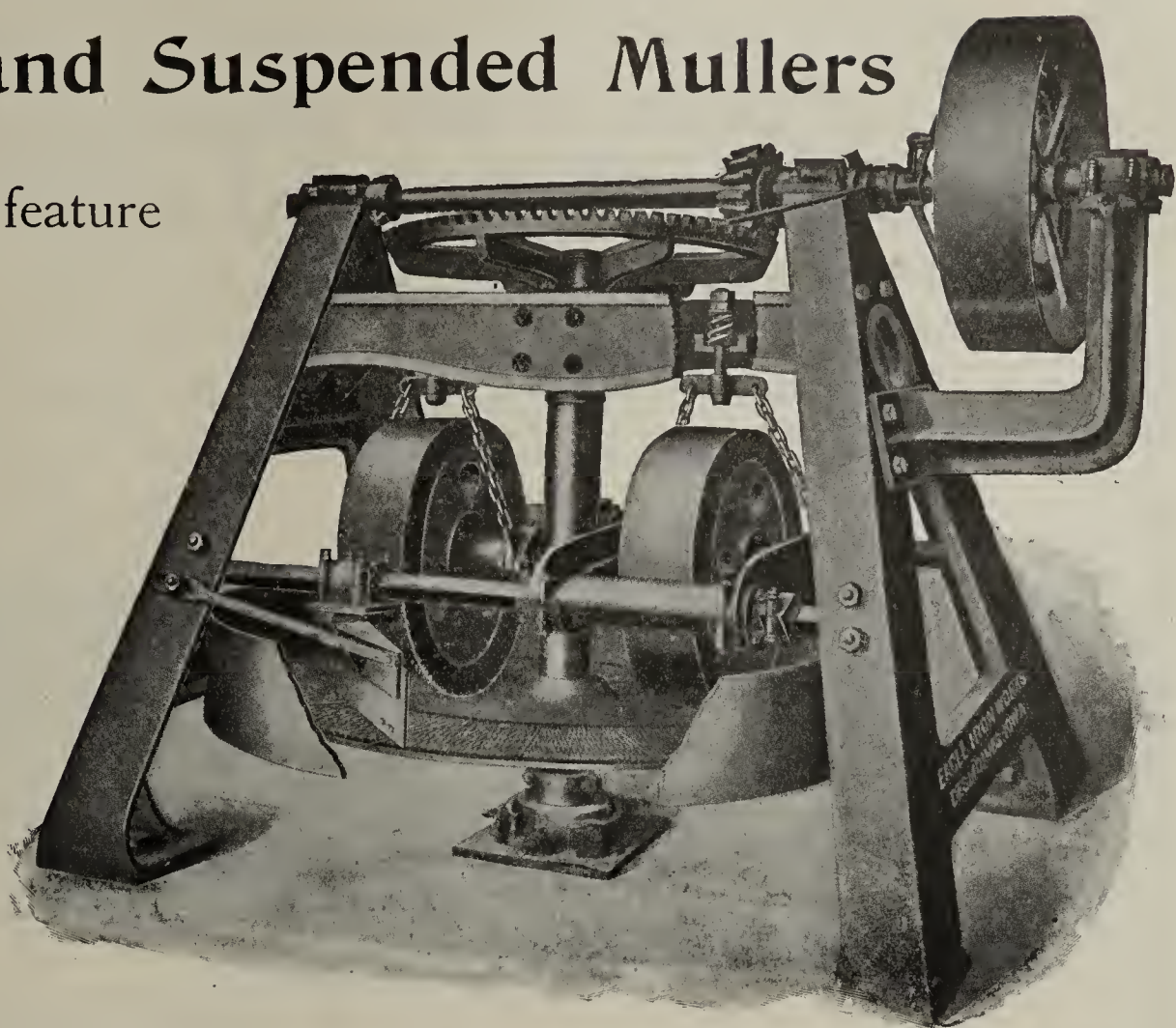
W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

Independent and Suspended Mullers

the distinguishing feature
of our

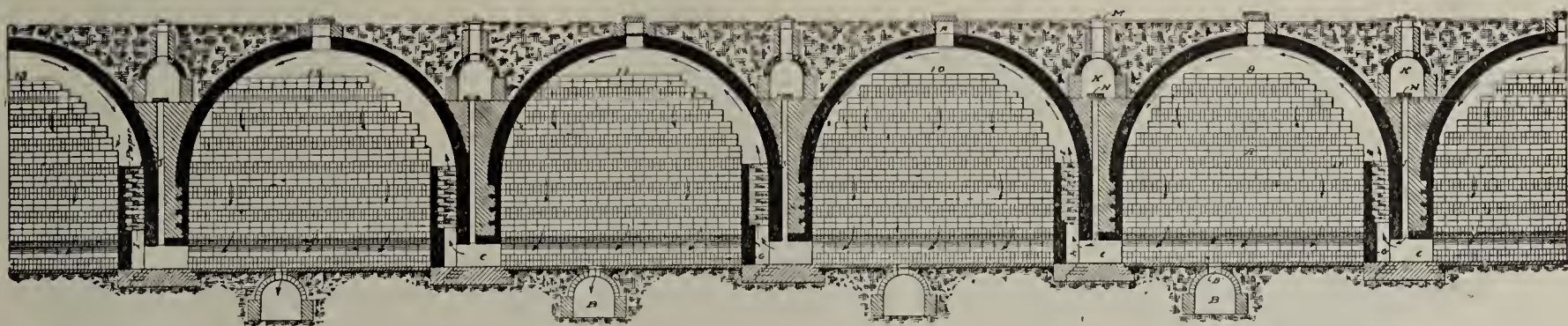
DRY PANS.

Other valuable
features which our
catalogue fully
describes.



EAGLE IRON WORKS, Des Moines, Ia.

THE YOUNGREN CONTINUOUS KILN PRODUCER GAS FIRED.



This kiln has now been developed to a state of perfection that places it far in advance of any other system of kilns for burning any and all kinds of clay product.

The kiln is fired with producer gas which is generated from ordinary bituminous coal in a gas producer attached to the kiln. This renders the operation easy and places the regulation of the temperature under most accurate control.

For particulars address

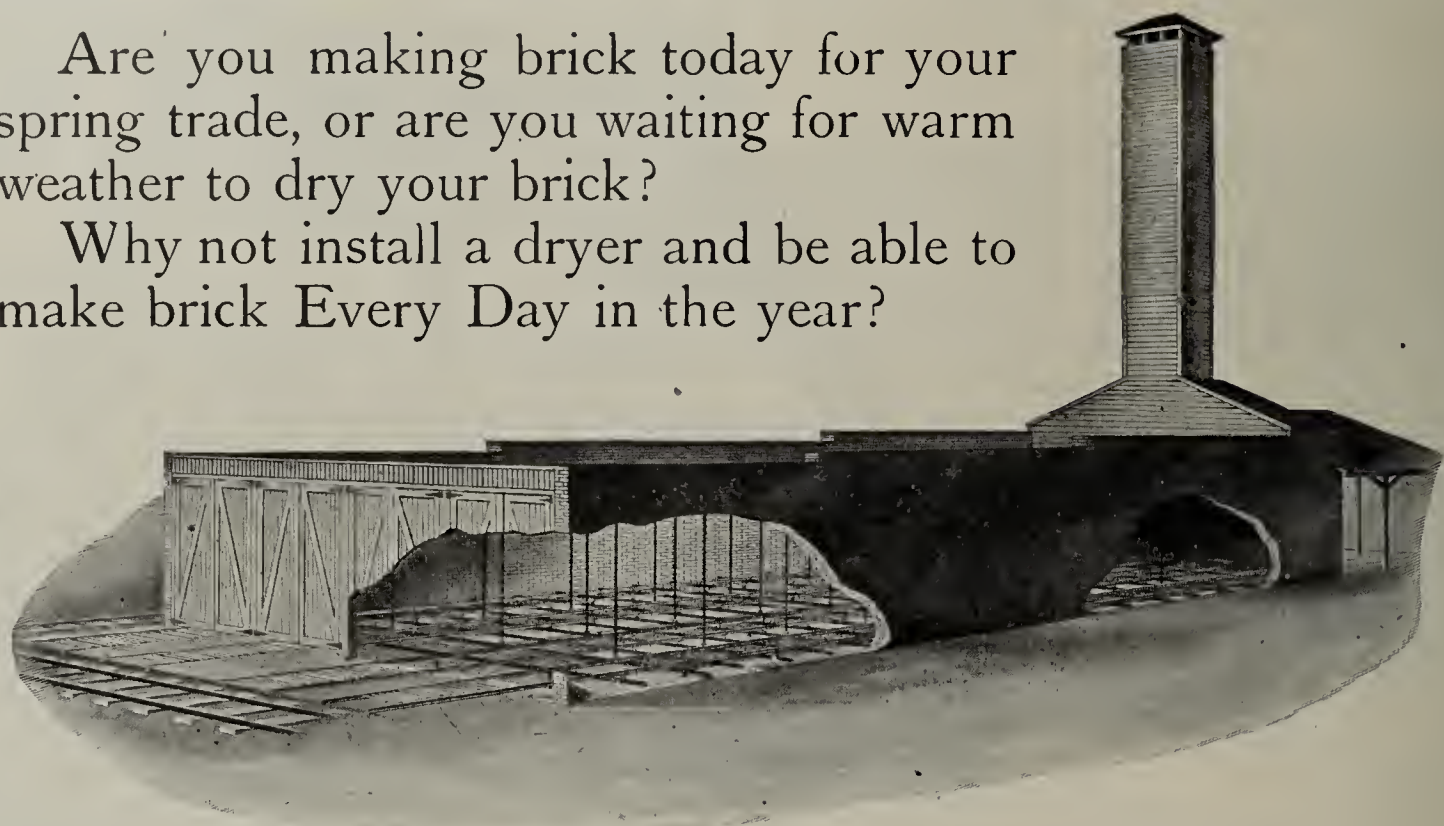
P. L. YOUNGREN,

299 Twenty-Fifth Street, MILWAUKEE, WIS.

The Original ^{EXHAUST STEAM} Dryer is the National.

Are you making brick today for your spring trade, or are you waiting for warm weather to dry your brick?

Why not install a dryer and be able to make brick Every Day in the year?



TATUM & BOWEN, Pacific Coast Agents,
Seattle, Wash., and Portland, Ore.
C. H. BEALE, Southern Manager,
Montgomery, Ala.

No Fan. No Engine. No Fire Danger.
Steel Roof Supports. Steel Roller Bearing Cars, etc.

Steel Foundations.
Ask for Cat. 200

The National Dry Kiln Co., Indianapolis, Ind.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for; write us.

Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

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BOOKS FOR CLAYWORKERS.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryer, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terracotta and pottery, including exact recipes and formulas for all the principal colors now in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

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A review of present practice in the manufacture, testing and uses of Vitrified Paving Brick.

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A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

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A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

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A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

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Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvements.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

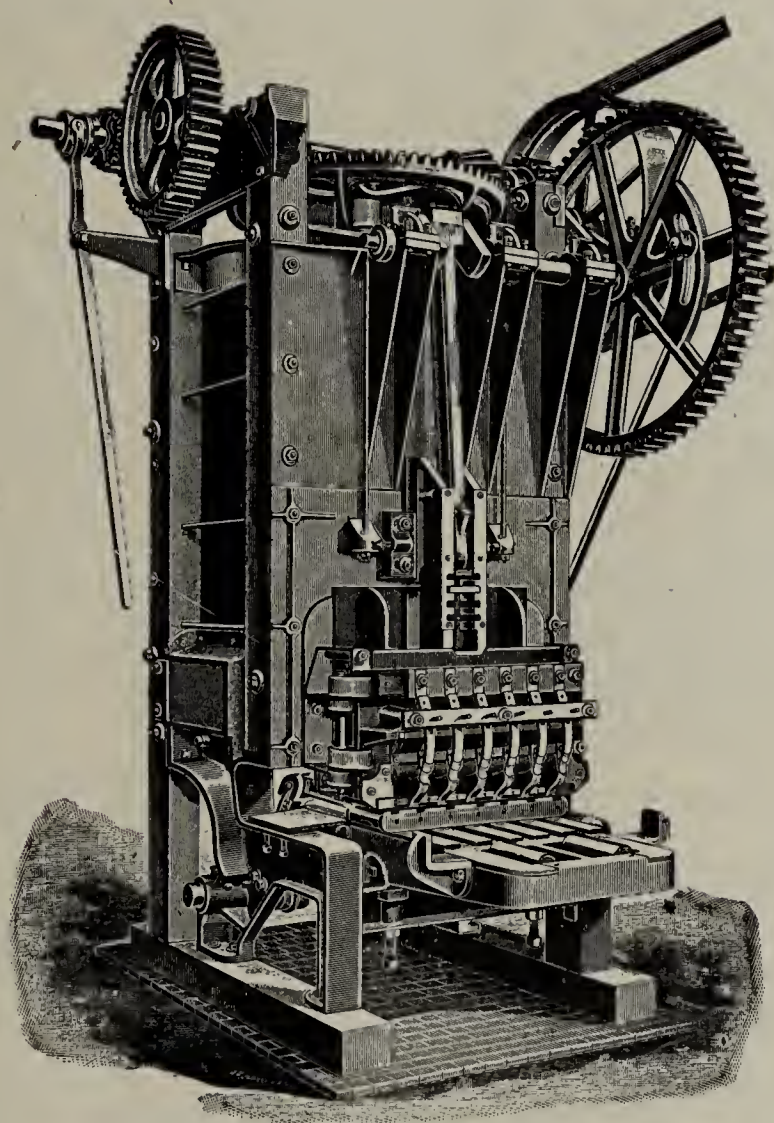
**We Build
New Plants
and
Remodel Old
Ones.**

LUCE ENGINEERING COMPANY,

1815 Third National Bank Bldg.,

St. Louis, U. S. A.

"New Haven" Brick Machines.



Soft
Clay
Brick
Machines
Are
the
Only
Kind
We
Build
and
We
Build
Them
Well.
Stout
Shafts,
Long
Bearings,
Large
Oil
Holes,
Strong
Gears,
Steel
Liners
and
Other
Details
in
Proportion.

The Eastern Machinery Co.,
New Haven, Conn.

THE LAST CALL

Before the season for making brick begins.

If you have a

**Brick Machine, Disintegrator, Mold Sander
or Pug Mill**

which is not Modern and with which you can not compete with your neighbors either in Quality or Cost; if your supplies are worn or broken,

DON'T DELAY

but write at once, stating your troubles. We can help you.

We manufacture the most complete and modern line of

**Sand Mold Brick Machines, Horizontal Brick Machines,
Disintegrators, Mold Sanders, Pug Mills, Winding
Drums, Clay Cars, Elevators, Molds, Trucks
and Barrows,**

As Well as the Best Drying Proposition on the Market.

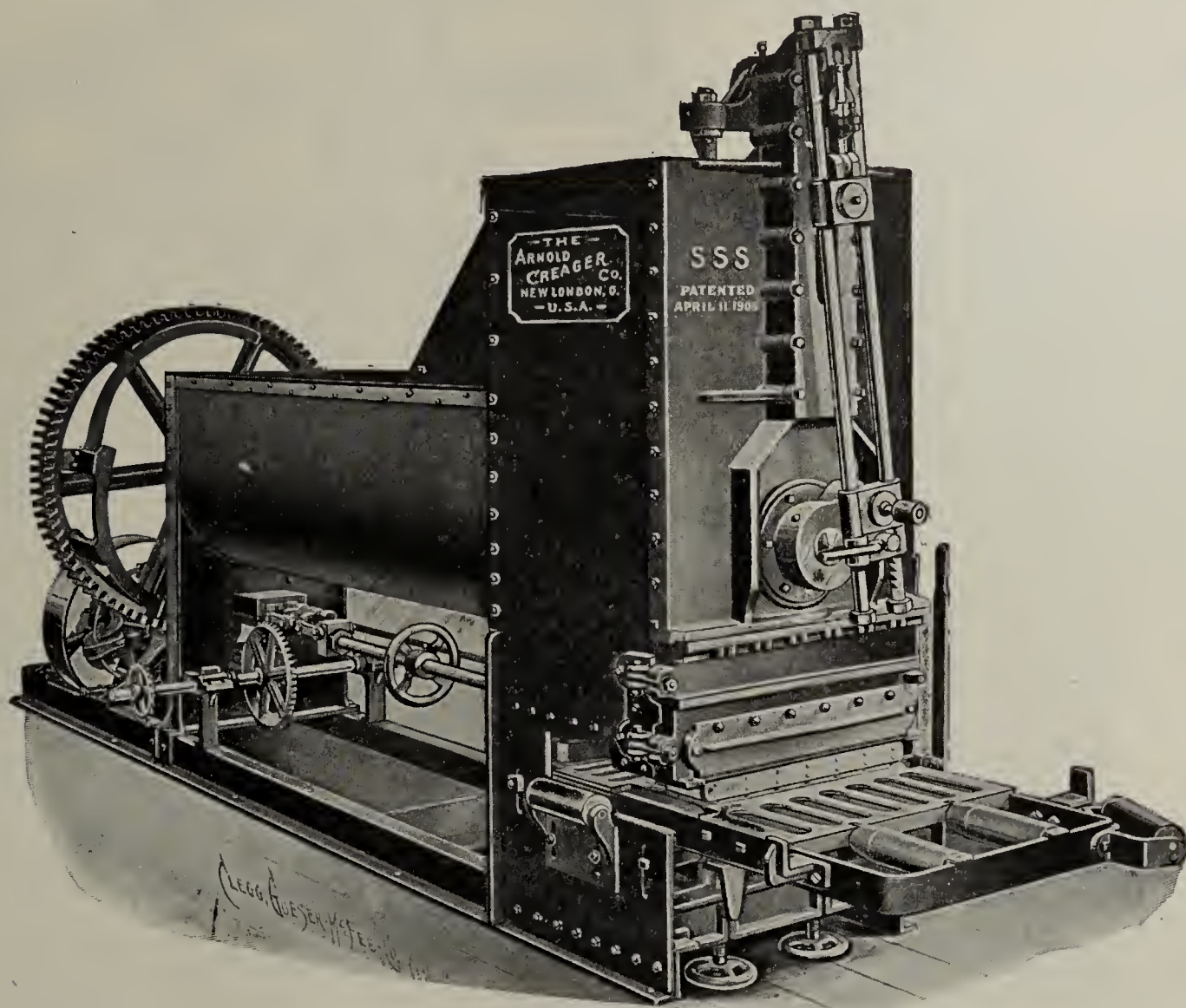
As we have neither traveling salesmen nor agents, our operating expense is small. You will find our prices right.

We are in position to equip your plant complete, from Clay Bank to Kiln, guaranteeing results.

Write for our catalog.

C. & A. Potts & Co. Indianapolis, Ind.

HONESTY IS THE BEST POLICY.



S-S-S.

Every Brickmaker should insure himself against loss through poor machinery by taking out a policy NOW with the Arnold-Creager Company, and adopting one of their S-S-S all-iron-and-steel Brick machines. A perfect combination of Simplicity and Strength. Few parts, and all Automatic. Inside Press, exerting tremendous pressure, easily regulated. Twelve feet of tempering capacity, and can easily run 16 moulds per minute. Solid construction enables the working of very stiff clay, making the ideal brick. Front of Press fitted with stone doors when desired. A strictly first-class machine at a small price.

For complete catalog giving details of this, and other high grade machinery and the "1908—Grand-Automatic" address

The Arnold-Creager Company, Inc.,

NEW LONDON, OHIO.

CINCINNATI, OHIO.

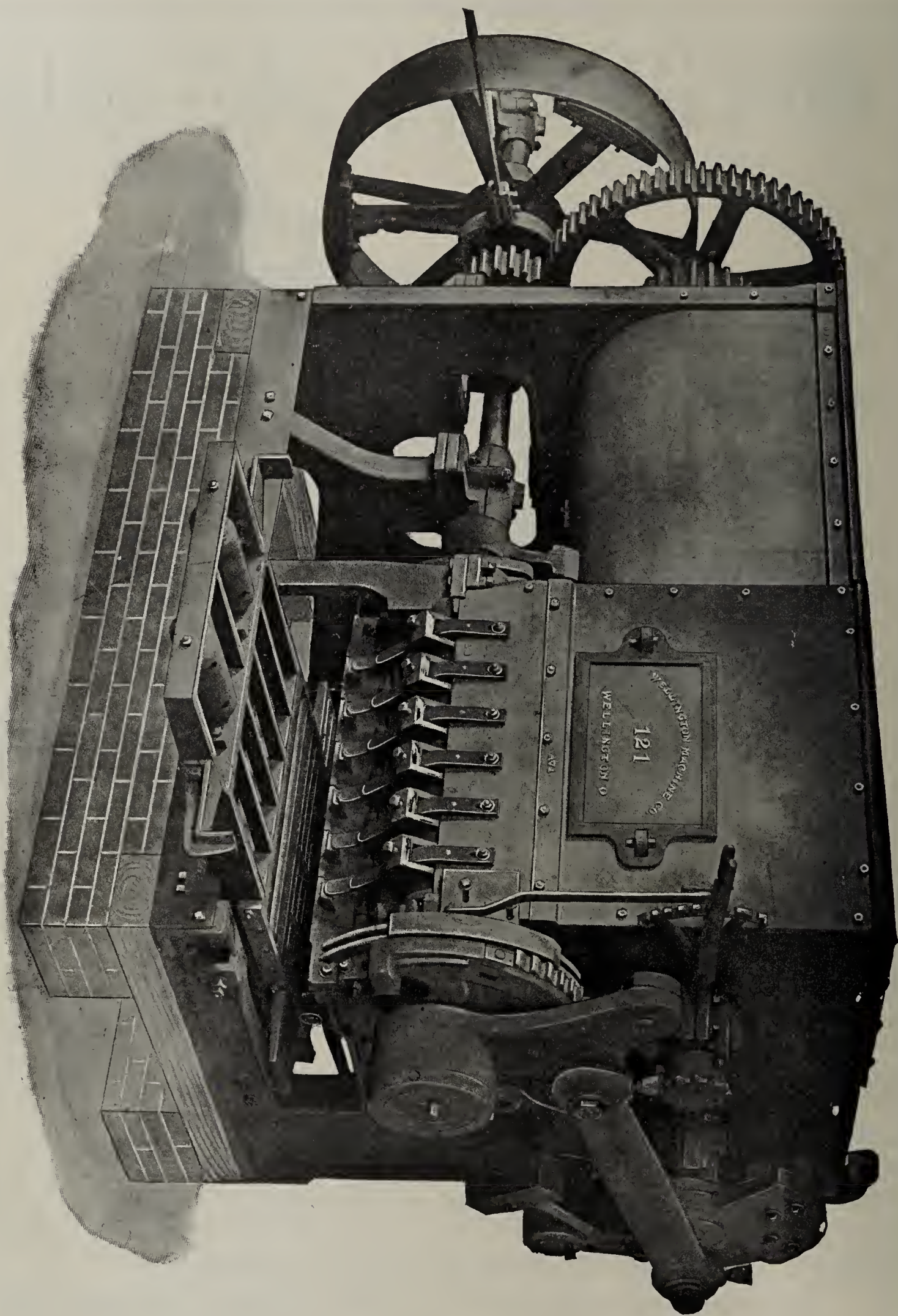
CABLE "AUTOMATIC".

Mention The Clay-Worker.

OVER
235
"Monarch"
Brick
Machines
in use

OVER
565
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators.
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The "Big No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

**ROLLER-BEARING
BARROWS.**

The Wellington Machine Co.,

WELLINGTON,

OHIO.

Send for Catalogue.

We manufacture a complete line of BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BEARERS.

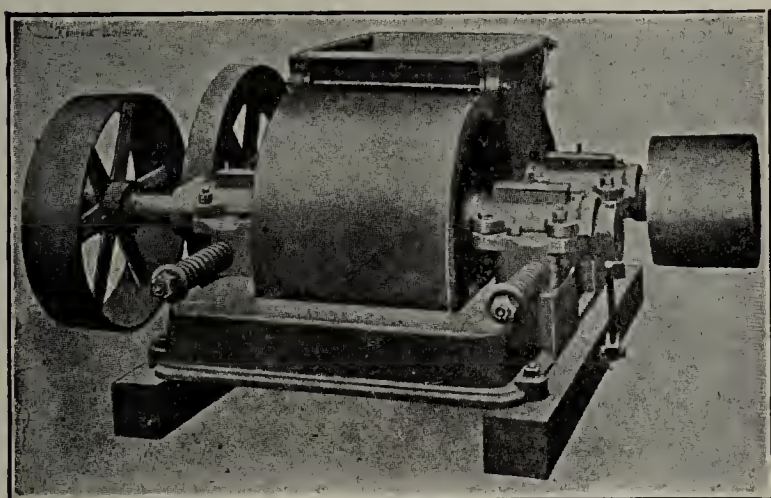
The best built, Price \$6.50 each.
Stock size wheel, 20 inches diameter.
(If wanted 18 inches.)

There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.



Our Heavy Clay Disintegrator.

Note the springs and what is said about them below.



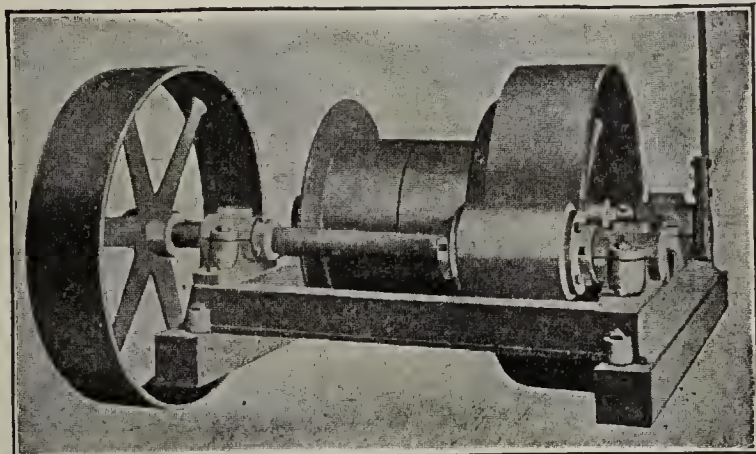
This particular disintegrator we believe to be much the best one that is built, as we intend it for large capacity, and to stand up to severe work for years. Both rolls are chilled. The journals are 10 inches in length. The small roll has a heavy balance wheel. Note its massive construction. There is a weighted scraper so hung that it automatically cleans the large roll.

RELIEF SPRINGS: After considerable experimenting we have learned just how to put relief springs on the large roll, and do it successfully. Occasionally a bolt or something else gets into a disintegrator that cannot be crushed, and it always means a smash-up. We have experimented long before adopting these, but can now guarantee them a success.

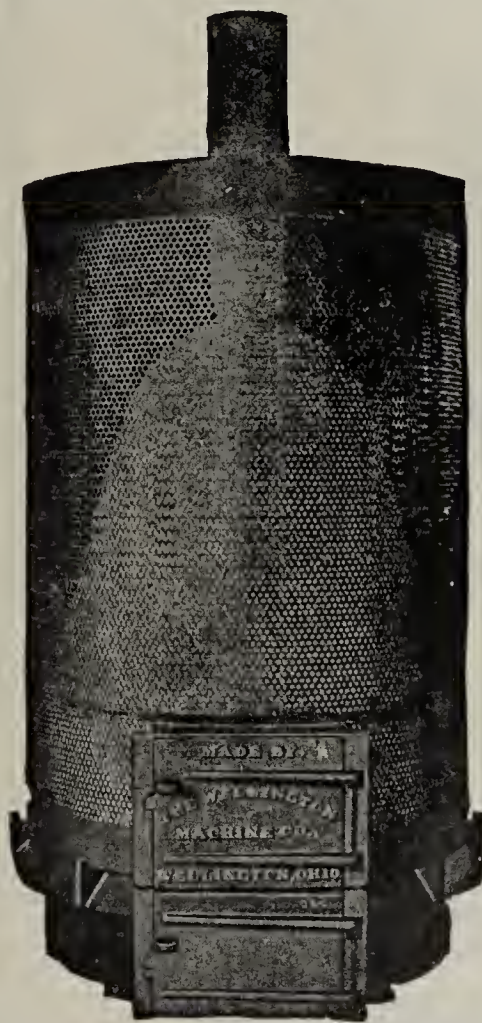
CAPACITY, 25,000 to 50,000 per day according to speed at which it is run. Pulleys fast roll 14 dia. x 10-in. speed, 700 to 800. Slow roll, 24 dia. x 6-in.; speed, 50 to 75.

1908 CATALOGUE MAILED FREE
ON APPLICATION.

Winding Drum.



Our Direct Driven Self-Contained Winding Drum is a Labor-Saver.



Sand Dryer.

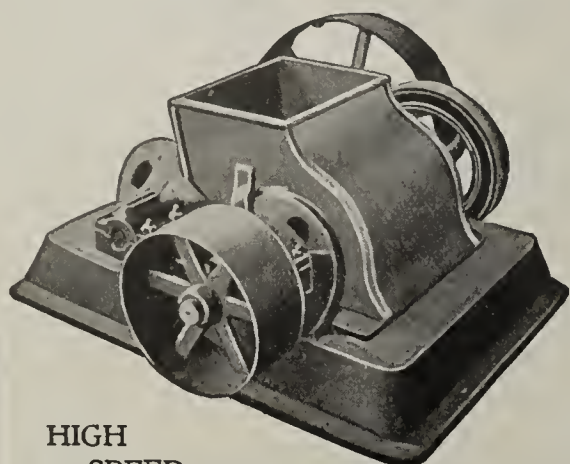
Weight, 1,100 lbs. Every brick works needs one. Diameter over all, 3 ft. 1 in. Height, 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

JAMES W. HENSLEY,

Successor to S. K. Fletcher.

Indianapolis, Ind.

Mention The Clay-Worker.



HIGH
SPEED
DISINTEGRATOR

WE MANUFACTURE
THE MOST COMPLETE
LINE OF CRUSHING
MACHINERY

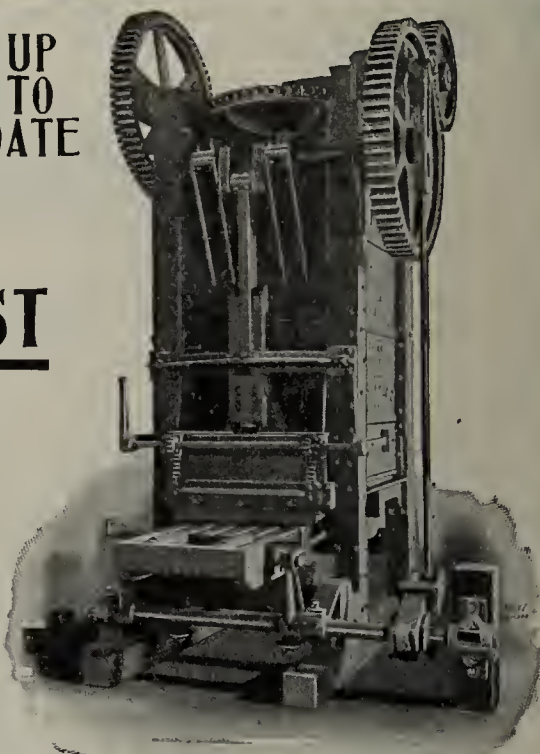
MARTIN'S UP
TO
DATE

BRICK MACHINERY

PROVED THE BEST

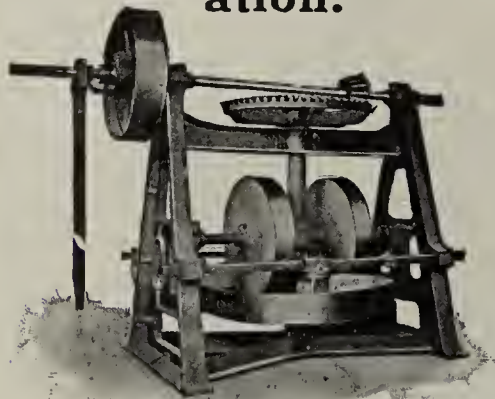
FOR THE MANUFACTURE
**OF HIGH-GRADE
BUILDING BRICK**

LET US
HANDLE YOUR CLAY



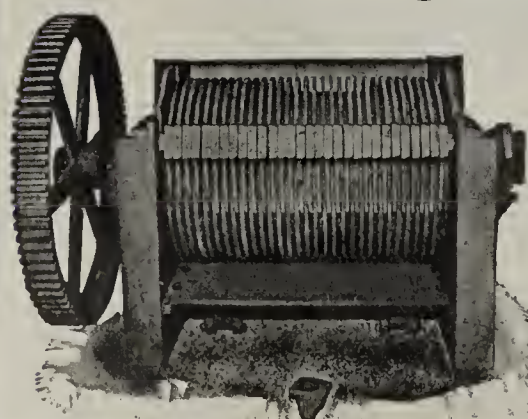
STYLE "A" BRICK MACHINE

This View Shows
A "Martin" 9-Ft. Dry
Pan in Practical Oper-
ation.



FIVE-FOOT PAN

Let Us Show You Com-
plete Working Drawings
of the Latest Improved
"Martin System" of Man-
ufacturing Brick



CLAY SCREENS

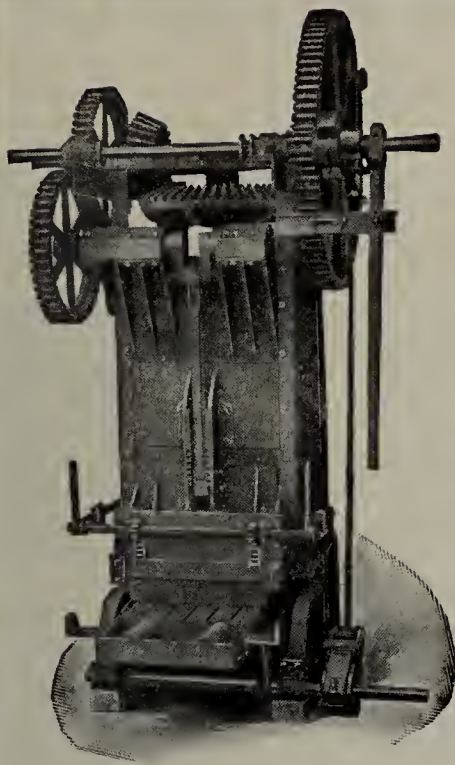
REMEMBER WE FURNISH
EVERYTHING
THE BRICKMAKER NEEDS

CLAY CRUSHERS, GRINDERS,
ELEVATORS, HOISTING DRUMS,
CLAY CARS, BARROWS AND
TRUCKS, MOULD SANDERS, ETC.

**THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.**



SAND DRYERS



STYLE "P" BRICK MACHINE

MARTIN'S UP TO DATE

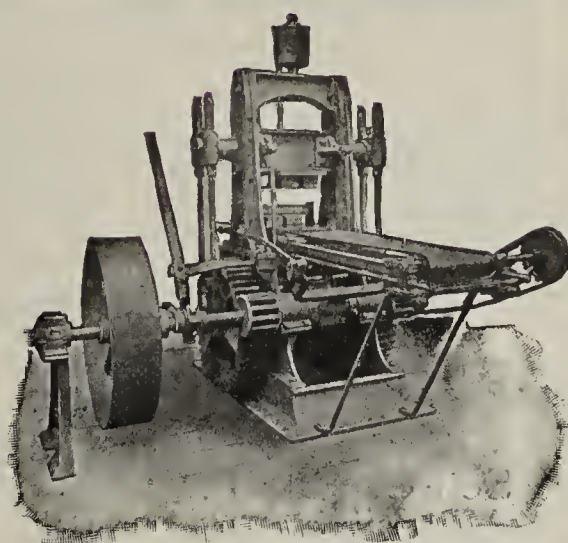
BRICK DRYERS

ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

FULLY COVERED BY PATENTS

PATENTED Feb. 22, 1898-599509
Oct. 10, 1905- 95520
Nov. 14, 1905-804489

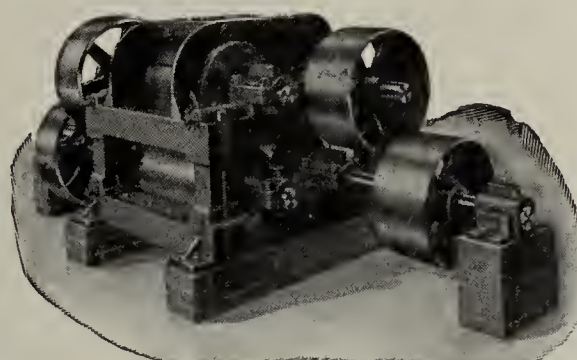
UNITED STATES & CANADA



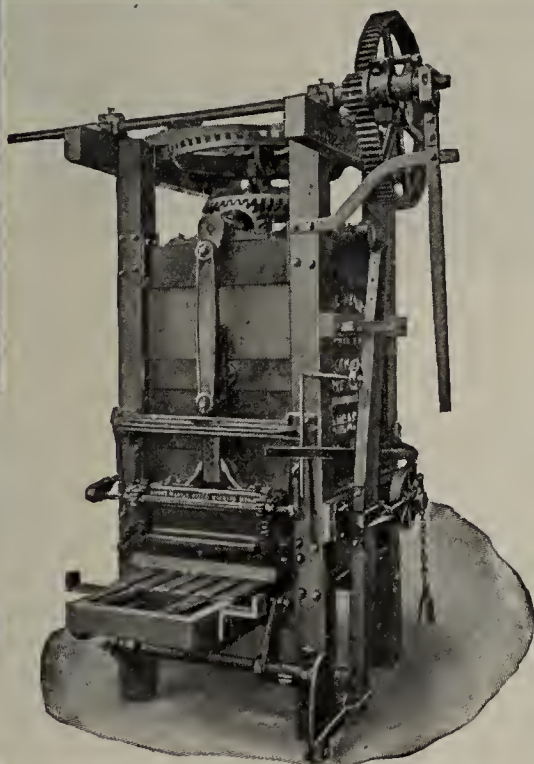
STEAM POWER REPRESS

The "Martin" System of Handling and Drying Brick is Superior in Every Respect to Any Other System==Quick to Install and Low in Price==Write Us.

→ Dried Brick Coming from "Martin" Patent Dryer to the Kilns.



PATENT DISINTEGRATOR



STYLE "B" BRICK MACHINE

THE "MARTIN" COMPANY
AT LANCASTER, PA.

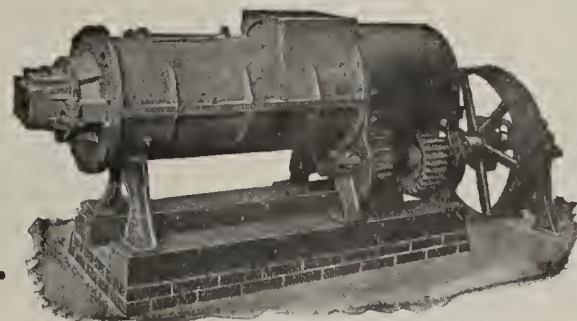
Own and Control These
Important Dryer Patents
and Have Authorized
— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY
**THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.**

WE FURNISH

Complete Working Plans
With All Our Machinery,
and We Will be Pleased
to Submit Plans, Free, to
Interested Parties.



NO. 1 AUGER BRICK MACHINE

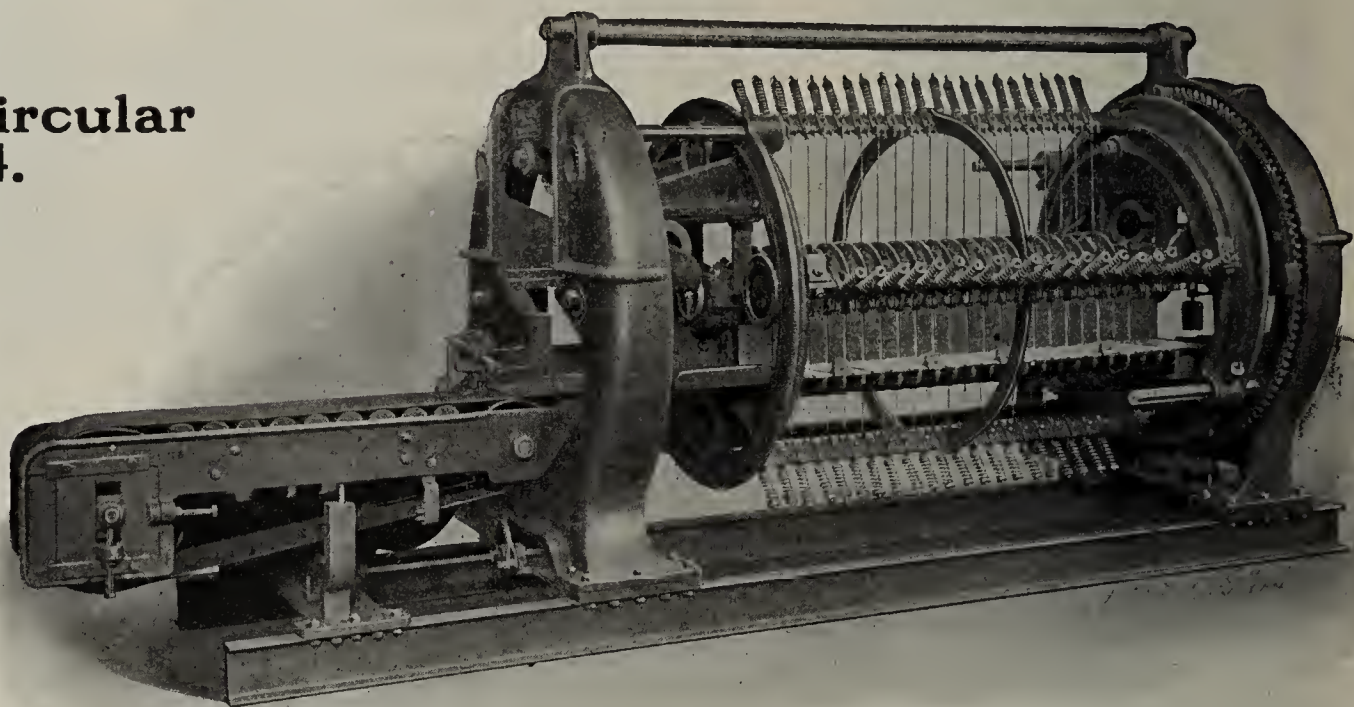
Modern Clayworking Machinery.

COMPLETE STIFF-MUD EQUIPMENT.

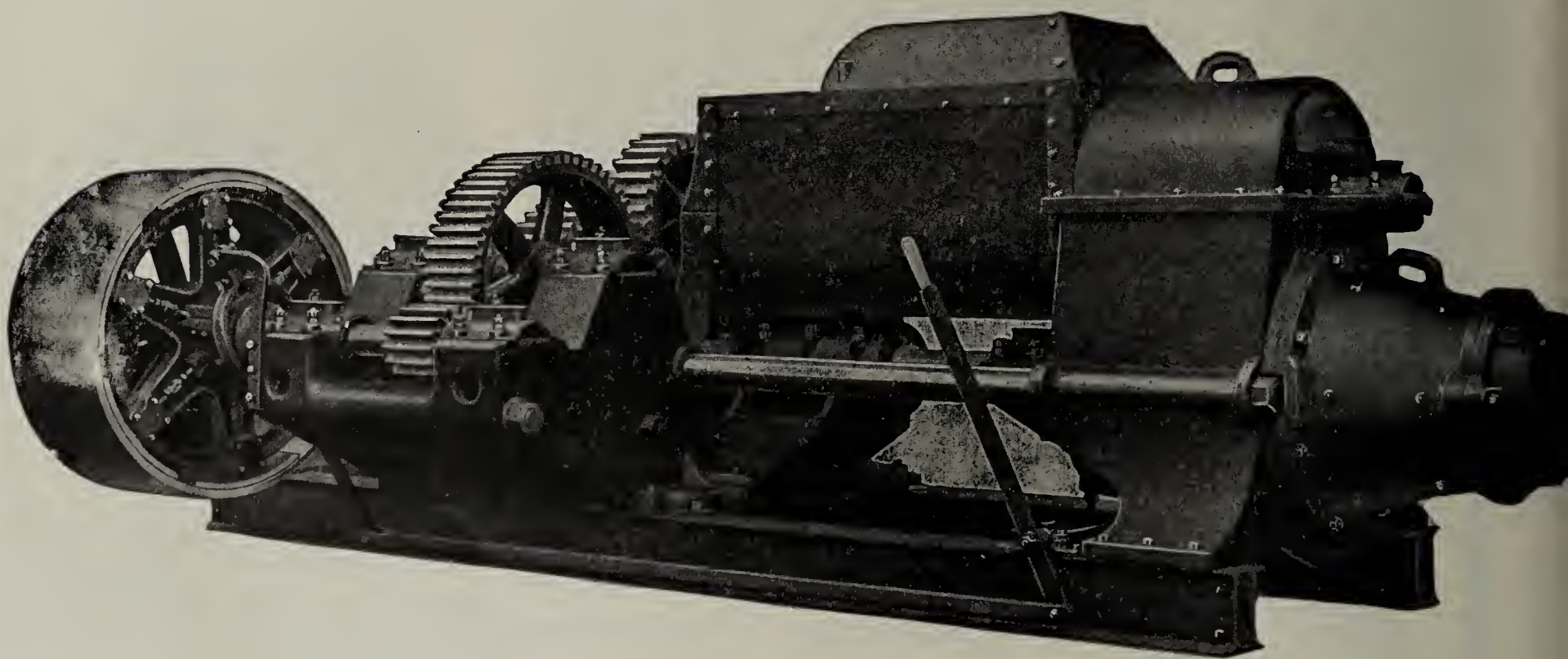
AUGER MACHINES WITH OR WITHOUT COMBINED PUG-MILL.

**Write for Circular
No. 14.**

Self-Contained.
Accessible.
Simple Cutting
Mechanism.
All wearing
parts above clay-
column and out
of dirt.
Capacity 100,000
Brick in 10 hours.
Cuts Brick with-
in 30 inches of
Brick Machine
Die.



ROTARY AUTOMATIC CUTTING TABLE.



"CANTON SPECIAL" BRICK MACHINE.

Thrust Bearing Rebabbited Without Dismantling Machine.
Cut Steel Gears. Heavy Shafting. Self Contained. Accessible.
Capacity, 150,000 brick per day.
Our Piano Wire Screens are doing excellent work.

THE BONNOT COMPANY, Canton, Ohio.

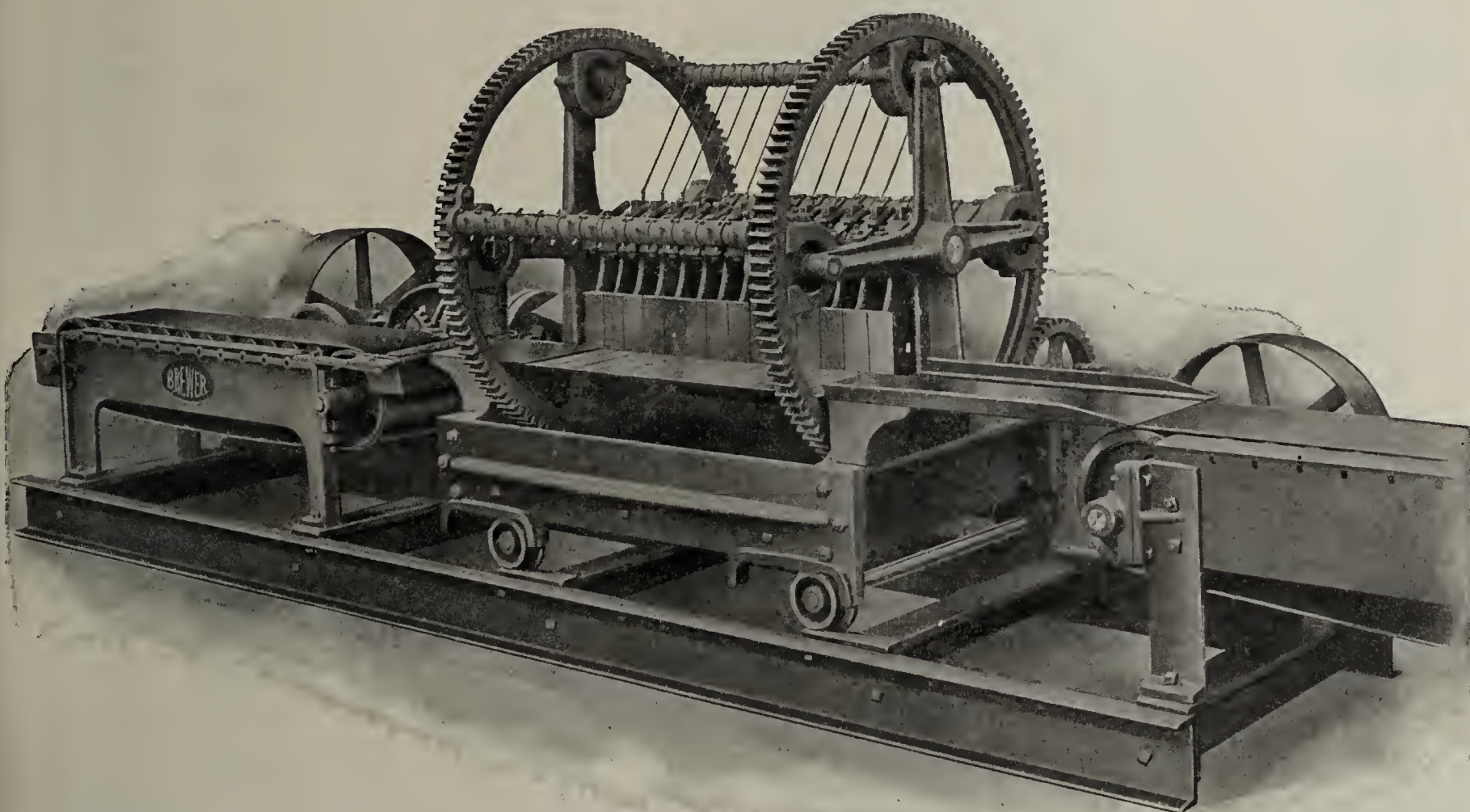
WESTERN OFFICE, 305 NEW YORK LIFE BLDG., KANSAS CITY, MO.

A NEW ROTARY AUTOMATIC BRICK CUTTER.

DESIGN FREE FROM MECHANICAL COMPLICATION.

CONSTRUCTION OF HIGH GRADE.

OPERATION SMOOTH AND EASY, WITHOUT SHOCK OR JAR.



THE BREWER NO. 36

incorporates all the details valuable to the maker of side-cut bricks. A downward shearing cut. A heavy, substantial and dependable construction. Broken wires replaced without stopping. Capacity up to 5,000 bricks per hour, or 7,500 under favorable conditions.

Ask for Bulletin No. 10, which contains full description, complete specifications and illustrations of both sides and one end.

If Marked



It's Good.

H. BREWER & CO.,

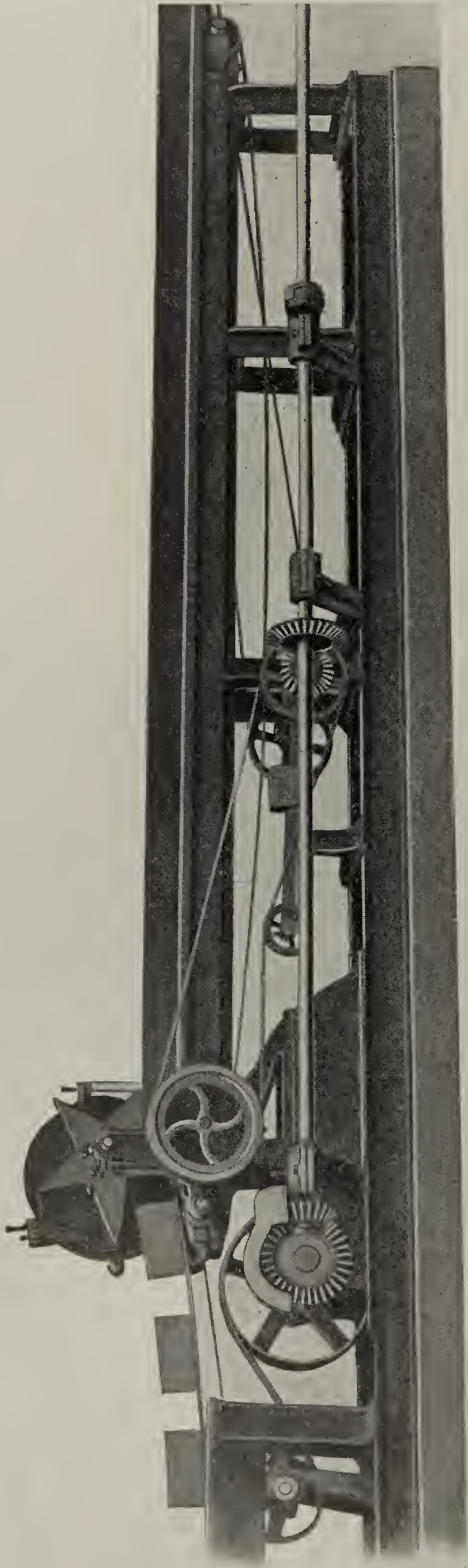
Tecumseh, Michigan.

If Marked



It's Good.

The Steele Automatic Cutter.



Athens, Ga., November 23, 1907.

Messrs. J. C. Steele & Sons, Statesville, N. C.:

The No. 3 Brick Machine with pug mill and four disintegrators of yours are doing all that we could ask. We made over 4 million brick with this little machine since January last, and hope to be able to say on January 1, next, that we have made 5 million brick this year. We are considering our capacity and putting in one of your No. 4 machines.

GEORGIA BRICK CO.

We build a complete line of clayworking machinery.

Write for further information.

J. C. STEELE & SONS,

Success Brick Machinery Co., Memphis, Tenn.,
Western Agents.

Mention The Clay-Worker.

STATESVILLE, N. C.

SPRING IS THE TIME FOR HOUSE CLEANING.

Set Your Factory in Good Running Order by Installing

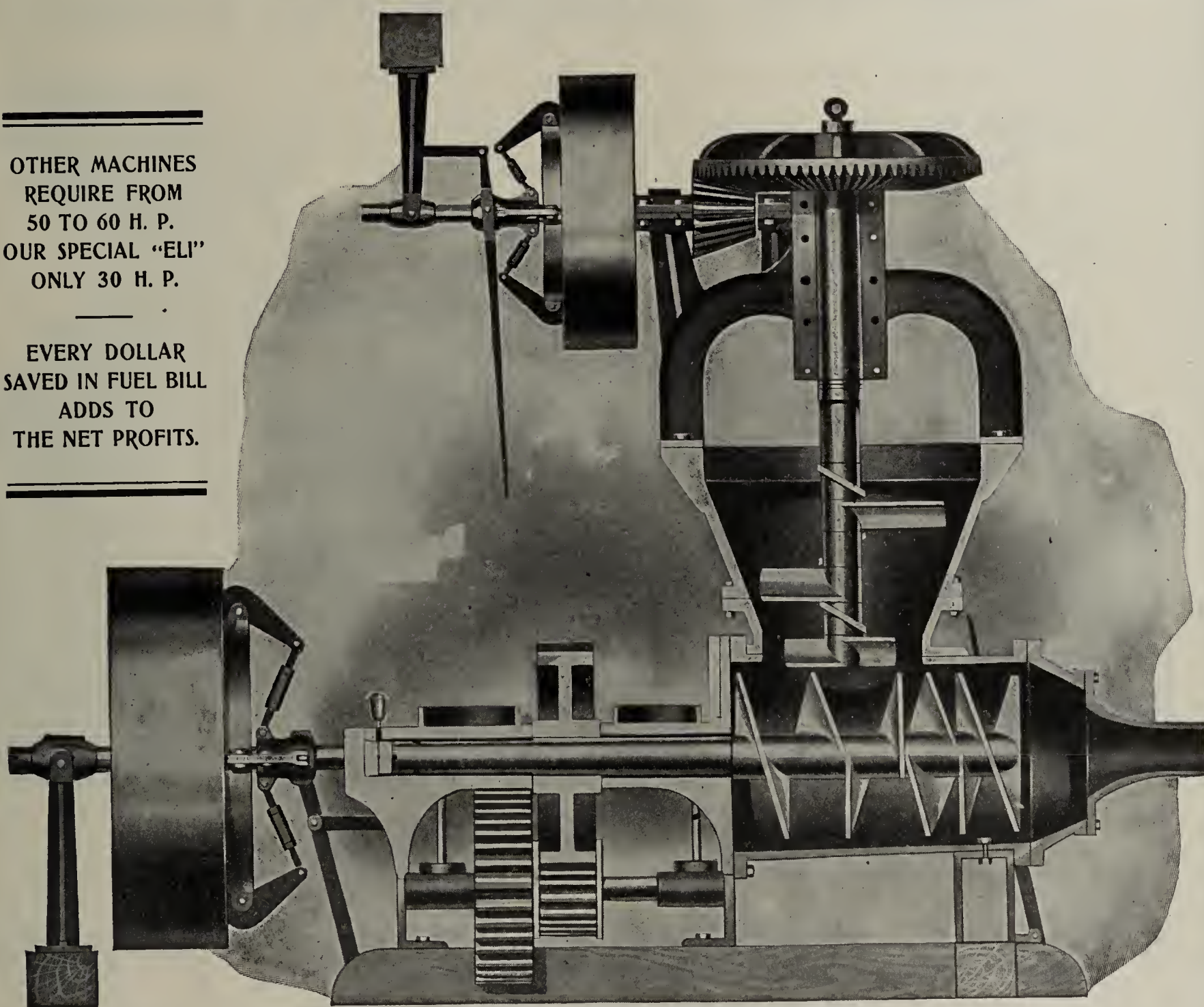
“ELI” MACHINERY—IT’S THE BEST

WE WILL SAVE YOU MONEY!

YOU GET SAME RESULTS WITH OUR MACHINES WITH HALF THE POWER REQUIRED BY OTHER MACHINES.

OTHER MACHINES
REQUIRE FROM
50 TO 60 H. P.
OUR SPECIAL “ELI”
ONLY 30 H. P.

EVERY DOLLAR
SAVED IN FUEL BILL
ADDS TO
THE NET PROFITS.



OUR SPECIAL “ELI” BRICK MACHINE.

ARE YOU IN THE MARKET FOR BRICK AND TILE MACHINERY?

We have a full line of “Eli” Brick, Tile, Hollow Brick and Block Machines, ranging in capacity from 20,000 to 100,000 brick per day,

Write for our catalogue and full particulars.

Michigan Brick and Tile Machine Company,

[ESTABLISHED 1856]

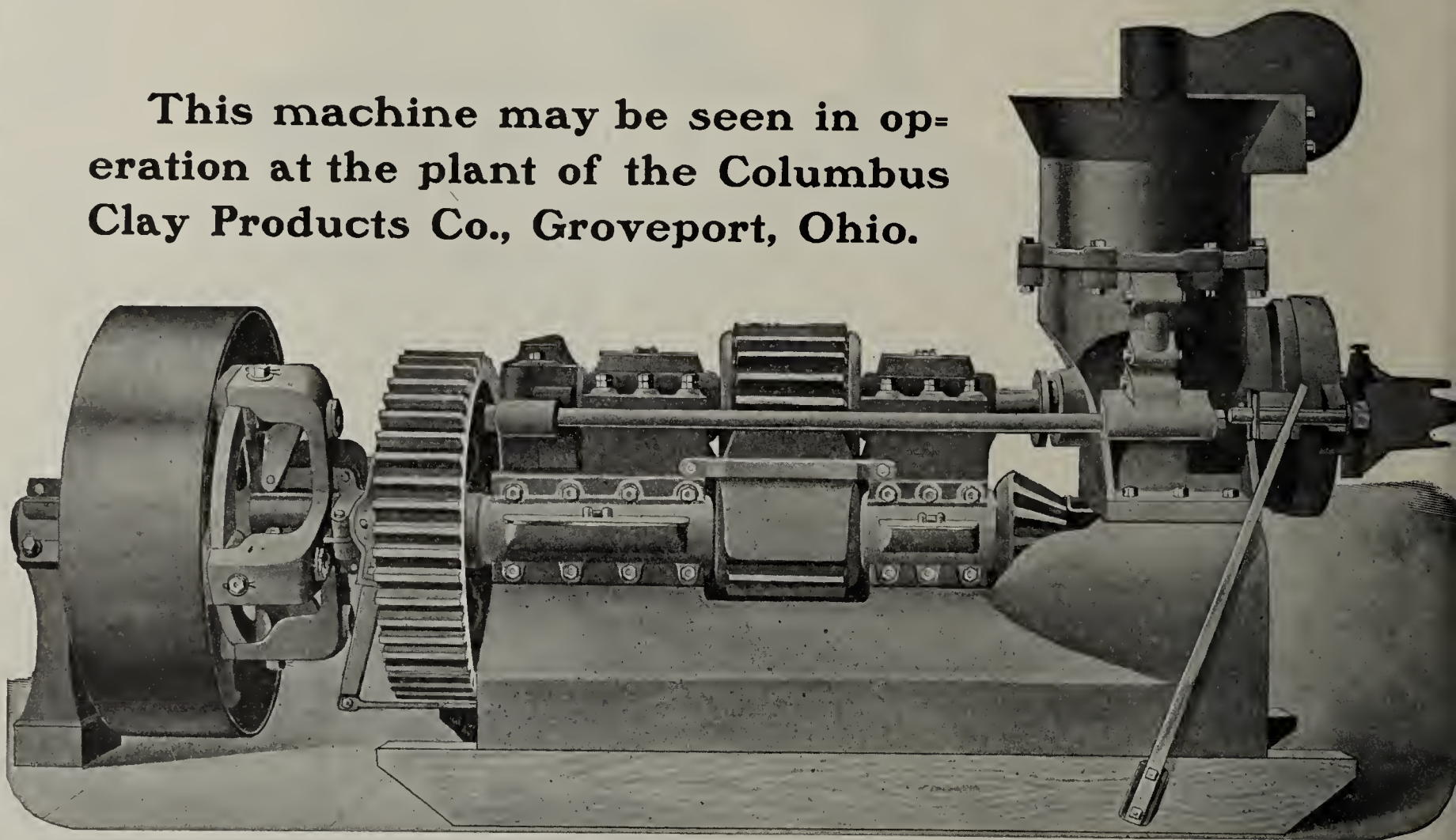
Morenci, Mich., U. S. A.



THE BIG WONDER.

**The Brick and Tile Machine That
Does Not Laminate the Ware.**

This machine may be seen in operation at the plant of the Columbus Clay Products Co., Groveport, Ohio.



No. 4 Wonder Brick and Tile Machine.

**A Large Capacity Machine With an Unequaled
Record for Durability.**

**THE WALLACE
FRANKFORT,**

Mention The Clay-Worker.

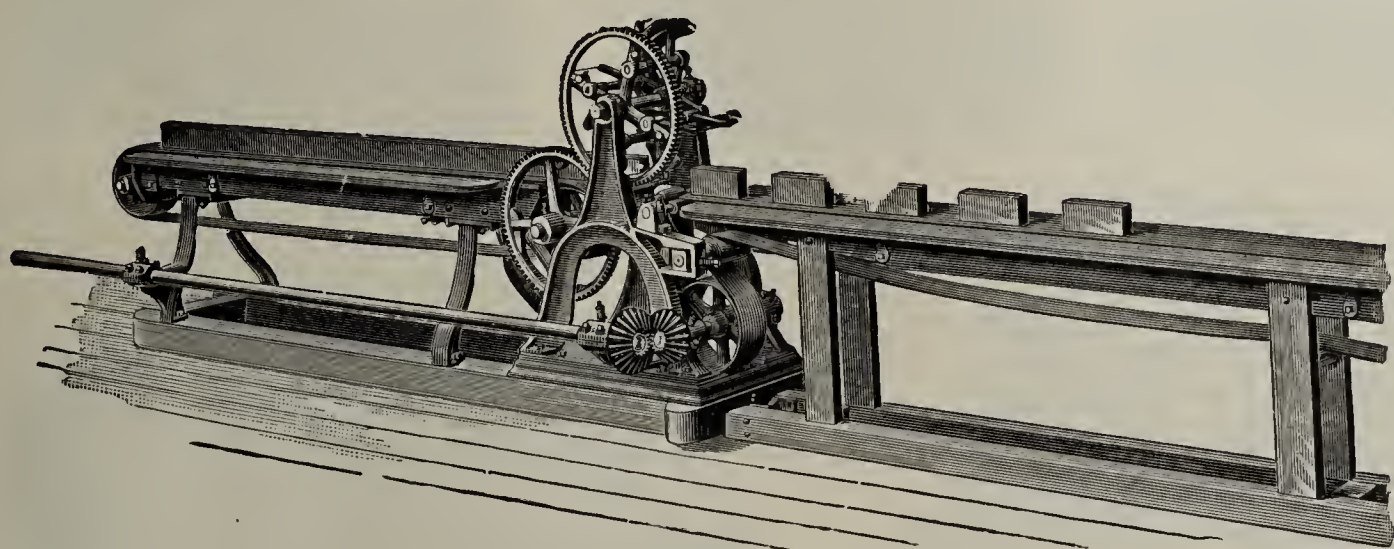




THE PROOF OF THE PUDDING:

Brick, Tile and Hollow Block made on Wonder Machines afford ocular demonstration of the full truth of our claim.

Write for list of plants in your section where Wonder Machines may be seen in operation.



Rotating Automatic End-Cut Brick Cutter.

THIS IS THE TABLE OF CAPACITY—
Runs as regular as a clock. We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans and Disintegrators, Pug Mills and Granulators, Corrugated and smooth Roll Crushers.

Write for Catalog and prices.

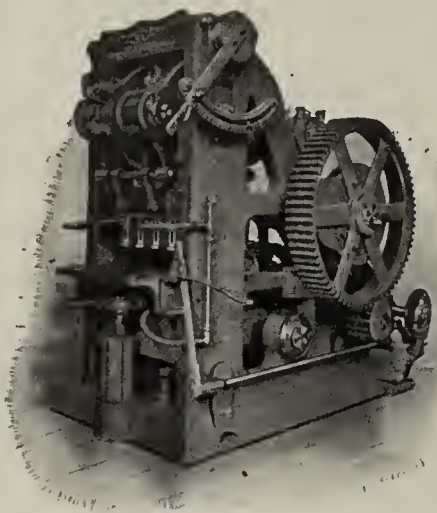
MFG. COMPANY,
INDIANA, U. S. A.



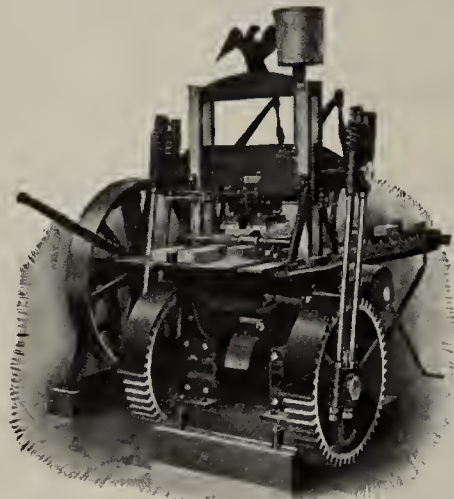
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

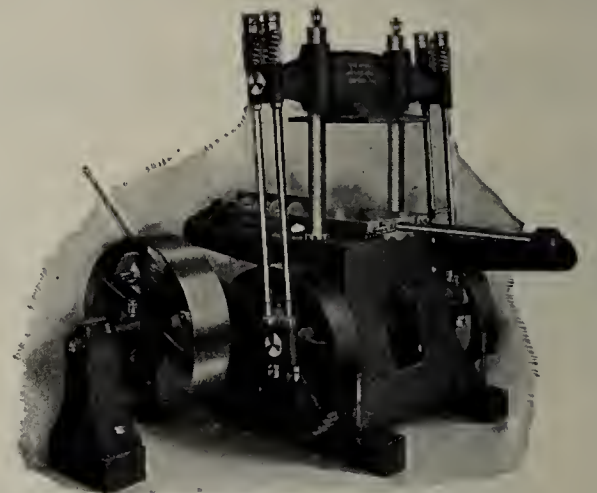
BUILT RIGHT
RUN
RIGHT



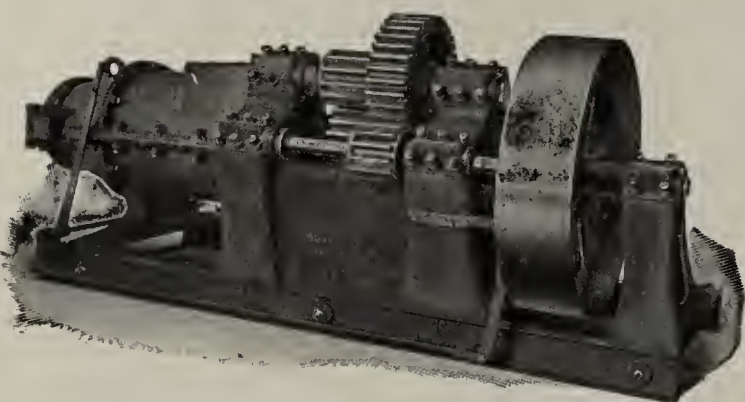
D-3 Dry Press



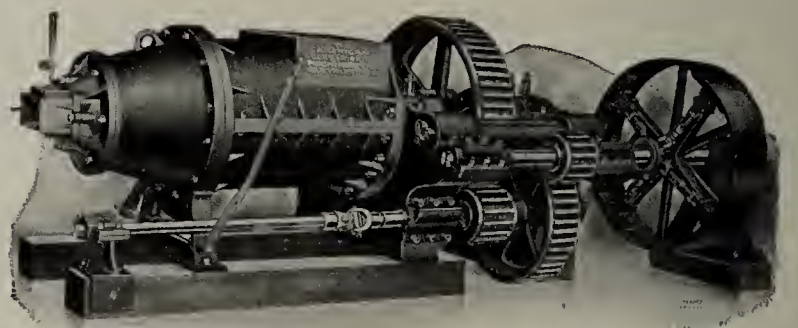
Eagle Repress



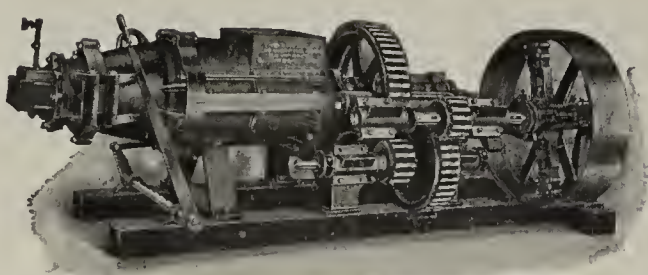
Roofing Tile Press



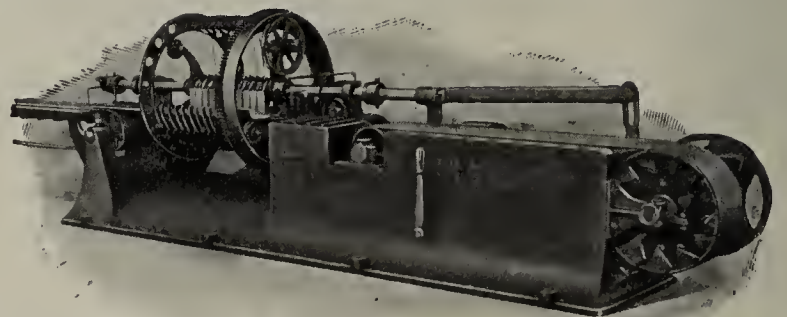
No. 65 Auger Brick Machine



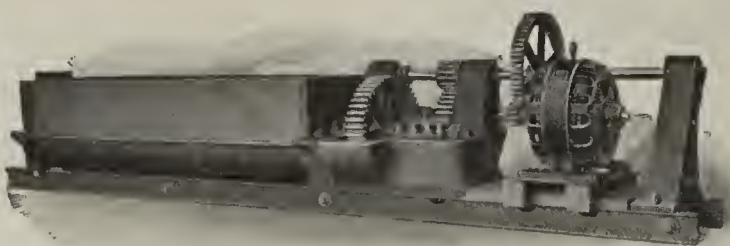
Special Giant Brick Machine



No. 2 Giant Brick Machine



No. 83 Automatic Cutter



No. 51 Electrical Driven Pug Mill



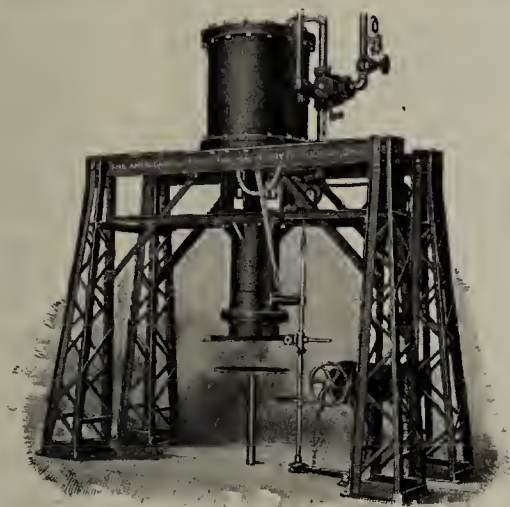
No. 38 Double Shaft Pug Mill

We Build Every Machine and Every Appliance Needed for the Manufacture of Every Class of Clay Products by Every Process.

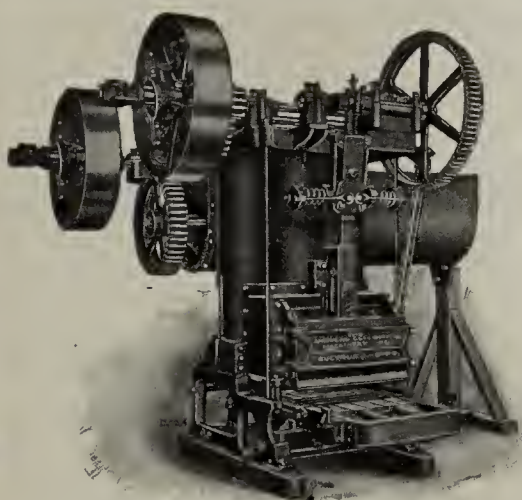
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

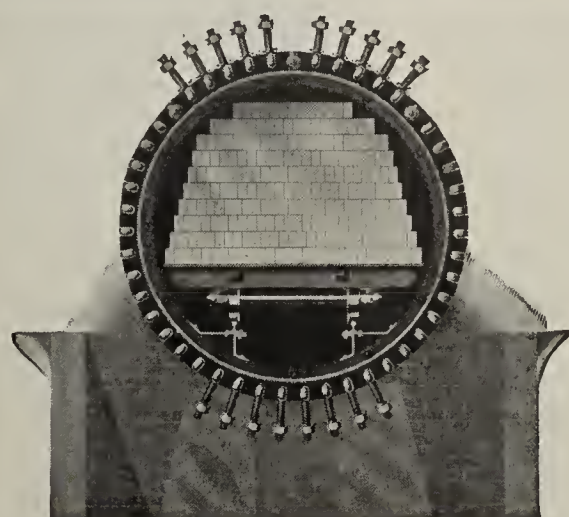
BUILT RIGHT RUN RIGHT



Sewer Pipe Machinery



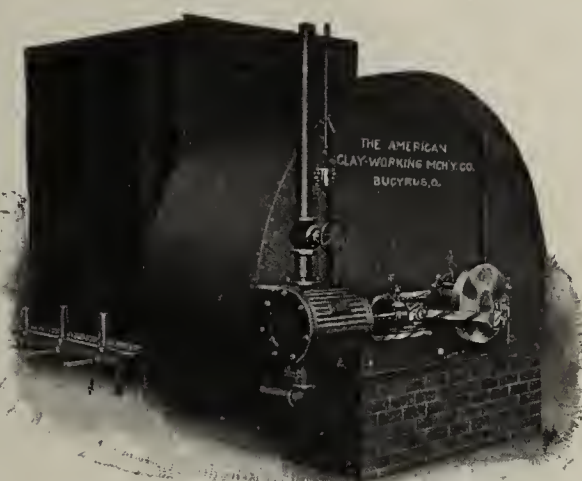
Upright Stock Brick Machine



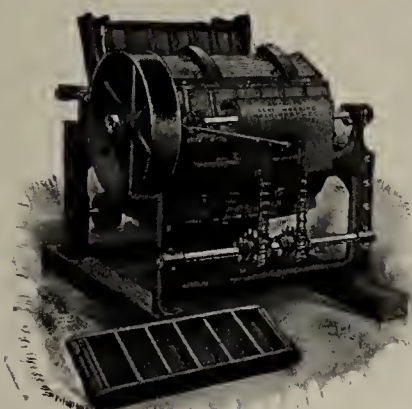
Sand-Lime Brick Machinery



No. 64—9 Foot Wet Pan



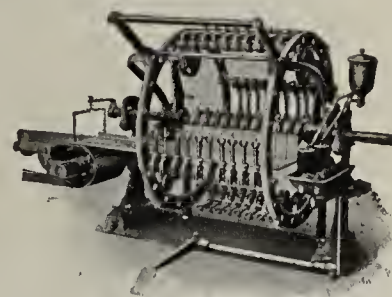
Blower Dryer Apparatus



Mold Sander



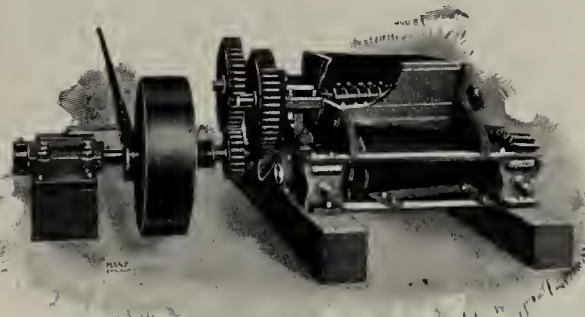
H. P. Brick Machine



No. 62 Hand Power Cutter



Dry Cars



No. 25 Smooth Roll Crusher

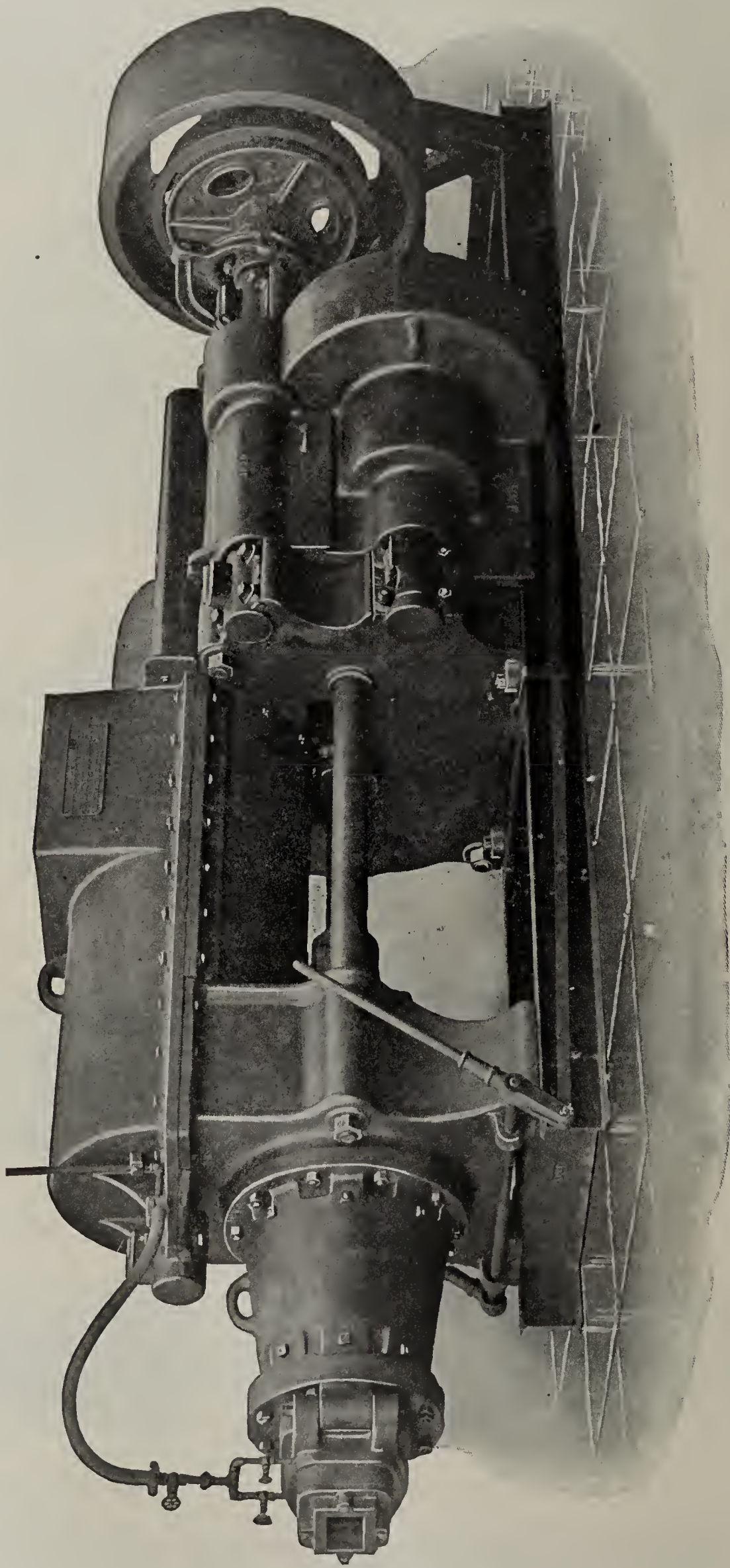


Winding Drums

We Are Much the Largest and Much the Most Extensive Manufacturers of Much the Best Clay-working Machinery in the World.

Mention The Clay-Worker.

Another Brick Machine.



This is a Brick Machine of massive proportions and of modern construction throughout, designed for large capacity and severe service. The gearing, shafting and other parts are very heavy. The gearing is protected by a removable dust and accident proof covering, hinged for convenient access to the interior. The feeding chamber is of ample diameter and length, and this result is obtained without excessive overhang of auger shaft. The auger shaft is supported by three journal bearings of sufficient distance apart to give it a substantial support. The part of the auger shaft in the clay chamber is about 4 feet in length, while the part outside is more than 9 feet long.

The machine is mounted on steel "I" beam sills between which are placed heavy cast iron spreaders with flanges, affording a substantial method of attaching the machine to its foundation. The outer end of the pulley shaft is supported by a rigid stand having an adjustable journal box.

Length of machine over all, 19 ft.

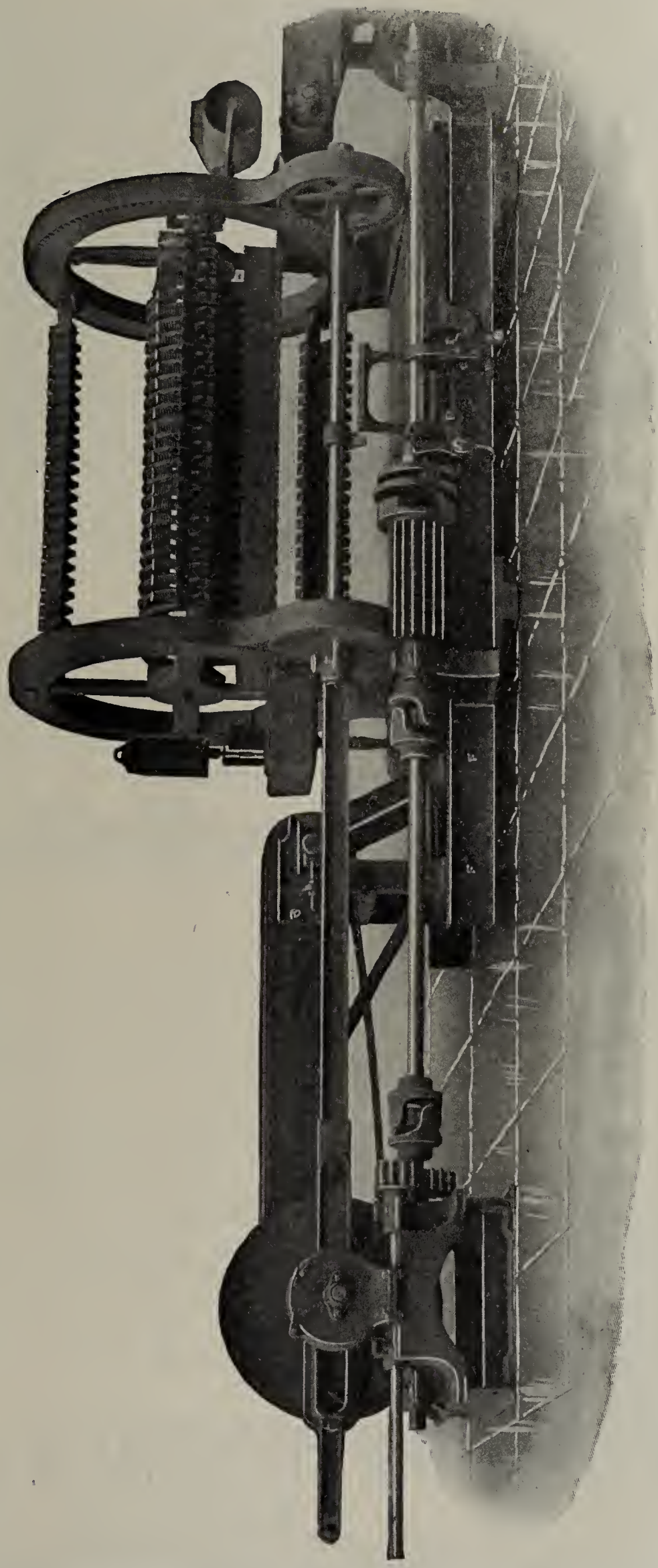
Height from floor to top of hopper, 5 ft. 8 in.

Size of hopper, 26-in. x 26-in. Weight of machine about 26,000 pounds.

E. M. FREESE & CO., Galion, Ohio.

(Mention The Clay-Worker.)

An Improved Rotating Automatic Cutter.



Our Rotating Automatic Cutters are the result of many years' constant hammering at a single type of Cutter. One of the three sizes we are building will suit your Stiff Mud Brick Machine.

We ship on trial—YOU say whether our guarantee of "satisfactory operation" is fulfilled. If desired a man will be sent to arrange details of installation.

These Cutters will give you satisfaction when all others have failed.

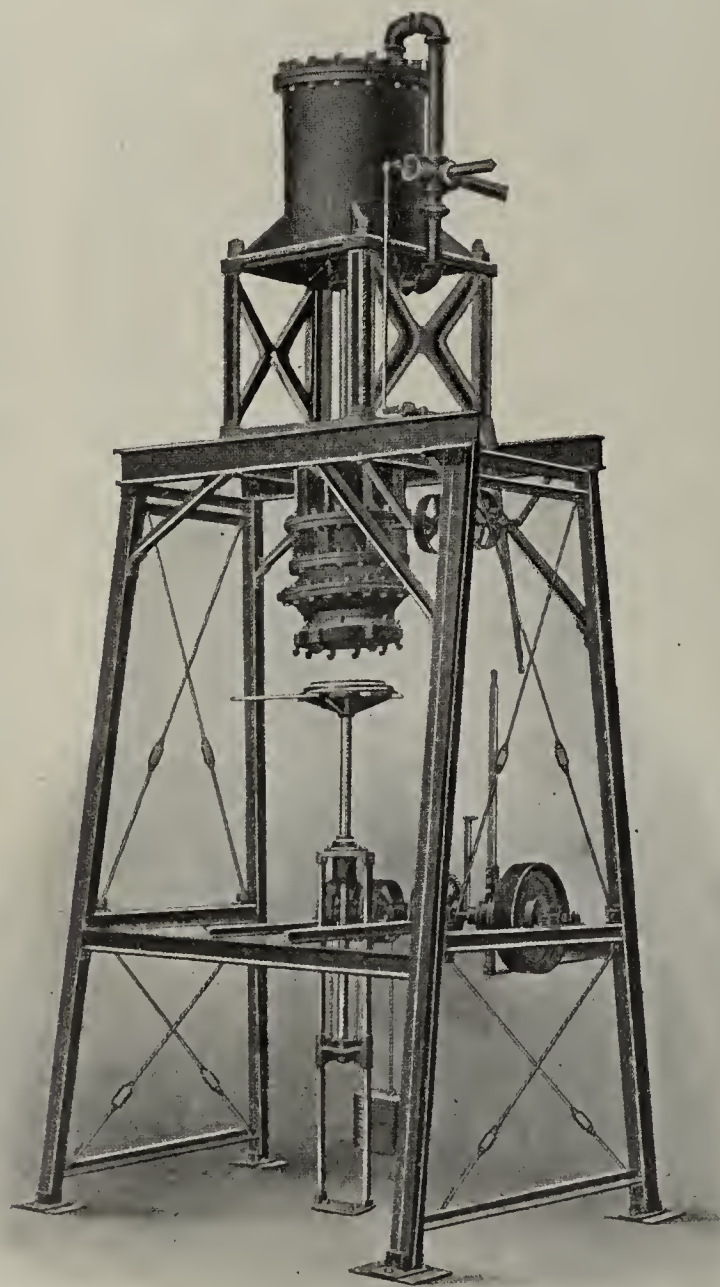
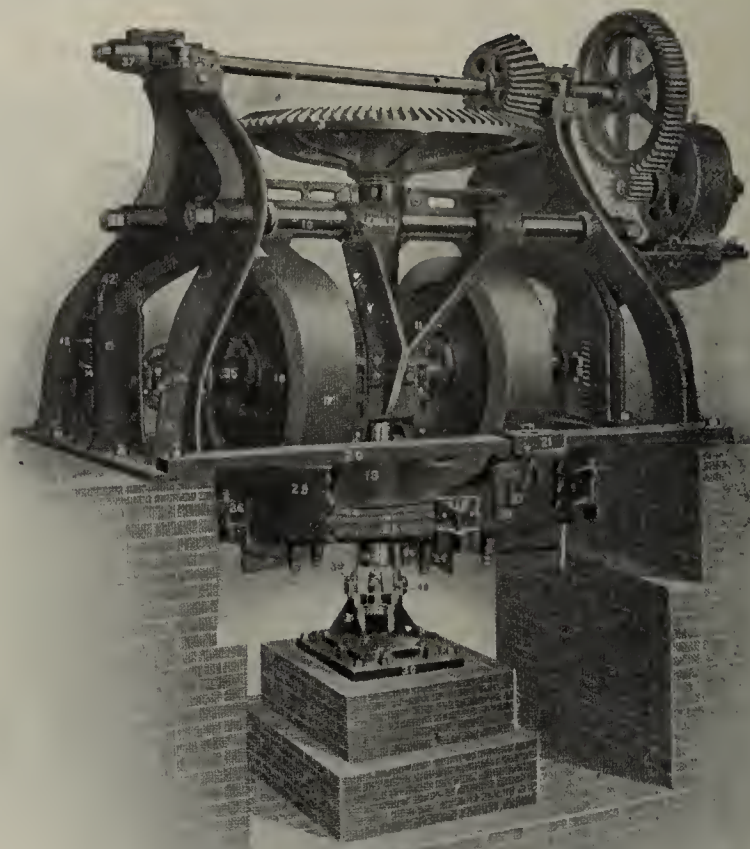
(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

THE HARRINGTON AND KING PERFORATING CO



PERFORATED STEEL FOR CLAY SCREENS.

Samples or blue prints with prices furnished on request.

For Chute or Gravity Screens, Shaking or Vibrating Screens, Revolving Screens, Dry Pan Screens.
For Cleaning and Grading Clay, Shale, Sand, Cement, Coal, Stone, Etc.
For Pallets or Trays, Car Bottoms, Drying Floors, Conveyor Bottoms, Separators, Etc.

NEW YORK OFFICE
No. 114 Liberty St.

No. 231 North Union Street,
CHICAGO, ILL., U. S. A.



WHY?

If every LITTLE saving in the cost of manufacturing your brick which will help to increase the profit on your finished product is worth taking advantage of,

WHY

overlook the BIG saving to be made by utilizing your waste heat for drying?

Rodgers Waste Heat Dryers

are designed with a view to getting out of a plant ALL the profit there is in it and that is WHY they never fail to give satisfaction.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment
in the United States.

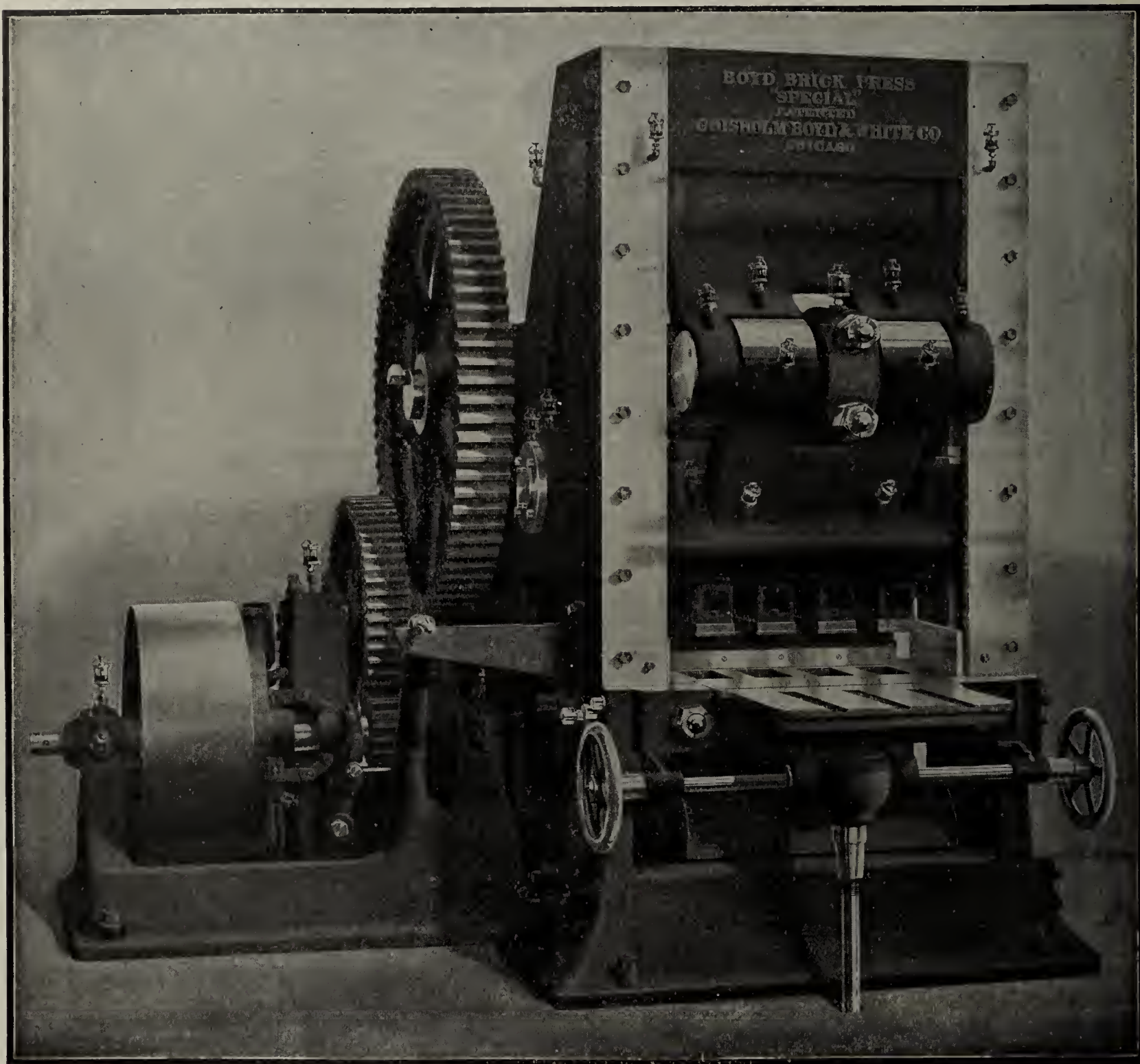
108 LA SALLE ST.

CHICAGO.



The Boyd Brick Press

Built in Two, Four and Six-Mold Sizes.



FOUR-MOLD SPECIAL.

BRICK PLANTS designed and complete machinery equipment furnished. Machinery and product guaranteed.

More Boyd Presses in use than all other Press Brick Machines combined.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 19 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end.

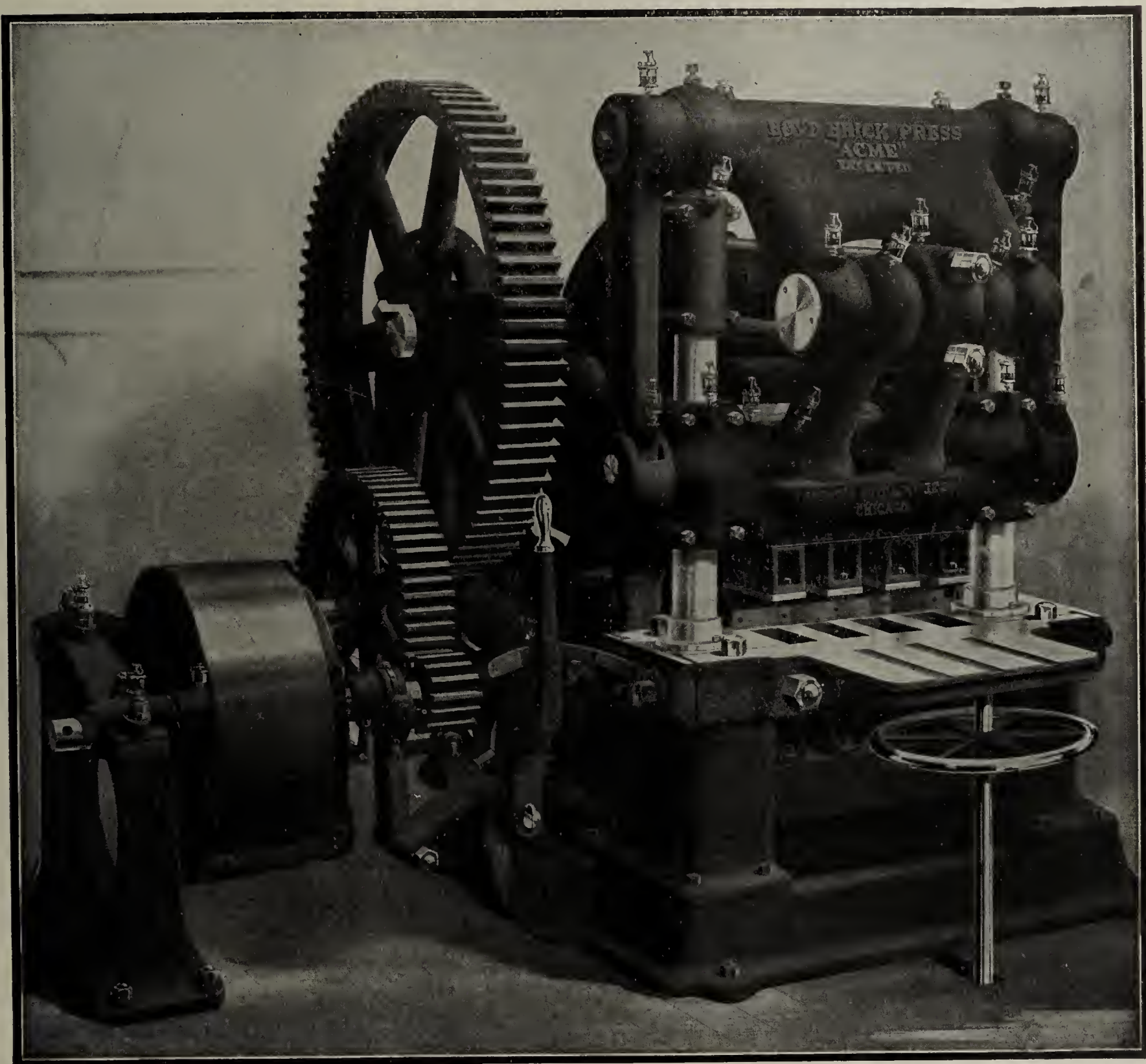
Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Boyd Brick Press

Four-Mold "Acme."



We have been building this type of machine for over ten years. It has all improvements to date and embodies all the special features of the original Boyd Press.

Detailed perfection, strength, endurance and quality of product have made THE BOYD the Brick Press by which all others are judged.

We will send to any responsible party a *Boyd Brick Press on trial* under the broadest and safest guarantee. We take the machine back if not satisfactory.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Grath Special Brick Press

Patented.

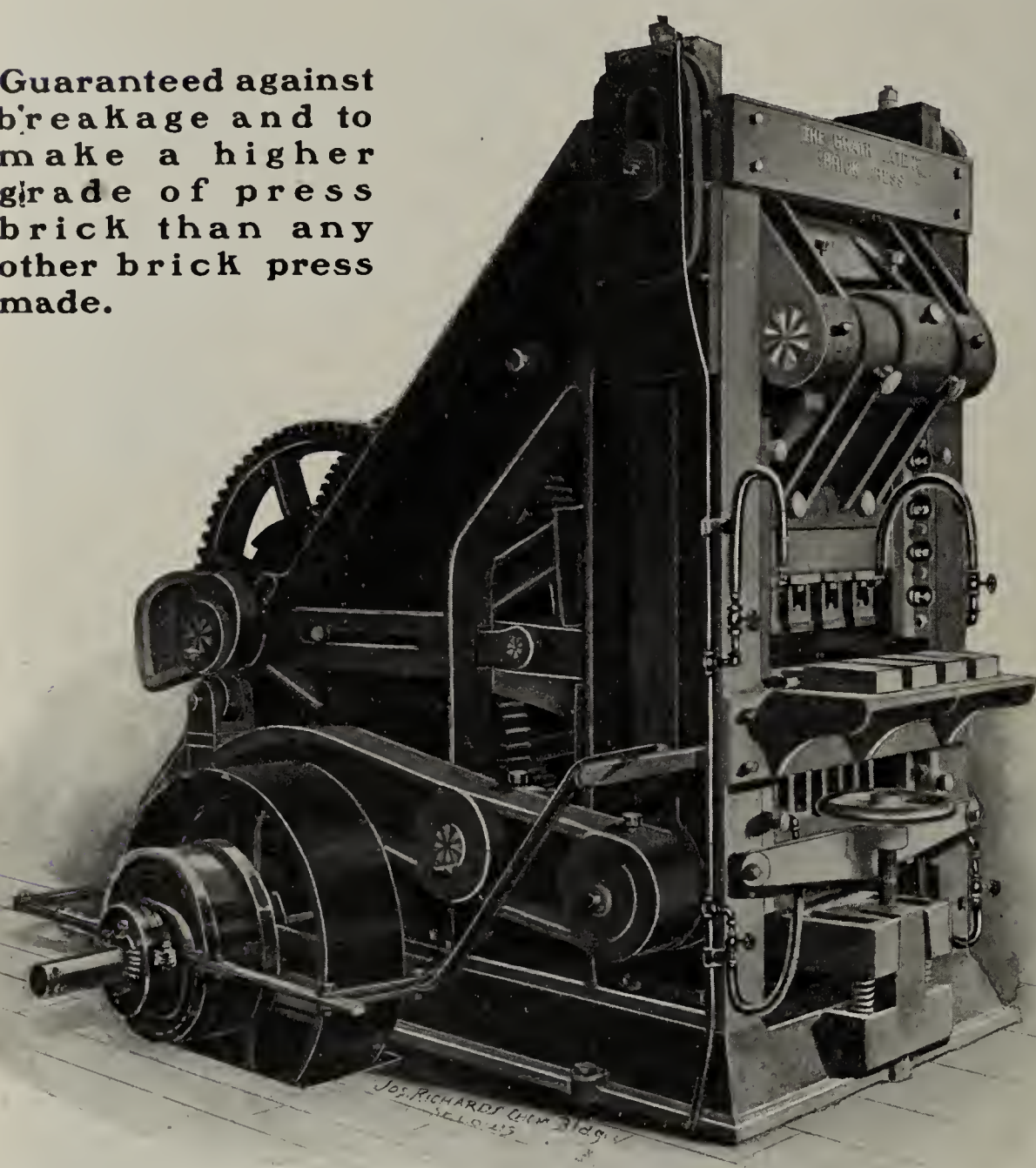
Made in Two, Three, Four and Five-Mold Sizes.

THE ONLY PERFECT BRICK PRESS

For SAND-LIME and DRY CLAY BRICK of Unequaled Quality.

FOUR MOLD MODEL.

Guaranteed against breakage and to make a higher grade of press brick than any other brick press made.



BRICKMAKERS

Do not buy Brick Presses every month or year.

When you **do** buy get a **modern** press. It costs no more than one which is **out of date**.

Unless the press is **double geared**, with gears between frames and bearings, which prevents all side strain and twisting of crank shaft, it is out of date and behind the times.

The above construction is contained in the **Grath Special** and is securely covered by patents. All infringements will be prosecuted.

THE PRESS OF TODAY.

THE ALBERTA PORTLAND CEMENT CO.

W. P. Grath, St. Louis, Mo.:

[Copy]

Sandstone, Alta., Sept. 26, 1907.

Dear Sir—Replying to your favor of recent date regarding Grath Special press purchased from you, would say that after working your press alongside another well-known make, your press has proved itself vastly superior in every way; it is stronger, simpler, easier of adjustment, makes more brick, and of much better quality.

After a long experience with presses, having operated five (5) different presses each of different makes, I consider yours "THE BEST YET," in short, "AN IDEAL PRESS."

Wishing you the success your press merits

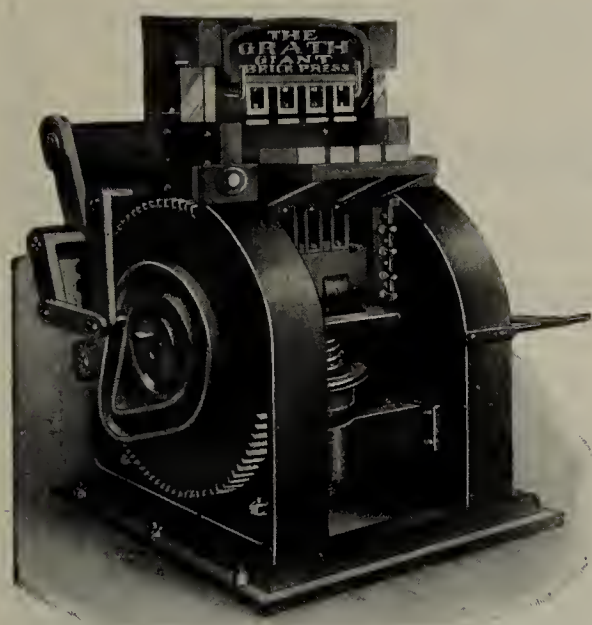
Yours truly, G. W. DELLER, SUPT.
Alberta Portland Cement Co., Limited.

Illinois Supply & Construction Co.,

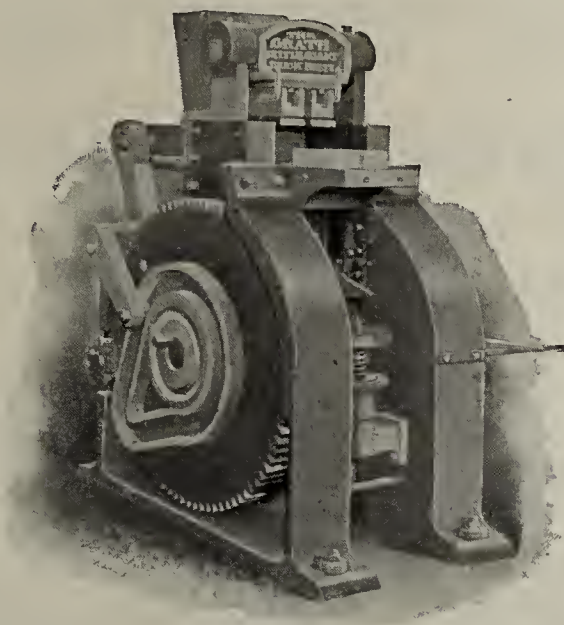
Suite 512 and 513 Holland Bldg.

St. Louis, Mo., U. S. A.

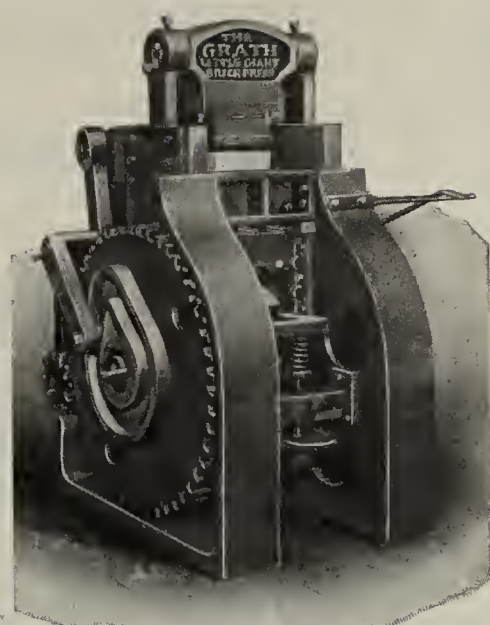
Mention The Clay-Worker.



**THE GRATH GIANT FOUR MOLD
BRICK PRESS**
For Fine Press Brick
From Dry Clay or Sand-Lime.



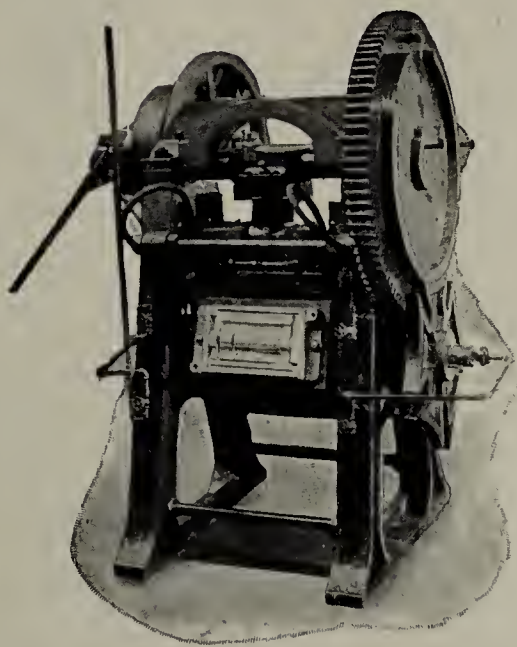
**THE GRATH LITTLE GIANT TWO
MOLD BRICK PRESS**
For Fine Dry Press Brick.



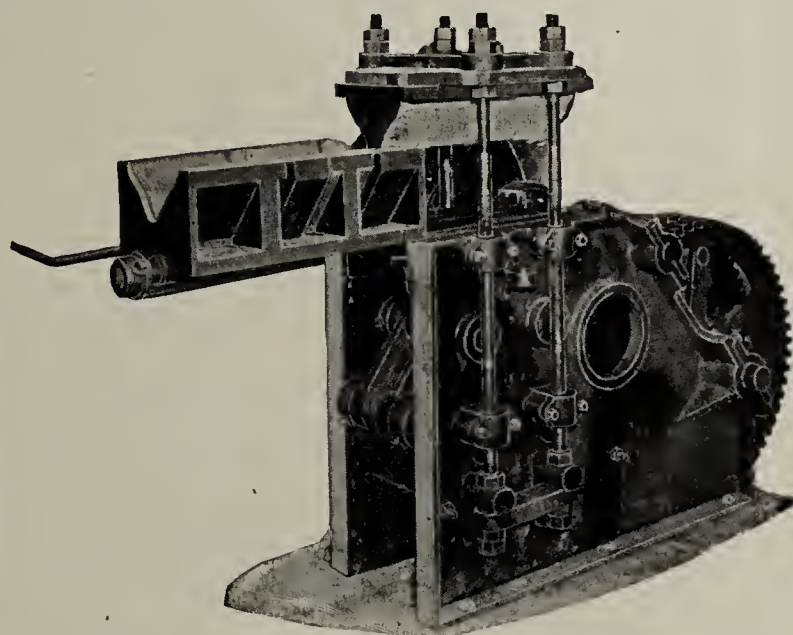
**THE GRATH LITTLE GIANT
ONE MOLD BRICK PRESS**
For Perfect Sand-Lime or
Dry Clay Face Brick.



**The Grath Special Hand-Power Brick
Press, for Plain and Ornamental
Press Brick.**
From Dry or Semi-Dry Clay or Sand-Lime
Guaranteed against breakage.



**The Grath Revolving Roofing
Tile Press.**
Strongest and Simplest Made.
For Plaster or Metal Dies.
Top Cross Head and Pentagon Adjustable.



The Grath Roofing Tile and Trimming Press
No Roofing Tile Plant
Complete Without This Press.
For Plaster or Metal Dies.
For Special Tiles, Hips and Crestings.

GUARANTEED AGAINST BREAKAGE.



Selling Agents for The **SCHURS PATENT PERFECT OIL BURNERS**

Especially designed for burning Brick, Tile, Terra
Cotta and Lime. For Up and Down Draft Kilns.

Flame may be regulated as desired and to produce any heat, can be
turned upward, downward or sideways. Most economical Steam
or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices and information.

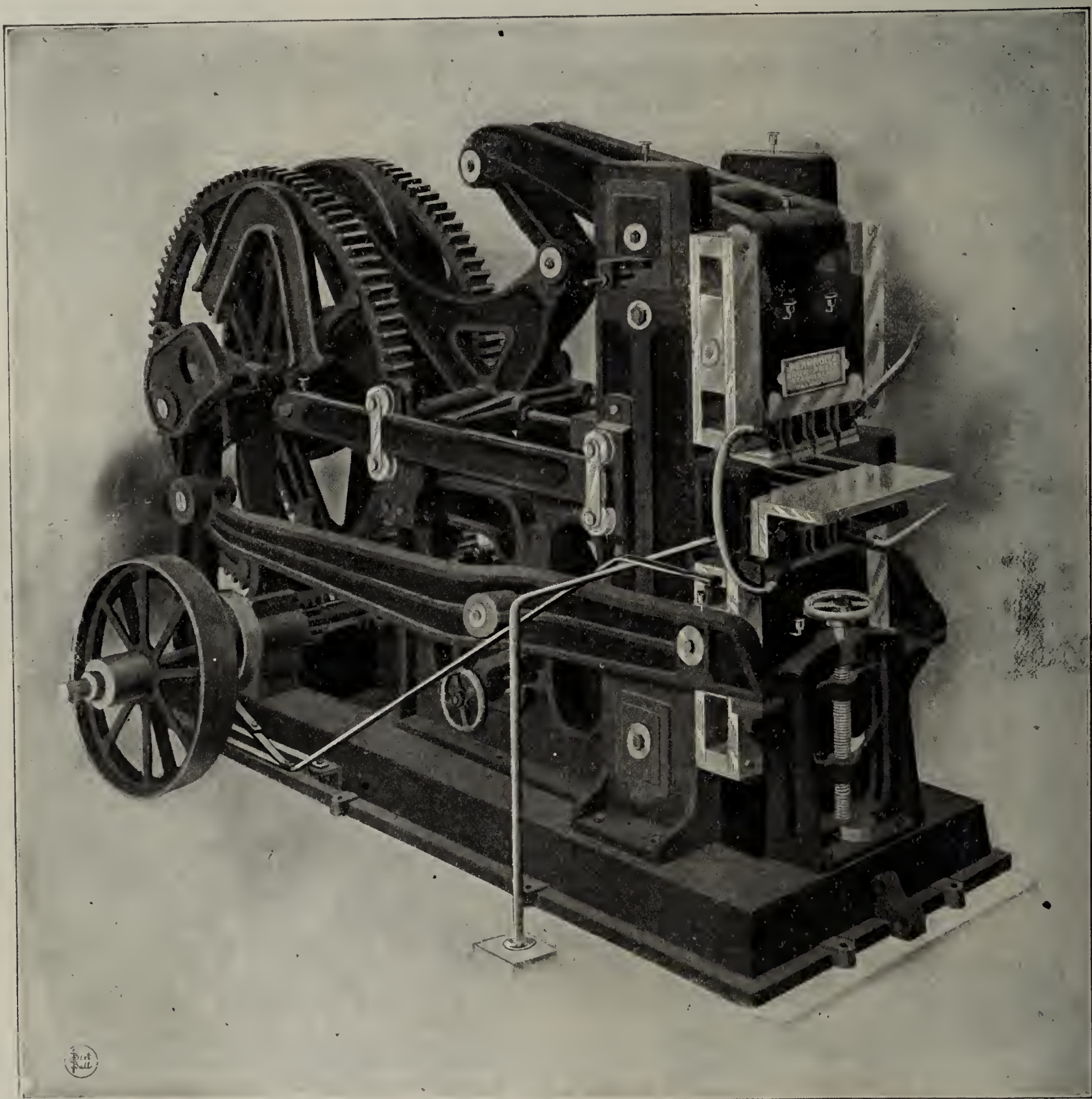
Lieber's Code.
Cable Address,
GRATH, St. Louis.

Illinois Supply & Construction Co.
HOLLAND BLDG., ST. LOUIS, MO.

Long Distance
Phone
Bell, Main 235.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

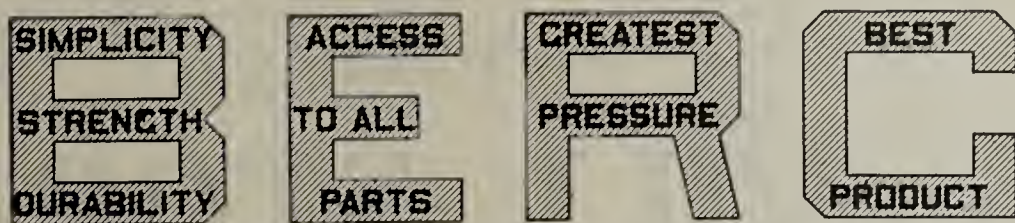


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

WHAT'S IN A NAME?



The "Berg Press" is The Highest Development in The Art of Brickmaking Machinery, so Pronounced by The U. S. Government.

THE BERG PRESS EXCELS
for

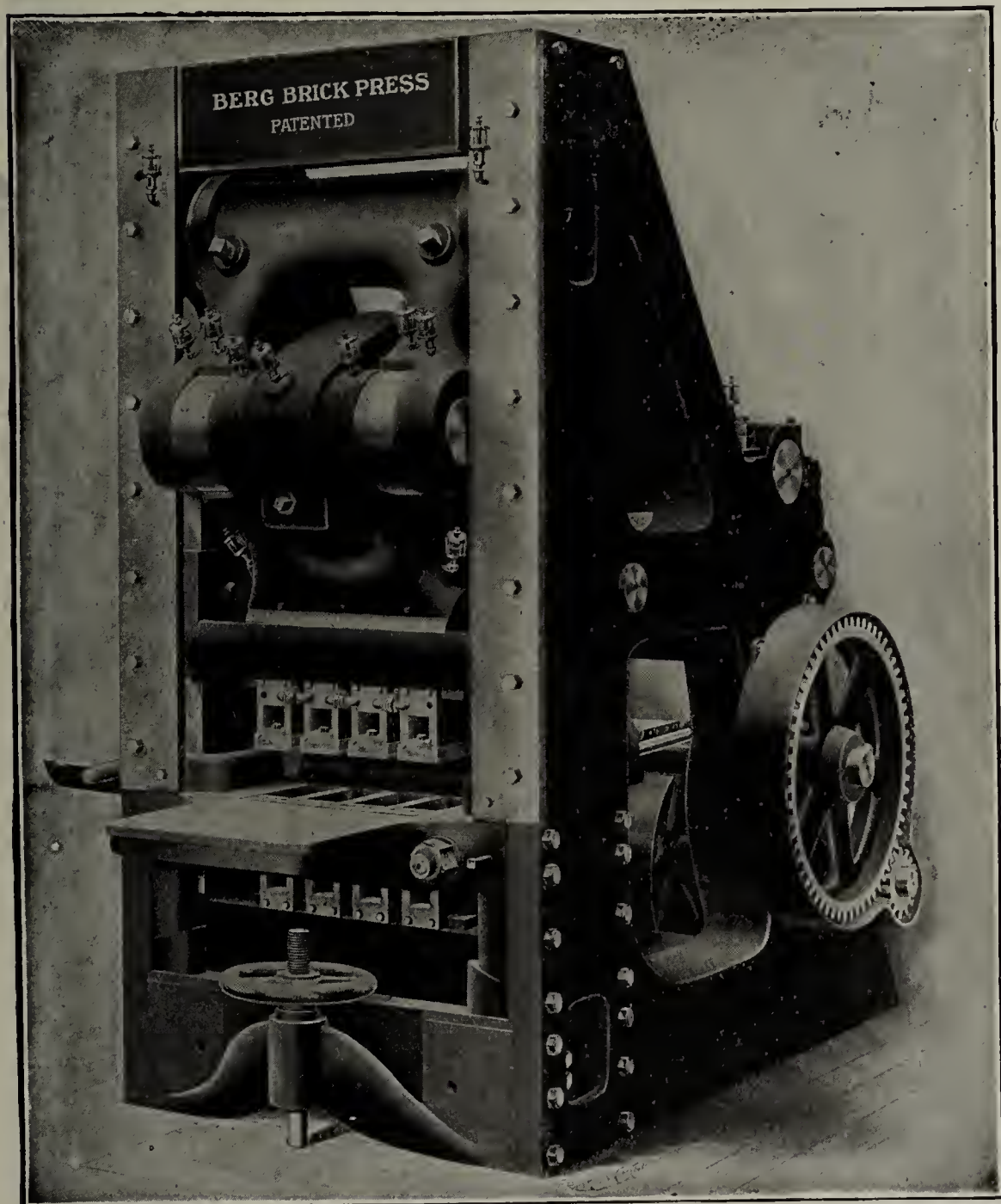
Shale Pressed Brick.
Clay Pressed Brick.
Sand-Lime Pressed Brick.
Sand-Cement Pressed Brick.
Fire Brick.

THE BERG PRESS
Gives THREE Distinct PRESSURES:
Result is,
No Granulated Centers.

THE BERG PRESS
HAS ALL WORKING PARTS ABOVE
Clay Line.

THE BERG PRESS
is fitted with "THE BERG PATENTED
MOLD BOX"—the DELIGHT of brick-
makers, and which many OTHERS
have tried to IMITATE.

All Sizes and Shapes
Can be Made.
Molds Can be Changed in a
Few Minutes,
Owing to the
SIMPLE MECHANICAL
CONSTRUCTION.



• IMPROVED BERG BRICK PRESS.

Cut Gearing, and many other steps forward in *Improvements*, and built of the *Highest Grade of Material and Workmanship*. *Fully Guaranteed* as to its *Success*.

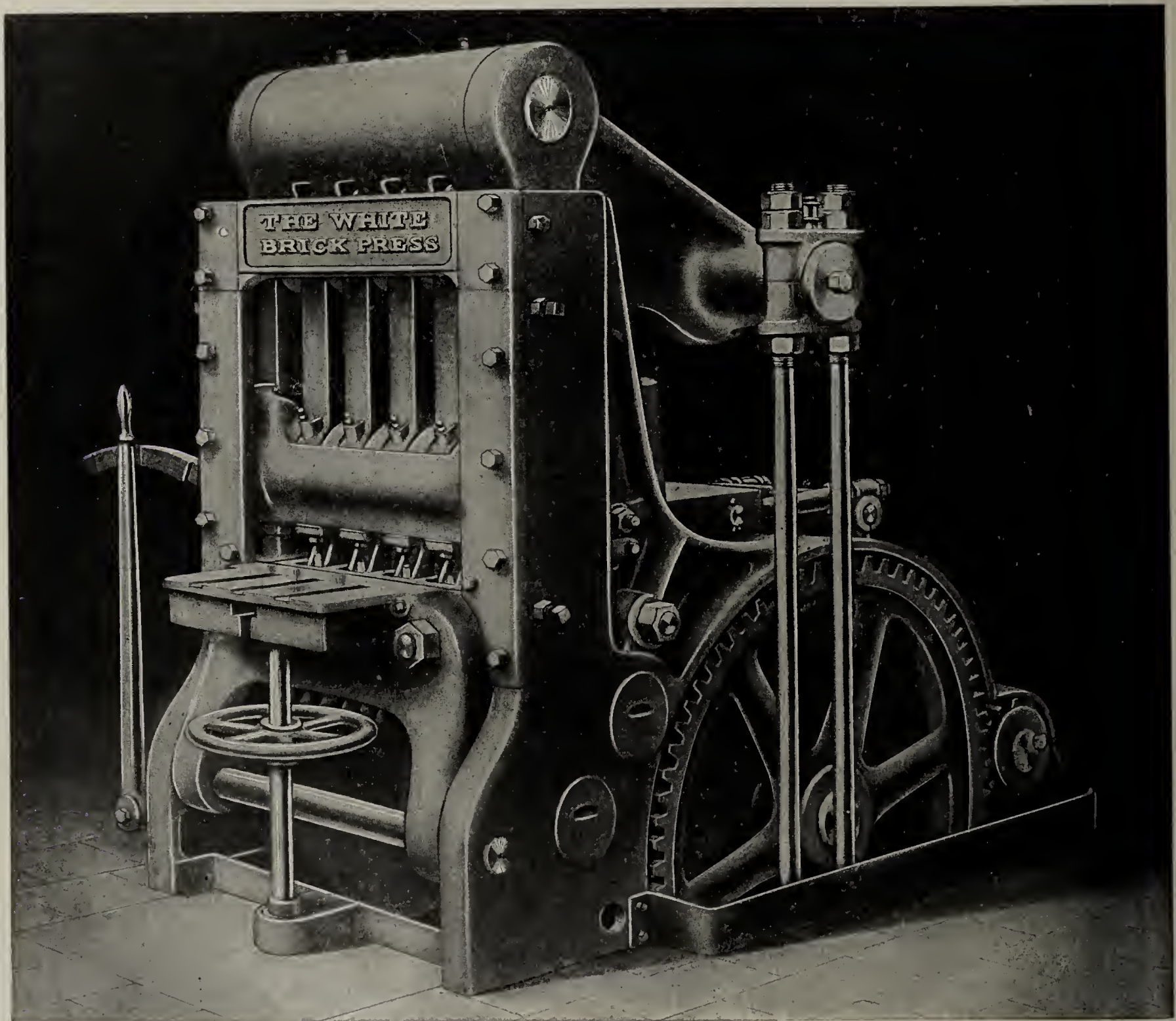
Manufactured by its Inventor in Toronto, Canada, exclusively. Also all equipments for Pressed Brick Plants to make *Sand-Lime Brick*, *Sand-Cement Brick*, *Shale Brick*, *Clay Brick* and *Fire Brick*. Correspondence solicited.

A. BERG & SONS,

Mention The Clay-Worker.

Manning Chambers, TORONTO, ONT., CAN.

STOP THE STOPS OR THE STOPS WILL STOP YOU.



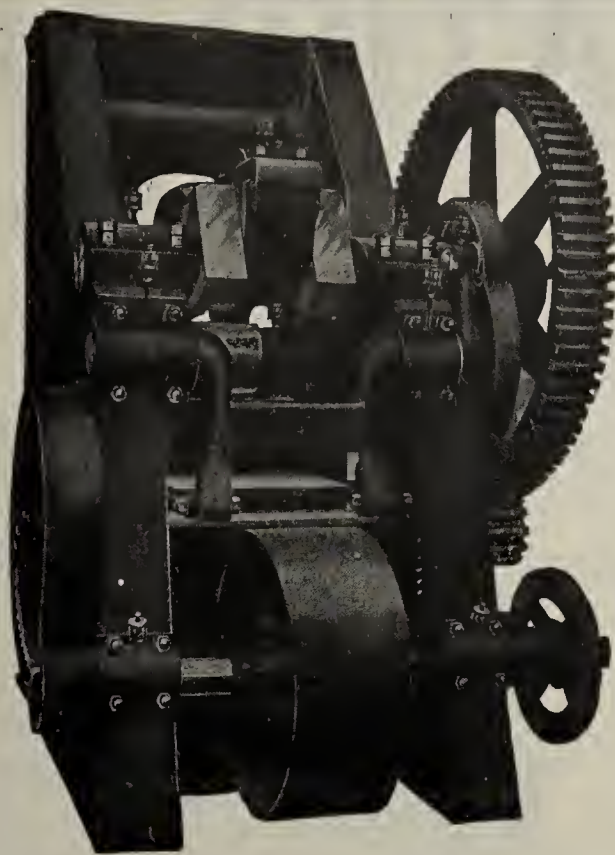
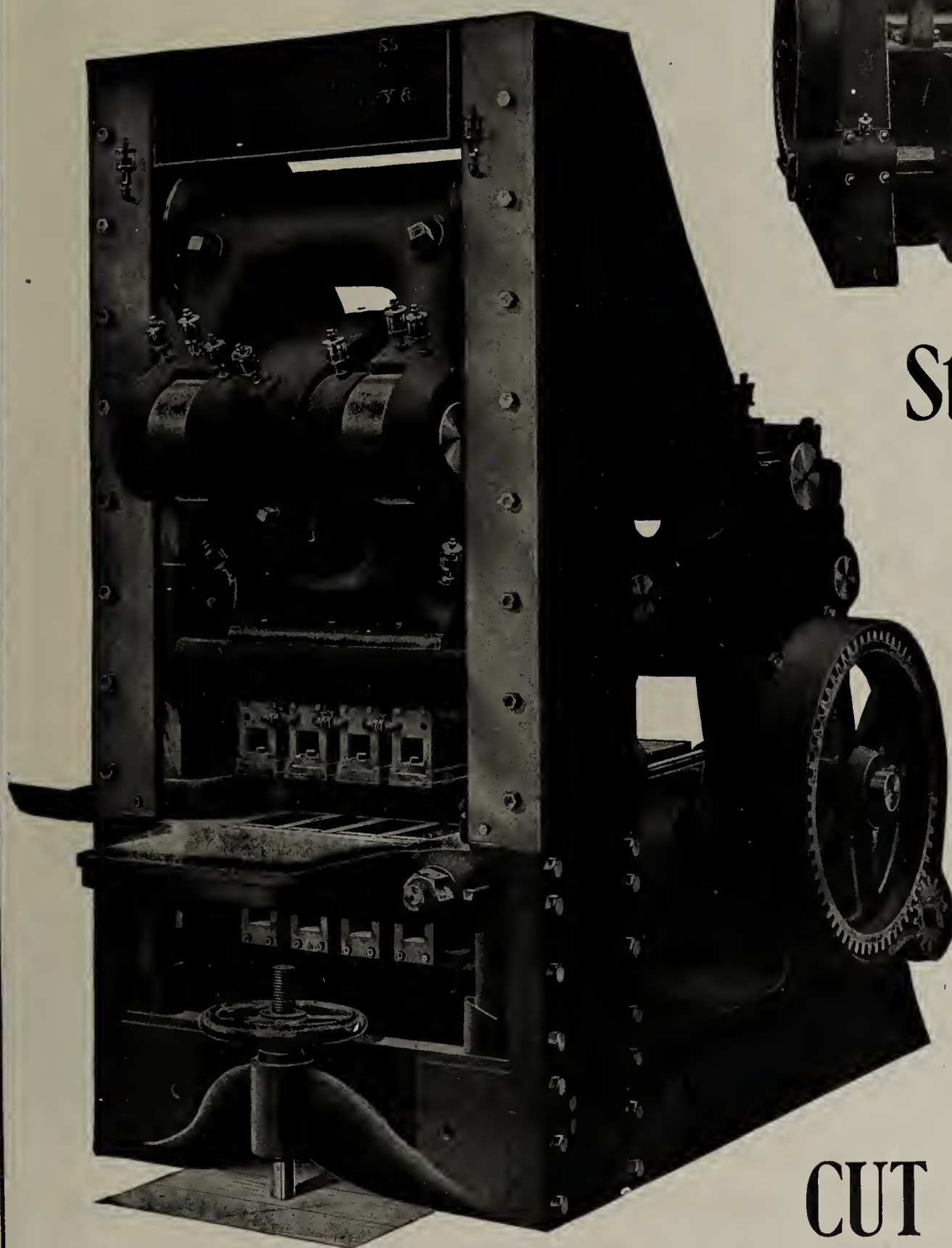
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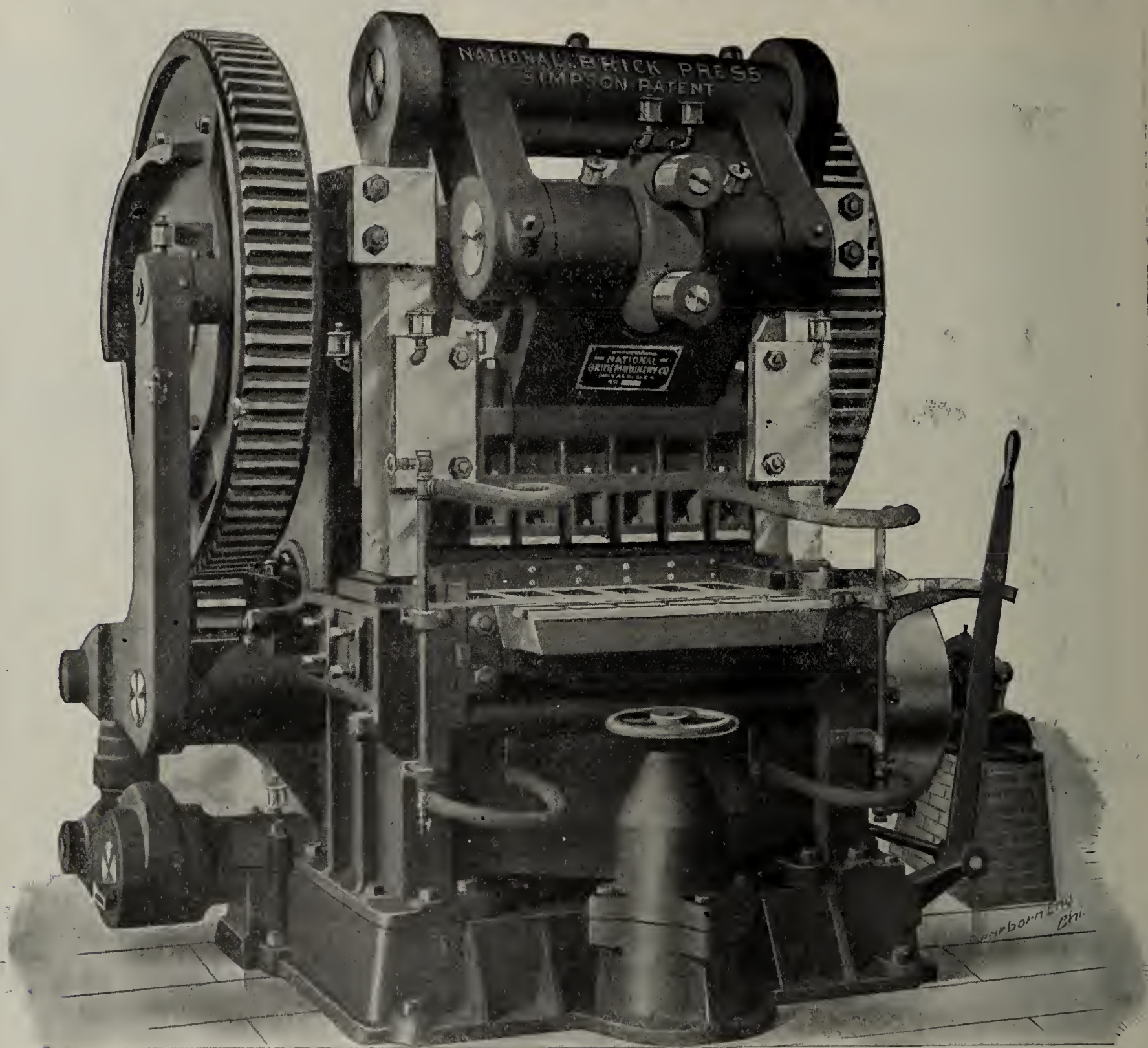
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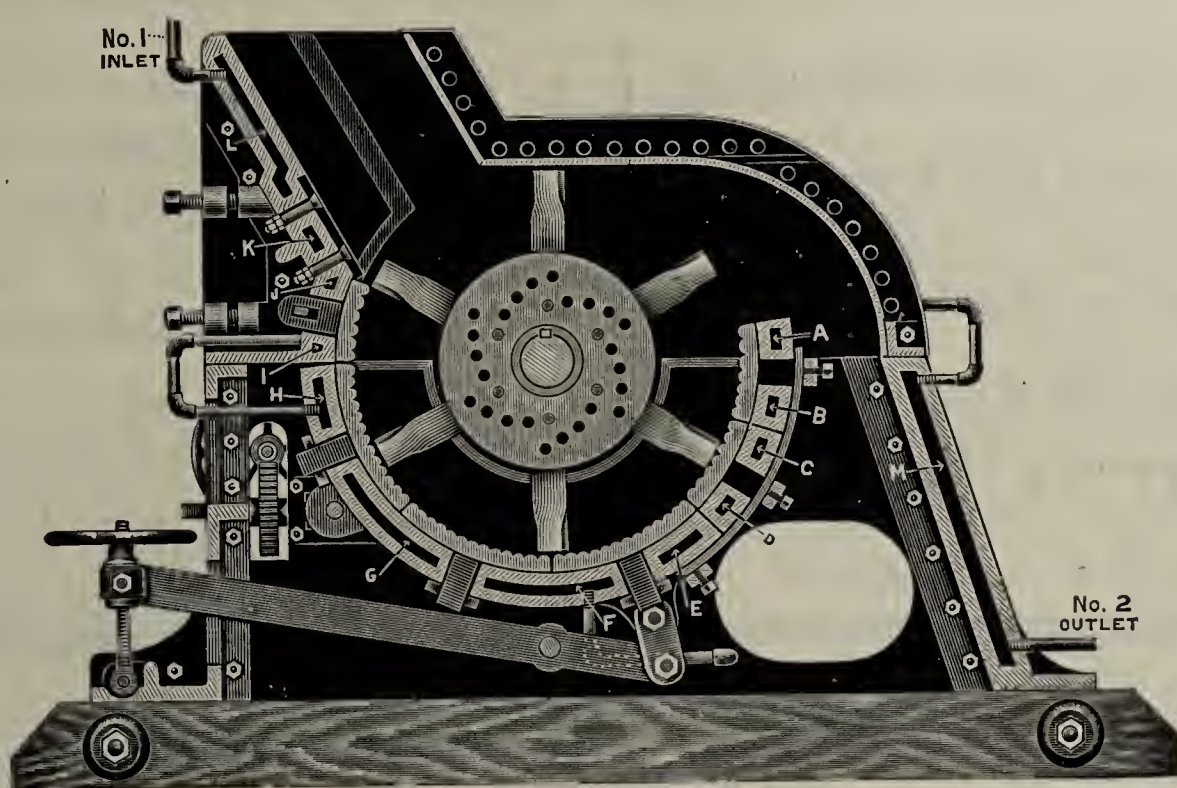
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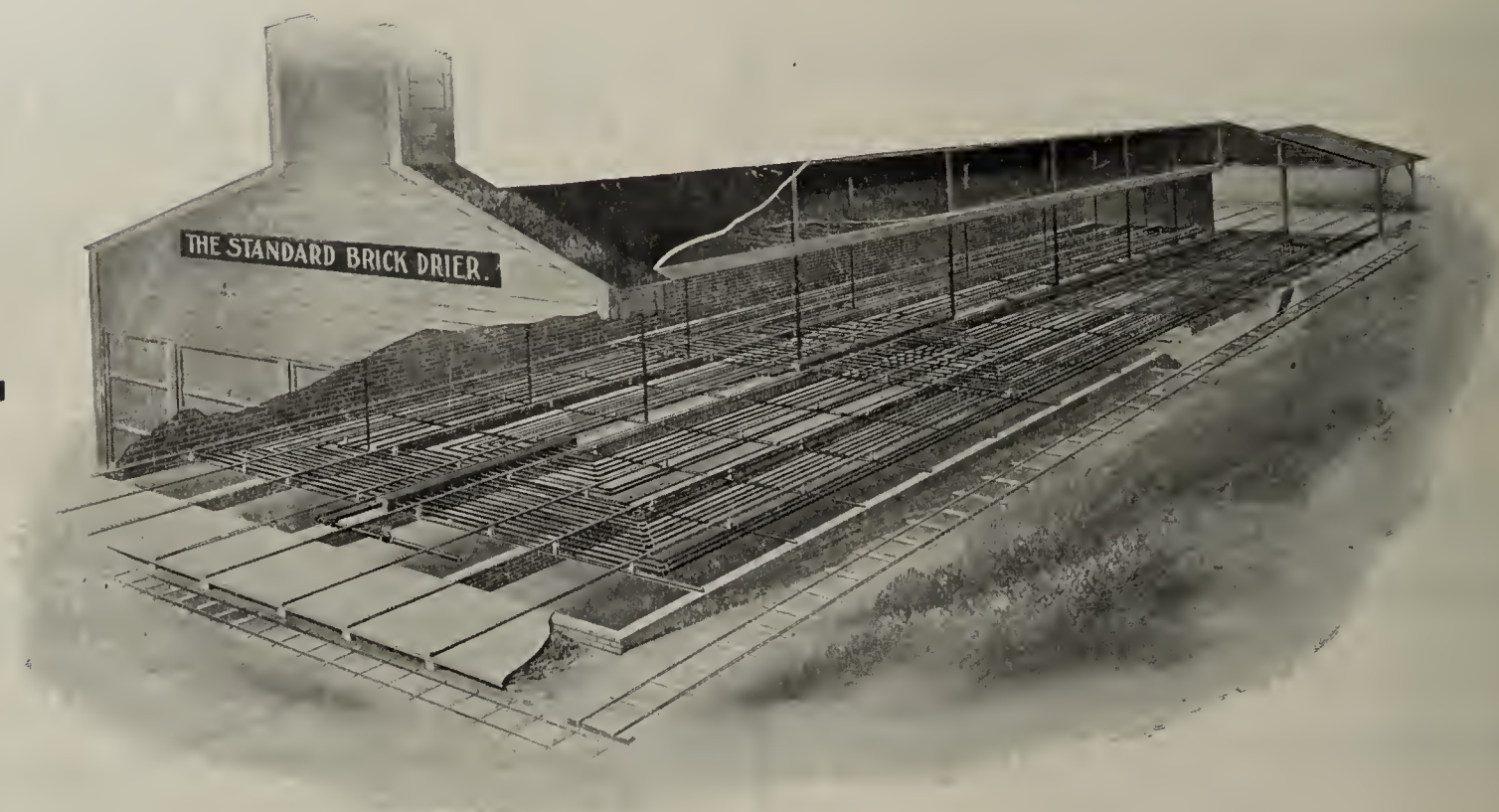
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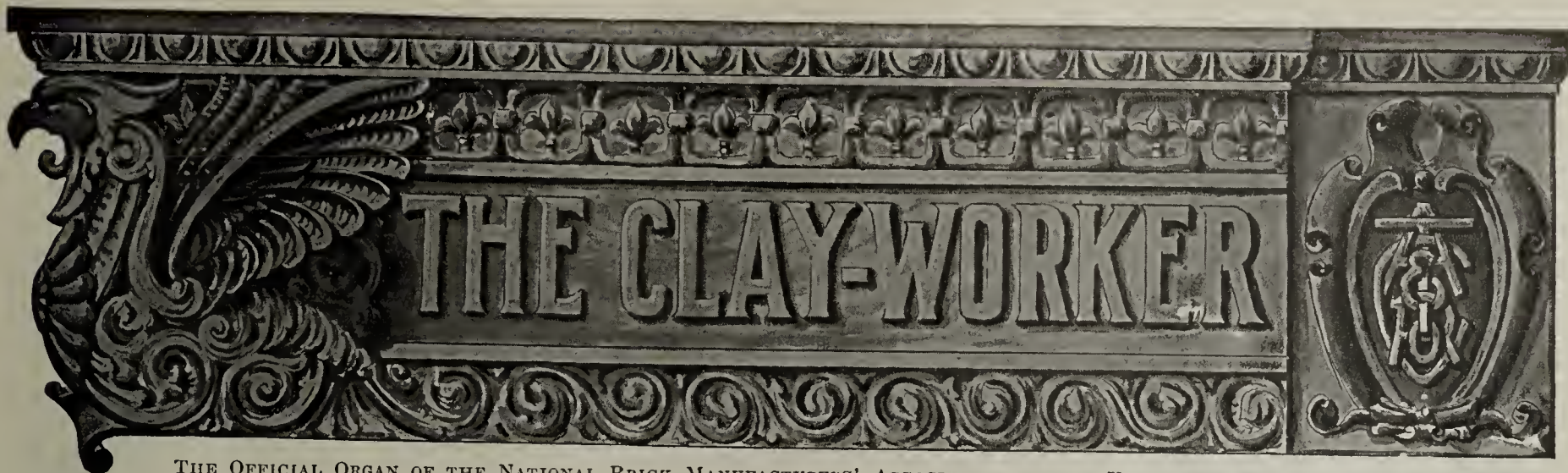
Another reason why The Standard Steam Drier is a more satisfactory investment for the brick-maker is because its first cost is lower. Waste heat systems require a considerably more expensive construction of building.

First cost is not so important as *results*; but it is a big enough factor with most buyers to be worth taking into consideration.

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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. XLIX.

INDIANAPOLIS, IND., JUNE, 1908.

No. 6.

Written for THE CLAY-WORKER.

ART IN BRICK WORK.

The Twin City Brick Company, of St. Paul, Producers of Beautiful Front Brick.

THE FACE BRICK MANUFACTORY does more towards beautifying our cities than any other agency, and it is through the use of its fine products that we have gained a place in the world of fine architectural brick work of which any nation might rightly be proud. Still there are face brick manufacturers who are not content to be satisfied with the present condition alone, but are constantly busy experimenting and doing everything in their power to give to the world even a better product. In this class we find the Twin City Brick Company, of St. Paul, Minn., than which of the many factories of press brick over the country today none are more interesting and unusual. At their plant careful experimental work is continually being done to add to their already large list of various shades and colorings and to perfect every phase of their business. The result of these scientific studies worked out at their plant is that they give to the people ware of the most pleasing character.

One idea to which this firm has closely adhered in its many years of experience has, perhaps, more than any other been the cause of their success. This one idea is that in the manufacture of their brick, colors must be obtained that follow

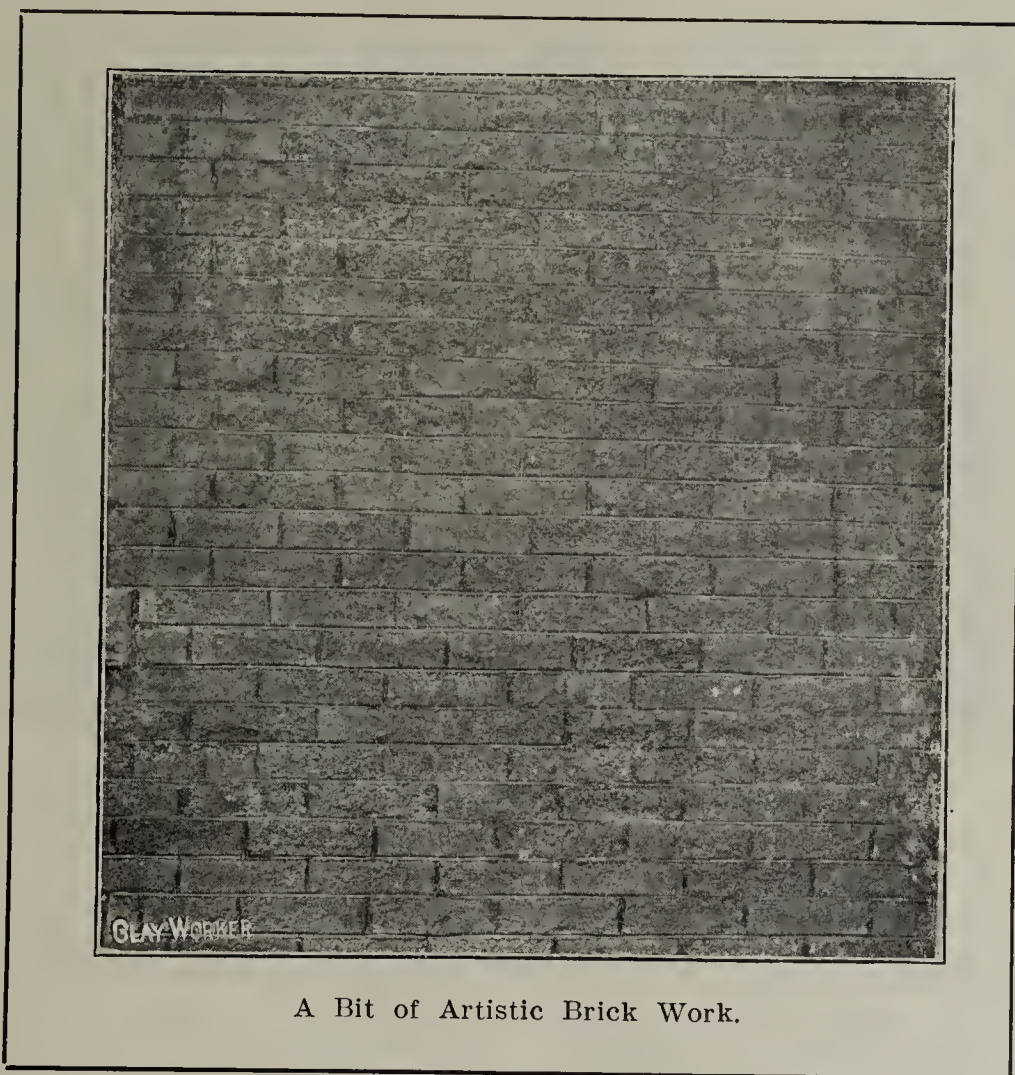
the same tones as we find in the living pictures Mother Nature is continually painting for us. In nature we find that there is a solid mass of color or a gradual shading of one tone into another. We do not find in nature such hard, jumbled contrasts as we find in some of our buildings today. A blotchy mass of different colored brick in a wall is neither artistic nor pleasing. It is the blending of colors that appeal to the aesthetic senses. This one fact the Twin City Brick Company has kept foremost in their minds, with the result that today they are furnishing the market with over sixty-five beautiful shades

of face brick. All their beautiful greens, browns, yellows and greys are obtained without the use of artificial coloring material. All are made from the same clay, but differently burned for the different colors desired. They have furnished brick for some of the finest buildings in the northern states, one of the most imposing of which is the Auditorium at St. Paul, Minn. Space will not permit of descriptions or notations of the many buildings constructed of their ware, suffice it to say that if any of our readers have ever seen the beautiful buildings on the campus of the University of Minnesota they will realize the true artistic value of this company's product. A trip through their

plant would be of interest to most clayworkers.

A Trip to the Plant of the Twin City Brick Company.

We leave their office in the Manhattan Building in St. Paul accompanied by the general manager, Mr. W. Siwart Smit, and are soon on our way across the long steel bridge that spans the Mississippi River leading over to the bank



A Bit of Artistic Brick Work.

that holds one of the richest deposits of clay to be seen in this northern country. Mr. Smit is an enthusiastic lover of art and philosophy and if we engage him in conversation on these points we are surprised to finally note that we are off of the bridge and winding down around to the bottom of the west bank of the Mississippi River, where three years ago a large portion of this magnificent steel structure was hurled by a terrific tornado that played havoc throughout that section of the country. Driving under the bridge and on along the muddy river road to the north we pass the caves of the famous mushroom industries of the United States. The mouths of these caves appear invitingly before you with their wooden doors standing ajar. Were we to alight from our buggy and wander into these interesting underground

stone or granite rock. Here is the raw material for the manufacture of a semi-imperious face brick.

The Plant of the Twin City Brick Company.

To the left of the office and extending to the north are located the kilns, which are unusual in construction and queer and quaint appearing to the average brickmaker. These kilns are of the company's own construction and are patented. They are built without eye beams or steel braces and are constructed of the company's own brick except where fire brick are used for the fire boxes and bag walls. The kilns are rectangular, built together like the chambers in continuous kilns, and operated much the same way, waste heat being used in the kilns for the early stage in the burning. The



Detail of Brick Work in a St. Paul Residence, Built in Queen Anne Style. With Beautiful Green-Tinted Brick.

hothouses we would find that they go back into the hill, sometimes, for a distance of half a mile. Tiny lights give us a faint glimpse of the beds of mushrooms growing here in the darkness and which are finally to be shipped to our homes.

There are perhaps a half hundred of these mushroom caves just adjoining the company's property built artificially into the sandstone rock, which ranges from 35 to 40 feet in depth, and going back into the hills for unknown distances. These are owned or rented by Frenchmen and Germans who have emigrated to this country for the profits to be gained in this industry. As we drive on towards the office at the plant we see on the left towering up over a hundred feet above us a high hill of rich clay deposits, soapstone and sandstone, with here and there a ledge of lime-

waste heat is conveyed to different points of the kilns by means of a large fan run by a small engine.

But the first thing of importance to note on this company's property is their large deposit of raw material, which is located directly to the left of the plant, and extending along the west bank of the Mississippi for a mile and a half. This company owns practically all of the clay land in this vicinity and is therefore free from local competition. The land at the top of the bank and to the rear has been set aside for an excellent park and boulevard. In fact, the city of St. Paul is now making extensive preparations to convert this district into one of the most beautiful parks in the country. Those who have visited St. Paul can readily comprehend what an excellent chance the city has of accomplishing its purpose,



Birdseye View of Plant of the Twin City Brick Company, Mississippi River to the Right.

for it is one of the finest points of observation along any large river in the country.

To gain a good view of this shale bank we must climb up on the top of the clay trestles far above the level of the plant proper. Here the top of the bank seems to be as far above us as it was before. The shale underlies a sub-soil averaging 35 feet in depth, hence the bank must be worked along its face. The shale deposit is 80 feet in depth with stone ledges appearing at intervals of eight feet, thus preventing the use of a steam shovel. The top of this deposit consists of twenty feet of a buff burning shale, while below this the raw material is for the most part red burning. This rich deposit rests upon a substrata of lime rock and soapstone averaging fifteen feet. The level of the plant is below this. Below this soapstone and lime rock is a thirty-five-foot vein of a sandstone formation. It is in this same rock that the mushroom caves are built. Below this strata of sandstone is another rich deposit of clay of unknown depth which has not been used as yet, owing to the superabundance of easily get-at-able shale.

In all probability this sandstone formation would be excellent material for the sand-lime and glass industries.

The raw material is handled down grade from its bank through the different processes until it reaches its final resting place for shipment in the freight cars standing on the depressed tracks.

The shale is blasted with dynamite and drops onto a platform built of loose boards laid over a short tunnel, which is

constructed with the purpose of allowing the dump cars to be run in under and filled by pulling the loose boards out one by one, allowing the blasted material to slide down into the car. There is generally employed in this work a large netting spread ten to twenty feet above the cars as protection for the workmen from falling rock from the bank above. This system of mining the shale is the open level system, two levels being worked at once. There are eleven tunnels in all with a loose board platform at each. The cars of shale are conveyed to the storage shed where it is allowed to weather for use on rainy days or is pushed directly to the top of large chutes, into which it is dumped as needed for the dry pans. These cars are side-dump cars and run on an incline. At another bank, which is reached by a winding track around the side of the hill to the south, mules are employed for hauling the cars, while here the men push the cars up to the shed or chute. The storage shed is large, having a capacity for raw material sufficient to make 1,000,000 brick. This shed has two steep roofs, almost at the apex of which is the high trestle from which the shale is dumped. The company likes to weather their shale for a couple of months, but rainy weather sometimes prevents this. Thirty-two men are employed alone at the clay banks.

There are two chutes for dropping the shale to the dry pans, one extending to the top of the high trestle, while the other opens beneath the other chute on the level of the floor of the storage shed.

The raw material drops to the two dry pans, which are



The Remarable Shale Bank of the Twin City Brick Company, Extending One Mile and a Half Along the Mississippi River.

of the Frost make, being large nine foot pans. After passing through the pans the ground material is elevated by means of cup belt elevators to the piano wire screens, from beneath which the screened material is conveyed into bins by belt conveyors. There are ten bins in all. Four long lines of belt conveyors take screened material to four bins, while the other bins are filled by means of cross cutting transfer belts. The total capacity of these bins is one and one-half millions. Below the bins are belt conveyors which carry the clay as needed to the tops of the three presses, two of which are the Andrus presses while the third is the Boyd. One of the Andrus presses is used entirely as a one-mold machine for ornamental brick. The other two are four mold presses and run night and day, being used twenty hours out of every twenty-four. These presses make 80,000 brick daily. They are all protected by a fireproof shed.

From the presses the green brick are loaded into wooden

fired from one end only, having four fire boxes with small mouths. The lower group has fourteen kilns, six of one hundred and forty-five thousand capacity each, while the remaining eight are of sixty-five thousand capacity. Six of these kilns here are fired from both ends. Both plants have electrically driven fans to furnish the induced draft. At the lower plant a large cable is connected to the fan and the main engine ready for use in case of emergency. Mr. Smit claims these kilns are so constructed that for draft they need only one-half the power other plants use.

In the upper plant all reducing burns are made, while in the lower all the oxidizing burns are made. Electric lights are furnished for the upper plant, for here the kilns are set at night while the others are set by day. West Virginia and Hocking lump coal is used in the main burning.

The burning proper takes three weeks, while reducing takes longer. All of the burning is accomplished with exceed-



The Beautiful Main Building of the State University of Minnesota. A Fine Structure Built of Press Brick and Terra Cotta.

trucks of the company's own design. These trucks hold 260 brick. The flanges on the wheels are flattened enough to allow the trucks to be pushed into the kilns as well as to be run on tracks down to the kilns.

There are two different groups of kilns, one known as the upper, and which is located almost at the presses, while the other known as the lower group is at the north end of the plant and is reached by means of an inclined track. The night run is for furnishing brick for the upper kilns while the day run is for the lower ones. The upper group consists of eight down draft kilns attached in a continuous system, each kiln having a capacity of sixty-five thousand brick set twenty-eight high. Forced draft is employed here. These kilns have been in use eleven years and still give perfect satisfaction. The big walls in these kilns are different from the ones in the ordinary kilns, being reversed. These upper kilns are

ing slowness. The clay is so sensitive it takes much time for the early part of burning, a fortnight being allowed for drying.

Railroad tracks run right by the kilns, so that time and labor is saved here. There are stock sheds at the upper plant with total capacity of five and one-half millions, while at the lower plant the stock sheds have a total capacity of ten million brick.

The power of the plant consists of a large 140 h. p. engine which runs all the large machinery, and a 35 h. p. engine which operates the dynamo for electric lighting and running the fan. They get their water supply from the creeks in the hill. Sewers have been built under the plant for the drainage of surface water, which, in the winter months, is quite a troublesome factor. These sewers are eight feet deep.

The company owns a blacksmith shop, machine shop, and

has purchased in recent years homes for their foremen and teamsters and a large boarding house for the men. They also have a large stable for housing their mules and horses and a large storage house for the storage of mortar colors, etc.

Mr. Fritz Koch is president of the company while his brother-in-law, Mr. W. Siwart Smit, is secretary-treasurer and general manager.

This plant was started by Mr. Koch in 1889. Both members of this firm are from Holland. Mr. Koch had ten years experience with his father in the brick business before



A Glimpse of Kilns, Showing Their Unusual Construction.

coming to the new country to seek his fortune. It was not his intention at first to go into the brick business here, but as his travels took him to St. Paul and he discovered this



View of Lower Group of Kilns.

rich clay deposit he immediately bought the land and began constructing the plant on a location which the citizens of St. Paul at that time said was an impossible location for such a venture. Two years after the plant had been operating Mr. Smit came to this country and purchased an interest in the business. They have been most successful in their work and have developed some beautiful unique colored brick. Their ware is semi-impervious, which they claim is far better than the impervious brick, as it has less chance of

freezing or fading. One wonderful thing about their ware is that the coloring is not simply a surface color but penetrates every portion of the brick. This industry was originally a red press brick manufactory, gradually new colors in brick were added until today they have a large variety of beautiful face brick. After the red press brick the pink shade was developed, then they turned to mottled pink. Then were developed the browns and mottled browns, all done simply by the different methods of burning and without the aid of any addition of coloring oxides. After the browns had been developed into the standard they are today, the company started into making press brick in green colors with rough faces. The first of these was their rustic moss, a beautiful press brick that would arouse the admiration of even a casual observer. This is a beautiful velvety green and yellow moss colored brick which when set in the wall is indeed a work of art.

Next they developed the autumn leaf, another beautiful distinctive type which is tinted instead of being mottled, every individual brick being a representative of all the other brick in the wall, thus giving a blending which comes close to the tinting of the leaves in the fall. The company's aim is to represent in these brick the colorings found in the leaves in the autumn and summer.



Interior View of Kiln Being Set.

Their mahogany red is another attractive shade, while the maple leaf, which is darker than the autumn leaf, and the golden rod, are bricks that have created quite a demand. Mr. Koch, who is continually experimenting, is now at work trying to obtain a silver grey brick without the employment of manganese or other artificial coloring. The green brick, which is one of The Twin City Brick Company's most popular products, is frequently used by architects for artistic brick work in buildings of one story brick with second story of plaster—in other words—the Old English Queen Anne style of architecture. This company was the first in the west to make variegated shadings in press brick. Their brick is sold from Twin City west, and has been used in thousands of buildings during the last twenty years, and are now establishing agencies for their brick in Baltimore, Philadelphia, Washington, New York, Boston, Albany, Cincinnati, Toledo, and Columbus, and expect in the near future to start up more agencies in the East and West.

This company has supplied brick for most of the large state buildings in Minnesota, North and South Dakota, Nebraska and Iowa and a number of buildings at the University of Minnesota. For the main building at the U. of M. which we illustrate in this article this company furnished 250,000

Scenes in and About the Plant of the Twin City Brick Co.



One of the Picturesque Bridges Near the Storage Shed.



Method of Filling Cars With Raw Material.



Chutes and Trestle Work From a Distance.



Entrance to Top of Storage Shed.



Interior View of Storage Shed, Showing Loose Board Platform.



Storage Shed and Trestle to Chute, With Mississippi River in Background.

brick. One of their finest structures, however, is the Auditorium at St. Paul, in which they furnished 300,000 variegated granite press brick, running from a rich chestnut brown to a moss green. A large percentage of these brick are of a decidedly rough texture, laid in a herring bond (two stretchers and one header), which adds materially to the color scheme. The joint used is a one-half inch concaved dull black mortar joint, which by contrast, brings out the rich effect of the brown and green properly. The unique and artistic color scheme in this wall has been commented on favorably by many architects in the northwest.

Quite a fad has been developed of late for the rough brick, which have generally been made by the wire cut method. This company, however, develops this by the dry press method and claims better texture and coloring effects. At the present time the Twin City Brick Company is filling a large order for a series of buildings for the Stillwater Prison. This will require nearly three million pink face brick. The company does a large jobbing business in front brick of all kinds with the American Enamel brick, Iron Clay, Oriental, Danville, Groveport, Corduroy and Gun Metal, Coffeyville, Kans., and a number of other well-known makes. Their exhibition room at St. Paul is one of the finest west of Chicago. They have offices in St. Paul, Minneapolis, and Des Moines.

J. E. R.

Written for THE CLAY-WORKER.

TWIN CITIES AND THE NORTHWEST.



IT CAN NOW BE SAID with safety, that the building operations in this section of the country will fall considerably short of the volume of work that has been done for the last two or three seasons. The season was late in starting, owing to the uncertainty of the business situation and the unwillingness of capitalists to invest their funds until a more settled condition became manifest. The delay has resulted in many of them deciding to postpone their plans until another year, while others were so late in starting that they do not now intend to complete the work this year. While all this is true, so far as large buildings are concerned, the number of smaller buildings going up is as large, if not larger, than last year, the erection of residences being especially brisk this spring, and forming, in fact, a large proportion of the work this season. There is a noticeable improvement shown in the substantial nature of these structures, the lower cost of materials making it possible for people to get the best at a considerably smaller outlay than formerly. Outside the larger cities, there is a healthy amount of construction work going on, business blocks, schools and dwellings all sharing in the movement, and proving the general prosperity of the northwest, in spite of the recent financial stringency.

The leading feature of the situation this spring, however, is the labor situation. Aided by the smaller amount of business, and the plentifulness of labor, there has been a general movement in declaring for the open shop. The master painters of Minneapolis were the first to make a declaration, and while it resulted in a strike, they have been able to do their work with only slight delays. The Duluth contractors have declared for the open shop, and have had less trouble this spring than for a number of years. The Builders' Exchange at Grand Forks, N. Dakota, the master painters of Fargo, N. D., and the contractors of Winona, Minn., are among the notable instances of the general movement. While there have been one or two small strikes resulting from these declarations, the labor world has, as a rule, seen the futility of making resistance at this stage of the game, when labor is plentiful and work scarce, and they have generally acquiesced for the time being, although, they will undoubtedly watch for a favorable opportunity for reopening the fight and attempting to secure for the unions their former positions. It is a quite general opinion, however, that they will not be successful, as the northwest has never been very

strong on union sentiment, and that conditions will be more satisfactory under the new arrangement.

The plans for the new Masonic Temple in St. Paul are being revised by Buechner & Orth, architects, as it has been decided to reduce the cost somewhat, from the original plan, which was for a \$250,000 building.

The new Mechanic Arts High School building in St. Paul is also attracting much interest and architects are now at work on plans for a competition of designs. The choice of designs will be made September 1, and it is thought that work may be started this fall. The building will be of brick and stone, and will cost, complete, about \$250,000.

Among other large structures to be erected in St. Paul will be a fire-proof home for aged women on Langford Avenue, which will cost \$100,000. The Evangelical Association has decided on St. Paul for the location of a \$40,000 Deaconess hospital. New bids will be taken for the Sixth Street tower of the new postoffice, as the lowest bid was several thousand dollars above the estimate.

The J. & W. A. Elliott Company has the contract to erect a three story pressed brick business block at 315 Fifth Avenue S. for S. B. Archambo at a cost of \$45,000. E. S. Stebbins is the architect. Mr. Stebbins has also completed plans for a number of new school buildings, among them being for an eight-room addition to the Grant School, and for additions to the Bryn Mawr and Harriet Schools. The contracts for the two latter have been let, the first to E. J. Davis at \$20,695, and the latter to the Davis Construction Company at \$13,400.

The large brick yard at Coon Creek, Minn., just outside Minneapolis, has been purchased by the Minnesota Paving Brick Company, which has just incorporated with a capital of \$150,000. S. J. Hewson is head of the new company. It is planned to expend about \$40,000 in improvements and new equipment.

J. P. Anderson and others have incorporated the American Clay Products Company of Minneapolis with a capital stock of \$200,000.

Building permit records in each of the twin cities showed a falling off of 13 per cent. from that of a year ago for the month of April.

The Winterset (Iowa) Brick & Tile Co. has elected J. P. Steele as president and W. E. Smalley secretary for the ensuing year.

Articles of incorporation have been filed for the Scranton Fire and Pressed Brick Company, of Scranton, N. D. Capital, \$200,000. Another company, the Scranton Brick Company, will also put in a plant at the same place.

The North Mankato (Minn.) Brick Company has sold its plant to Wm. Stewart.

F. Rieck is manager of the new brick and tile factory recently opened at Wheatland, Iowa, by Lohmann & Gerken.

H. Engholm will erect a new clay product plant near Fort Dodge, Iowa.

A company is being organized with \$250,000 capital to start a brick yard at Hollandale, Wis.

L. E. Armstrong and others are making arrangements for constructing a new pottery plant at Fort Dodge, Iowa. It is estimated that the cost will be \$50,000.

The Lehigh (Iowa) Brick & Tile Co.'s new sewer pipe plant has been placed in operation. The company, of which E. J. Breen is president, has expended about \$200,000 on the new factory, which is thoroughly modern in every particular.

The Fort Pierre (S. Dak.) Brick Company has completed its plant and has begun the manufacture of pressed brick.

Foley Bros., of Bemidji, Minn., have been succeeded by the Bemidji Brick Company.

The North Iowa Brick & Tile Co., of Mason City, is installing new machinery and will greatly enlarge its capacity.

W. L. Kissick & Co., have completed their plant at Carlisle, Iowa, at a cost of about \$40,000.

The Sheffield Clay, Brick & Tile Co., of Sheffield, Iowa, is erecting a larger plant at a cost of \$60,000.

J. B. Nelson, of Ponca, Neb., will start a brick yard at Chamberlain, S. Dak.

The Ladysmith (Wis.) Brick & Tile Co. is erecting a new plant with a daily capacity of 28,000.

C. W. Sieg, of Miles City, is talking of starting a brick plant at Terry, Mont.

TWIN.

FIRE IS OUR GREATEST EXTRAVAGANCE.

By F. W. Fitzpatrick.

FOR YEARS WE have built our houses flimsily, somewhat through motives of alleged economy, but more largely through ignorance. The result is that we are indulging in a fire loss today that exceeds that of any other nation on earth, actually and per capita. We burn up over \$230,000,000 worth of property a year, normally, and it is difficult to know when to apply the term "normal." Each great fire is called "the greatest of our times" and is supposed to last us for a generation. We thought that when Baltimore was afflicted; but here comes San Francisco within two years, and several not to be despised fires in the interim. San Francisco's fire loss means at least \$300,000,000 destroyed. That, added to the \$200,000,000 we reasonably can expect as the ordinary loss of the year, makes \$500,000,000; and our most flowery calculations can but reach \$750,000,000 as the highest possible value of all the new building to be done this year. Who tells us that we will not have a conflagration next year—we surely have done nothing to prevent it—and that these huge losses really are the normal annual waste? Destroying more than half of what we build, spells ultimate bankruptcy.

These appalling losses primarily are due to the people's ignorance, then to the criminal carelessness of those who ought to know—the architects—the inadequacy of our building laws generally, the laxity of their administration, and, finally, in great degree to the fact that we are aided and abetted in our folly by the gentlemen constituting insurance companies, who always have shown a willingness, an anxiety, to gamble with us in the "heads I win, tails you lose" game on the fire question. Meanwhile, those same companies have absorbed \$1,610,883,242 of the people's money in premiums on the gamble, of which sum much less than half has been returned to the people in paid losses, and the rest necessarily has "gone to the house."

Besides that, we are paying \$130,000,000 or so in salaries for the maintenance of expensive fire departments, another \$100,000,000 or more for fire water supply, and probably another \$100,000,000 more for other fire incidentals. It is not exceptional when we destroy over 6,000 lives by fire in a year's time. Every day in the year 36,000 lives directly are endangered by fire, while, of course, every mother's son of us is in that indirect peril every moment he is in or near a burning building.

The San Francisco disaster is an object lesson demonstrating the folly of our mode of construction. A few, perhaps fifty, of the newer and larger buildings were built of what popularly is known as "fireproof construction." That is, they put up steel frames, incased them more or less imperfectly with fireproof material, but built them in all other respects just as inflammably, foolishly, as wooden buildings. Even the tile and concrete fireproofing, the construction of the actual floors, was done flimsily—it was all that was demanded, but it was far inferior to the best eastern work.

In San Francisco, as everywhere in our country, there is a grave misconception of the term "fireproof." People have been fooled by it and tenants particularly have grown into the habit of taking absolutely no precaution against fire, or no insurance against loss, because of the occupancy of buildings called "fireproof," but that can be most seriously damaged in all their parts (excepting only the essentially structural skeleton and the mere floors and partitions) and afford scant protection to their contents. Architects seem to forget and the layman apparently does not know that a building that merely is of non-combustible materials is not

"fireproof;" that a building that is of fireproof material, but not of fireproof design, is not "fireproof;" that a building that is not of fireproof construction and design except in part, is not "fireproof;" that a building that strictly is fireproof, but filled with combustible materials still may have a destructive fire in it, but the building itself will not be wrecked or destroyed; and that the first great principle of fireproof construction is isolation, or the making of the units of space small enough and so absolutely separated that what fire there can be in the contents of any one unit is reduced to the minimum.

This has been preached and pounded into architects and the public generally many a day, but it would seem to have been of but little effect. We boast of our progress and our supremacy in most things, yet as a nation we learn with difficulty and profit little by our own or any one else's experience. Perhaps, though, this awful lesson of San Francisco, coming so soon after that of Baltimore, may have some effect upon us. Fortunately, to make this last lesson more impressive, some architects did do one or two things well in several buildings, another had one good feature in one other building, and still another architect had incorporated one feature of protection that worked admirably, though otherwise the building was of inferior construction.

Architects must have observed that wherever granite, marble, or the several kinds of stone in any way were exposed to fire, the surface went all to pieces and the damage was excessive; that wherever good brick was used, laid in good cement mortar, carefully bonded and rigidly fastened to the steel frames of the tall buildings for instance, nor fire nor quake had the slightest effect upon it; that, similarly, where terra cotta was well made, of equal thickness in all its exposed parts, with a sufficiency of web and well fastened in place, it stood the best of all decorative exterior materials; that where the steel frames were rigidly put together and amply protected by fireproofing materials—tile or even a sufficiency of exceptionally good concrete—the frame absolutely was intact and resisted both fire and quake; that where that fireproofing protection was in any manner weak, or improperly applied, and permitted fire to attack the steel, the latter was bent and distorted as though so much cardboard; that where the floors and the partitions were of properly designed and made and laid fireproofing tile, or of a sufficiency of a high quality of concrete again protected with wire lath and plaster, such construction features were not damaged materially by the fire, intense as it might be; that where roofs and floors were of sufficient strength, the caving in of adjacent buildings and other wreckage did not damage them; that wherever rooms or portions of buildings or stores were cut into small units by really fireproof barriers, the fire damage was limited; that wherever elevator shafts or stairways were inclosed properly fire did not spread from story to story internally; that wherever the internal doors and trim of a building were made of metal or other incombustible material, they gave the fire that much less fuel to burn and virtually estopped the progress of that destructive element, in one case actually preserving the contents of the various rooms of a building intact; that one building was built of timber frame, of so-called "slow burning" construction, and stored with highly inflammable contents, but was inclosed with a well built brick wall and windows glazed with wired glass in metal frames, and though surrounded by a hot fire, a violent external attack, it absolutely was saved intact and men were at work in it the following

day, while an exactly similar structure but a few blocks away, but unprotected externally by wired glass, was consumed utterly inside of forty minutes!

These architects have seen all this, the results of doing certain individual things well, indifferently, or badly. Heretofore, each several thing well done has been supposed to impart immunity to all else, much as a man wearing overalls or a bathing suit and a silk hat imagining he was well dressed. With all this before them, I wonder if it is possible in the reconstruction of San Francisco, or in the needed construction of our great cities that there is one man with intelligence enough to assemble all those various good features in some one structure, somewhere, that in deed and in fact will be a real, full fledged, and absolutely fireproof building?

Written for THE CLAY-WORKER.

CLEVELAND AND NORTHERN OHIO.



NO COMPLAINT CAN BE UTTERED by the brick man for the business directed his way during the past month. With the other building lines suffering from a continued slump brick is coming in for a large share of what is going on and some good orders are being filled.

Not only is this true of the building situation but of the paving and sewer work as well. Cleveland is doing a substantial amount of street paving and ninety-five per cent. of it is of brick. The balance is stone, no asphalt being contracted for this year with one or two exceptions.

Several important apartment buildings, churches and stores, have been announced within the past two or three weeks. The Lakeview Congregational Church has started with the erection of its new building in East Cleveland. The exterior is designed after the low reposing English country church architecture, a dull red brick being used for the purpose. Cut stone is used for tracings and trim.

A new brick factory is being erected of brick for the Peerless Motor Car Company. It has a frontage of 106 feet and a depth of 144 feet. The second floor will form a gallery thirty feet wide running around the four sides of the building. The first floor will be used for assembling and the second for finishing. A huge skylight supplies light for the factory which is regarded as something of a model in its way.

A handsome new \$100,000 brick laboratory is being built for Western Reserve University. It will be a three story structure. The contract for the mason work was let to J. Wentworth Smith and the carpenter work to John Riggs. The building was designed by Architect C. E. Schweinfurth.

The building situation throughout Ohio will be helped somewhat by the appropriations made by Congress. Cleveland is to get \$775,000 to finish its new postoffice. Already a contract has been let for the interior walls. Other cities which get increases in appropriations for buildings already under way are: Columbus, \$100,000; Toledo, \$50,000; Marion, \$20,000, and Springfield, \$12,000. Dayton was given \$60,000 for an addition to its postoffice. Lima was awarded a similar sum for the enlargement of its postoffice. Ashtabula was allowed \$80,000 for a new building and Delaware \$65,000 for a new postoffice. Other Ohio towns given appropriations for both sites and buildings were Alliance, \$90,000; Ironton, \$90,000; Mansfield, \$100,000, and Massillon, \$90,000. With this money available there will be some hustling for jobs within the next few months, for Uncle Sam has the cash and can go ahead with the work at once.

F. W. Wardwell has awarded contracts for the erection of a handsome new residence, 30 by 60 feet in size and two two stories high. It will be of red brick with a slate roof.

Charles E. Tousley is architect. The mason work went to Samuel Volks. It will be ready for use by cold weather.

Work has begun on the erection of the new West Side market house which is to have a base of granite and a superstructure of terra cotta. It is planned to lay the corner stone within the next month. Some \$300,000 will be spent on the job.

Cecil L. Saunders, a Cleveland contractor, has been awarded the contract for building an \$80,000 postoffice at Ithaca, N. Y. The building will be a fireproof structure in which brick will be very largely used.

A new lithographing plant, the largest in the world, it is claimed, is to be built during the coming summer for the Morgan Lithographic Company on Payne Avenue, near East Seventeenth Street. It will have a frontage of 222 feet with a depth of 190 feet. White & Shupe, of Cleveland, are architects.

Members of the Cleveland Builders' Exchange will hold their summer outing this year at the Brant House, Burlington, which is a summer resort, midway between Hamilton and Toronto, Ontario, and forty miles the other side of Niagara Falls. The party will leave July 13, and remain until Friday, July 17, returning by way of the falls where a stop will be made. The Brant House, by the way, is one of the finest brick summer hotels in Ontario.

The Deckman-Duty Brick Company, of this city, has had an important addition in the person of Herbert C. Moatz, for several years manager of the Wade Park branch of the Cleveland Trust Company. Mr. Moatz is being broken in to handle the business so that Messrs. Deckman and Duty may be relieved when necessary.

The Deckman-Duty Company got a nice order at Elyria, when a contract was signed for the delivery of 31,000 yards. Deliveries are also being made on the big Detroit contracts. The company expects that its orders for 3,000,000 paving brick will be reached to 5,000,000 before long. Mr. Deckman reports that two new thirty feet kilns have been added to their Carrolton plant and that the machinery there has been reset and re-arranged.

There is little new in the rate tangle in which Ohio brick makers find themselves. It is understood that the representatives of the various railroads are now engaged in getting the face, paving and fire brick makers together in an effort for them to agree on a suitable classification for brick, so that the railroads can announce a new tariff which will be agreeable to all concerned. To this end, it is understood that the Interstate Commerce Commission is holding back in its investigation of the matter so that the trouble may be amicably adjusted.

Three-fourths of a million dollars is now available for the construction of sewers in Cleveland this summer. The city, on May 26, succeeded in selling \$750,000 worth of bonds, recently voted at a special election. Of this sum, \$500,000 will go towards the completion of the gigantic intercepting sewer, a tunnel thirteen feet in diameter. The balance will be used for smaller work.

Andrew Carnegie has furnished money for two handsome library branches in Cleveland, and they will be built this summer. Contracts will be let about June 1 for the erection of the new West Side branch at Fulton Road and Bridge Avenue at a cost of \$110,000, exclusive of the site, which cost \$90,000. The structure will be of brick and terra cotta. The library board has decided to have one contractor build it complete to avoid complication among the contractors.

Another branch to cost \$40,000 is to be erected on Clark Avenue at Scranton Road. Plans are now being prepared by Mr. Carnegie's New York architect, and bids will be asked during the coming month. It also will be of brick.

A handsome new ten suite terrace of ten rooms each and costing \$60,000 has been started at Euclid and Lockwood Avenues in East Cleveland for E. P. Roberts. It is aimed to make the block one of the handsomest in the East End. The brick being used is of a light speckled color and waterproof. C. A. Bingham, of the Jackson Bingham Company, is in charge of the construction work.

T. O. D.

Written for THE CLAY-WORKER.

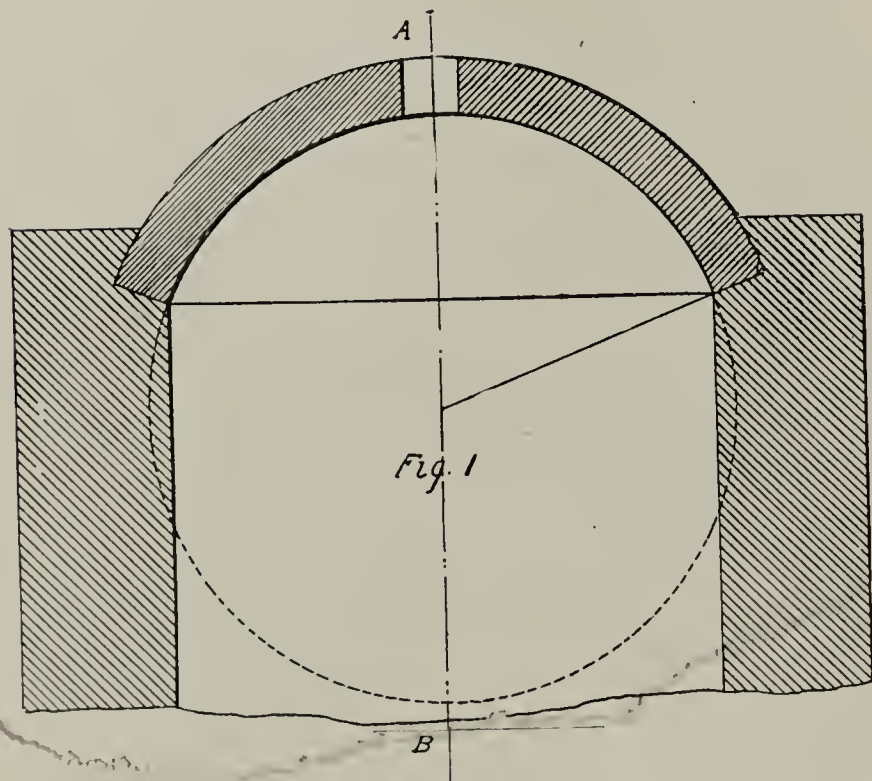
THE LAYOUT OF A ROUND KILN CROWN.



ROUND KILN CROWNS are built of various shapes. It is always best, however, to make them of a truly spherical outline, since this is the shape best adapted for enduring the thrust of the arch itself and the distorting stresses set up by the expansion due to high temperatures. This form of crown is illustrated in Fig. 1, which represents the section of a round kiln made by a vertical plane cutting the kiln through the center, or axis, AB. As will be seen by the dotted line, the curvature of the lower boundary line of the crown section; that is, the intrados of the arch, constitutes an arch of a perfect circle, though not necessarily or desirably, a semi-circle.

The difficulties attendant on the building of a crown of this sort are, after a sweep, or gauge, has been correctly positioned, no greater, perhaps even less, than those consequent to the building of crowns in any other way; whether such way be executed determinately by some well conceived plan or haphazardly by unguided observation.

However, observation of many kiln crowns in his travels



in various sections of the country has convinced the writer that there exists a large number of kiln-builders who are conversant neither with the method of laying out and building the spherical-shaped crown nor yet with its superiority in regard to strength and durability. The type most often met with on these excursions, especially on the smaller yards in rural districts, had a very marked resemblance to the crown of a country haystack, which will be seen by reference to Fig. 2.

A gauge is rarely brought into use in the construction of a crown of this sort, as it is customary to employ as the engineering bricklayer a man who has had a good deal of kiln building experience and who, by dint of much "squinting," is usually able to preserve a fair degree of regularity in the outline of the work. Those of us who have grown to regard the segmental spherical crown as the only type worth while are often times amazed at the ruggedness displayed by some of these "haystack" styles of kiln crown. Nevertheless, long years of practical tests have shown that the spherical is undoubtedly much the superior in its power to withstand the heat stresses, and in its flexibility, or capacity to accommodate itself to the distorting proclivities of expansion. The chief fault, however, that has developed in our experience

with the "haystack" crown is a tendency to sag, as shown at B in Fig. 3, and this seems to be an unavoidable evil inherent in such crowns. When such sags, or indeed other distortions of any kind develop, complete rebuilding of the crown is the only safe remedy, and should be done at the earliest possible time in order to avert probable extensive damage to a kiln of valuable brick in process of being burned, and even hazard to life itself.

Another type of kiln crown frequently seen is that shown

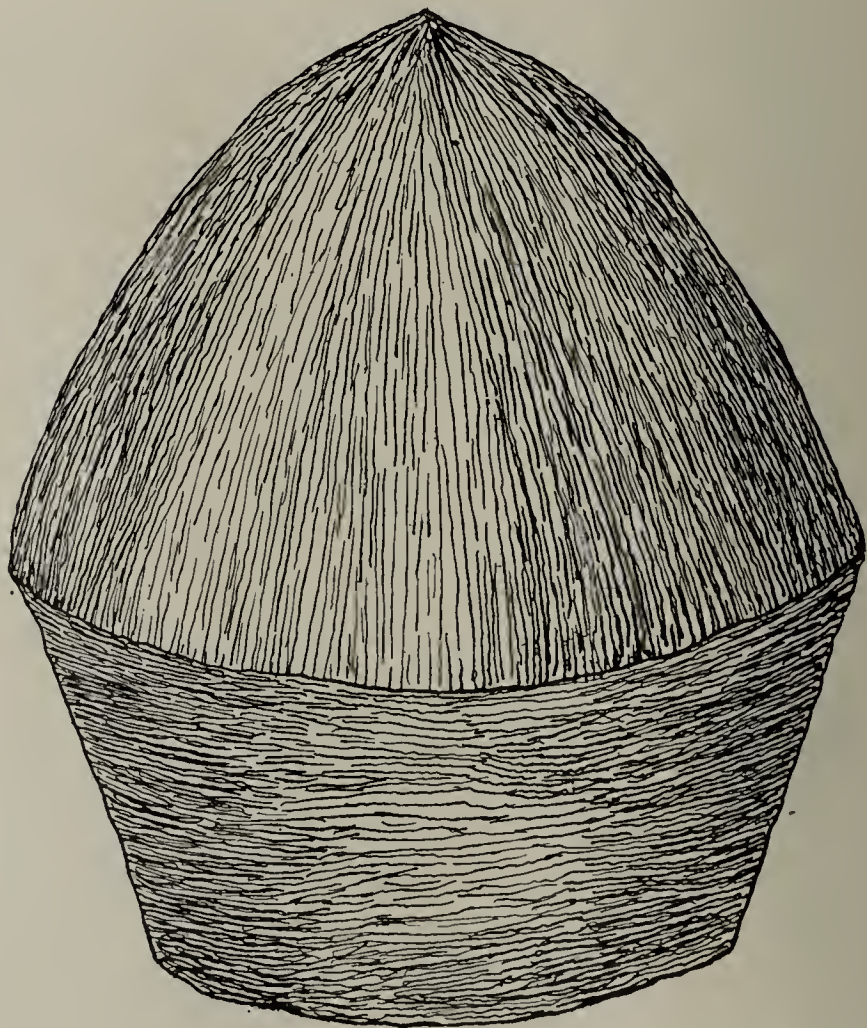
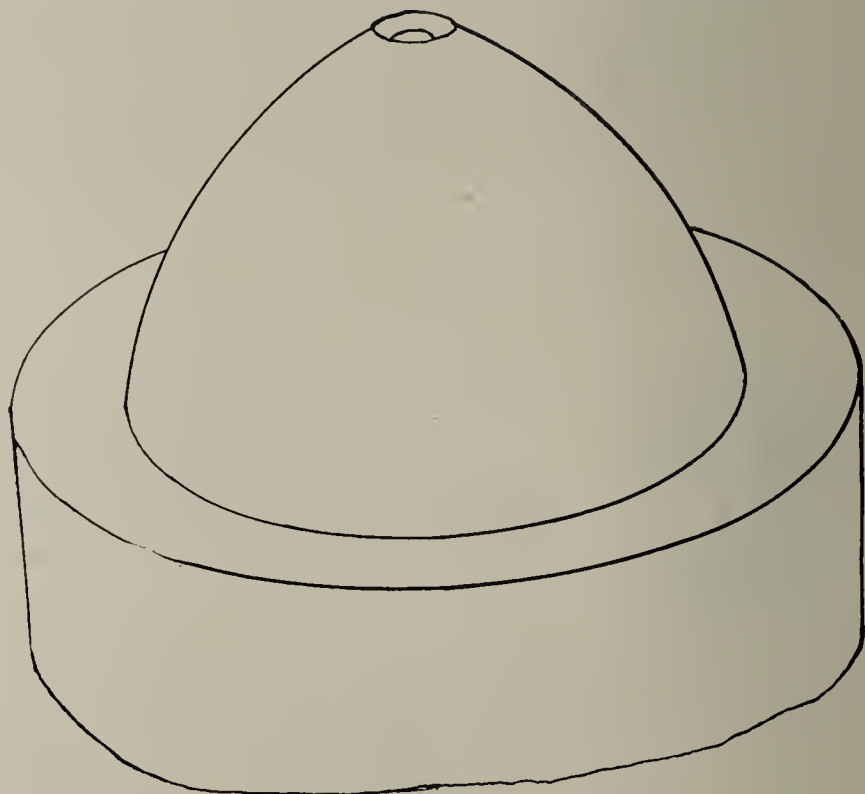


Fig. 2.

in Fig. 4. This is an exceedingly bad design owing to the change of the curve at the haunches, A A, of the arch, which increases the thrust and materially augments the tendency to buckle the arch outward at these points. There is nothing to assist the arch in supporting the outward thrust at this point and naturally any system of construction which aggravates this stress detracts just that much from the strength

and durability of the crown. The consequence is, that frequently after a very few burns, possibly only one or two, the additional thrust causes the arch to spread, letting the whole top of the crown fall in. It is fortunate, indeed, when this happens, if it occasions no injury to life or limb, or damage to property other than the mere falling of the crown.

The first care of the constructor of a segmental spherical type crown is naturally to find the length of sweep required and to determine the location of its point of support. When this is done and the sweep correctly positioned, he is possessed of a guide which will, if he uses it faithfully, absolutely prevent his going astray.

The length of gauge required may be ascertained by plotting out on paper the various lines and dimensions. Layout to some scale, say one inch—two feet, on a line $x y$, Fig. 5, the

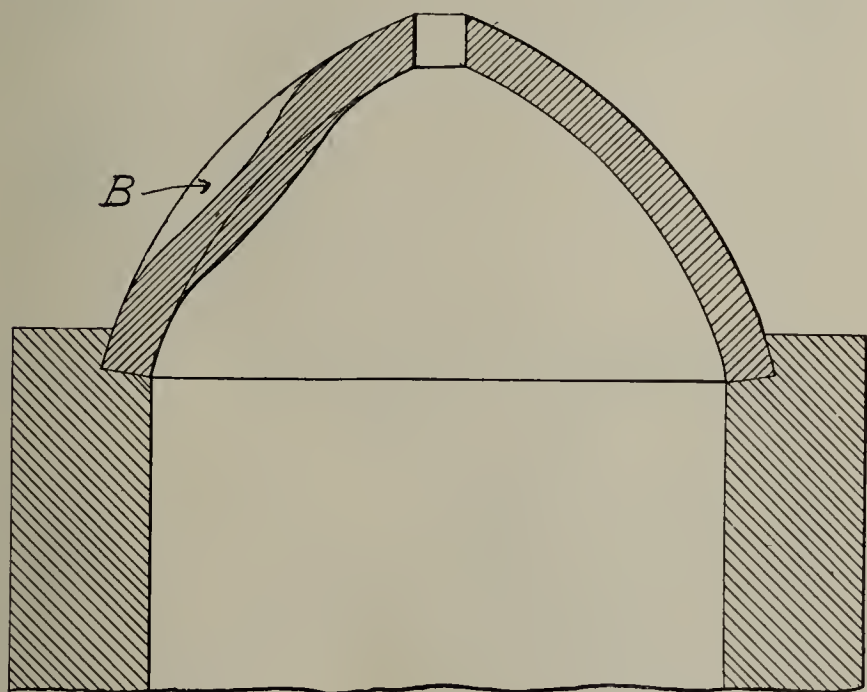


Fig. 3

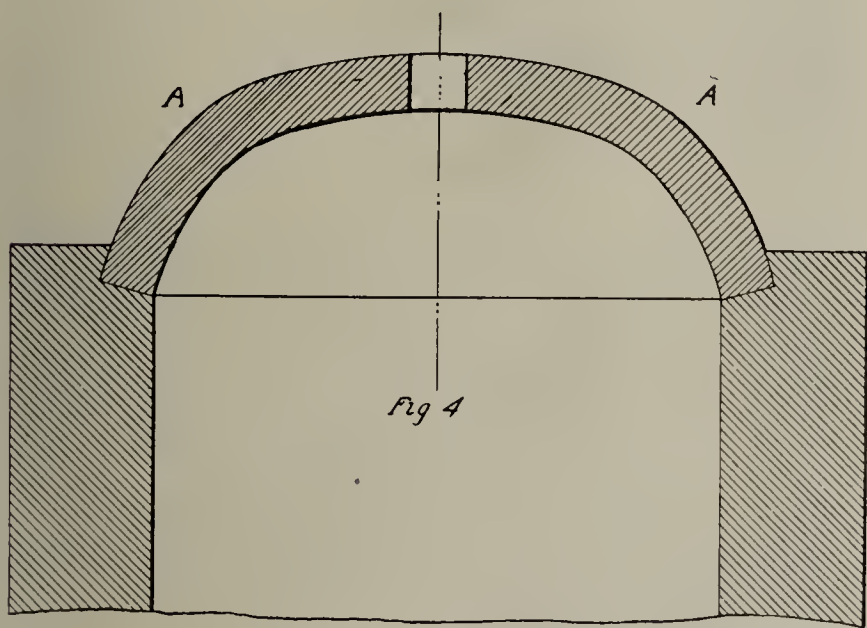


Fig. 4

diameter $A B$ of the kiln at the top of the walls where the crown is to span it. Let us suppose this diameter is 18 feet and the scale, as we have stated, one inch=two feet. Then the length $A B$ will be 9 inches. At the middle point of this line draw, at right angles, another indefinite line $p q$. On this line from O , to the same scale as $A B$, set off a distance $O M$ equal to the desired rise of the crown, which should be, for best results, about one-fourth of the kiln diameter; in this case four and one-half feet, and $O M$ =two and one fourth inches. Join $M B$ by a straight line and its middle point R draw another line at right angles to $M B$. This last line will, if the figure has been properly constructed, intersect the line $p q$ at some point N . Join B and N , and the line BN will represent the length of the sweep to the scale of AB and OM .

Hence, since by measurement, BN =five and five-eighths inches, the length of sweep required is $5\frac{5}{8} \times 2 = 11\frac{1}{4}$ feet.

To find the proper point at which the center of support for the sweep must be established, stretch a line as tightly across the center of the kiln from toe to toe of the crown skewbacks, see Fig. 6; and, at the exact center of the kiln, measure downward a distance equal to the distance from O to N , Fig. 5; or, in other words, the location of the center of support of the gauge lies in the exact center of the kiln below the line AA , Fig. 6, a distance equal to the difference of the length BN of the sweep and the rise OM of the crown.

For fastening the gauge at this point it is customary to set up a post, as shown in Fig. 6, braced rather substantially to prevent lateral displacement by any ordinary accidental knocks. The top of this post is sawed off squarely at the proper height as indicated by the downward measurement from line AA , and the end of the sweep is then fastened to the top of the post by a hinge as shown in Fig. 7.

The sweep itself is constructed of a light piece of scantling with a batten nailed along its under side to prevent springing as illustrated in Fig. 8. The end of this batten should constitute the true outer end of the gauge, and the scantling be carried beyond it far enough to extend up over the brickwork for the purpose of forming a guide for the alignment of the bricks, as the inclination of these must always coincide with the slope of the gauge, see Fig. 6. The crown is then

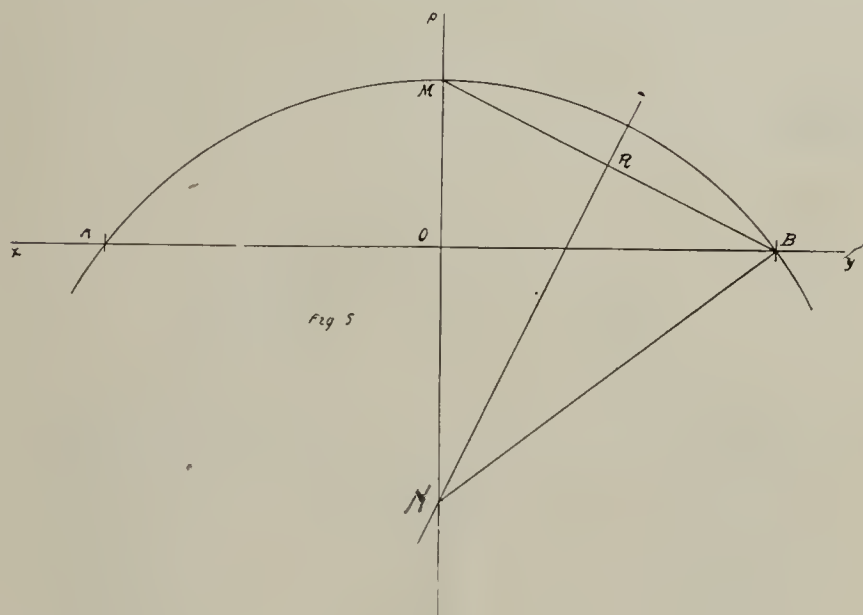


Fig. 5

built by laying each course of bricks completely around and keying it in before laying a second. Or, if more than one bricklayer is at work, they may, if necessary for the economical distribution of the work, each be laying up a separate course. Each should also, have a gauge.

If one is familiar with algebra, the length of the gauge may be calculated as follows: Let $A B$, Fig. 9, be the diameter of the kiln; $O M$, the rise of the crown; N , the center of support; and $B N$, the length of sweep. Then, in the right angled triangle NOB , we have $BN^2 = (BN - OM)^2 + OB^2$. Putting $BN =$

x ; $OM = a$; $AB = b$, and $OB = \frac{b}{2}$, we have the algebraic equation

$$x^2 = (x - a)^2 + \left\{ \frac{b}{2} \right\}^2$$

$$\text{Then, } x = \frac{a}{2} + \frac{b^2}{8a}$$

This result may be stated in the form of an arithmetical rule as follows: To find the length of gauge for laying out the crown of any round kiln, to one-half the desired rise of crown add the quotient obtained from dividing the square of the kiln diameter by eight times the rise of the crown. The result is the strength of the gauge required.

Applying this to the problem previously plotted out, one-

half the rise of crown is two and one-fourth feet, the square of the kiln diameter is $18 \times 18 = 324$, hence length of sweep is

$2\frac{1}{4} + \frac{324}{8 \times 4\frac{1}{2}} = 11\frac{1}{4}$ ft., the same result as we obtained by plotting.

To find the height at which the center post must stand to support the sweep, we must measure downwards, as before, from a line drawn across the center of the kiln from toe to toe of the springers, a distance equal to the length of the sweep less the rise of the crown.

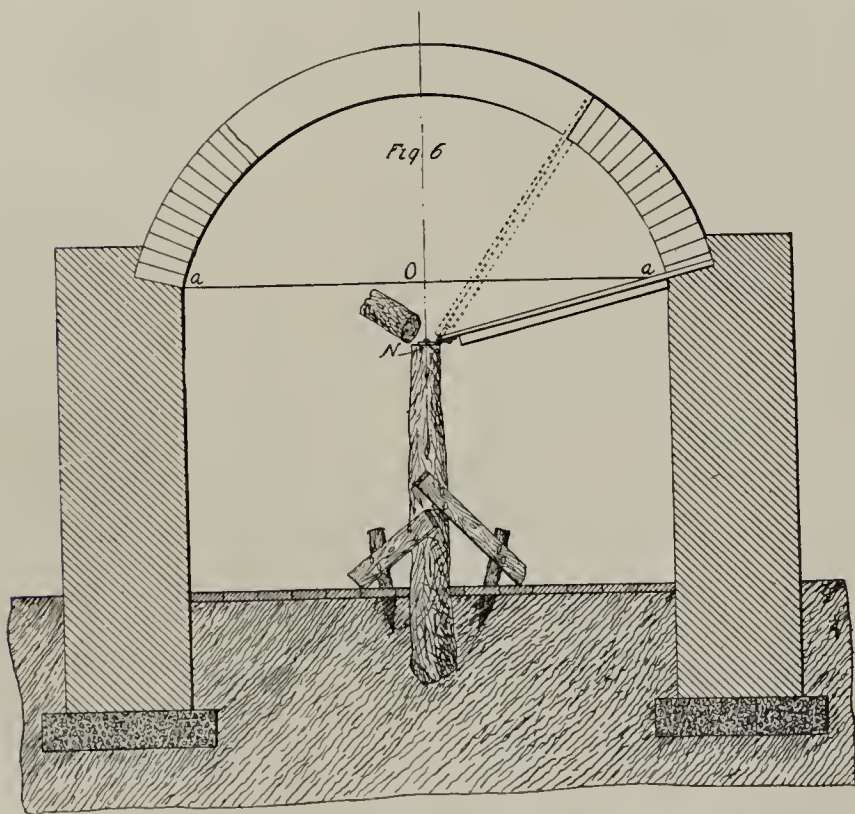
THEO. RIZER.

ENAMELED BRICKS FOR INTERIOR FIREPROOFING.*

By George E. Walsh.



IN FINISHING OFF the interior of modern buildings the employment of various forms of terra cotta blocks, bricks and other fireproof material has become quite universal. The direct application of ornamental decorations to hard-burnt tiles is well illustrated in the interior of Dr. Parkhurst's church, Madison square, New York, and a number of commercial buildings on Fifth avenue recently described in *Fireproof Magazine*. The suitability of this form of interior decoration has proved of great value where expensive designs are made, for their permanence is assured indefinitely. There is no danger of spoiling through the cracking or warping of the walls or ceilings, and fire and smoke would no more than



cover them with a film of soot which could be easily removed, leaving the surface intact for redecorating.

The use of enameled bricks for interior finish is another development of recent years which has made fireproofing of kitchens, public halls, tunnels and dining rooms of large hotels so satisfactory. Enameled bricks are of English origin, and were imported into this country at considerable expense before any serious attempt was made here to manufacture them. A dozen years ago architects specified English enameled bricks for wainscoting of swimming pools, sanitariums, public kitchens and railroad stations. These bricks were manufactured in the neighborhood of Leeds, and the industry there had grown to great dimensions before Americans tried to imitate them with domestic clays.

*Reprint from *Fireproof Magazine*.

The cost of importing enameled bricks made it almost impossible to use them extensively, and only the most costly buildings could be finished off with them. Heavy and bulky, they cost more in freight than their actual expense of manufacturing. In spite of the long established industry at Leeds, however, the bricks were never made so that they could be used in all different climates and with a trueness of size and design that enabled architects to secure the highest results.

In this country the bricks were made in a crude way at first. The enamel was burnt on a red clay body. The red clay could not stand the high temperature necessary to carry the hard enamel. The bricks would often warp in the process so that it was impossible to get a true uniform surface and corners. In some cases the bricks were so weakened by the firing process that they would easily crumble under pressure. In experimenting with various methods it was next attempted

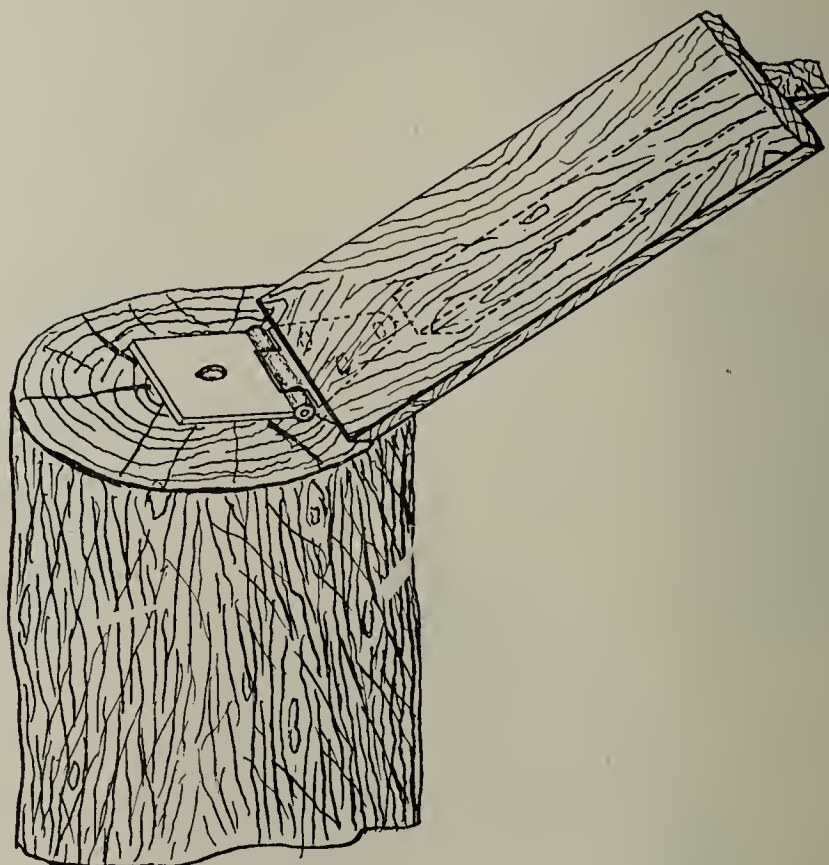


Fig. 7.

to use a softer enamel which did not require such a high temperature. The result of this was that the enamel facing lost much of its durability and the fireproofing qualities were largely weakened.

Like the early use of terra cotta blocks and bricks, these early types of American enameled bricks lost favor among architects and builders and there developed a decided prejudice against them. It was only after the red clay backing and the soft enamels were abandoned that any important improvements were made. To-day manufacturers of American enameled bricks use a light buff fireclay for the body of the bricks, and hard enamels are burnt on them under severe fire temperatures. When the bricks are finished they are about as fireproof as any material can be. If in a very hot fire the enamel facing should crack, the fireclay bricks back of it would still resist the disintegrating effects of the fire.

Fireproof enameled bricks of the best quality are made and sold in this country to-day at about one-half the former cost of the imported bricks. The English bricks are made only in sizes which are not always suitable for American work. The bricks made in this country vary in size and colors so that a harmony of glazed surface can be produced for almost any kind of design. The standard large size of enameled bricks take three to the foot, and at \$100 per 1,000 the cost is only 30 cents to the square foot. Restaurants, smoking rooms and billiard rooms of hotels, as well as gymnasiums, laundries, kitchens and bakeries are finished off with enameled bricks of different colors.

Their value is two-fold. There is the fireproof advantage

obtained and the perfect sanitary results. Nothing can cling to such a glazed brick surface to harbor filth and disease. Smoke, soot, grease and dirt are readily washed off its surface, and when the bricks are closely joined together with cement they present a good sanitary surface. Most of the railroads have in recent years adopted enamel bricks for their terminal passenger stations and also most of the new railroad tunnels. Both the New York and Boston rapid transit tunnels have their stations finished off with enameled bricks, and the new Pennsylvania and McAdoo tunnels entering New York from New Jersey will be similarly equipped, while the new mammoth station of the New York Central will have several hundred thousand such bricks in use. In England enameled bricks were used for railway purposes before they were adopted in this country. Over a million enameled bricks were used in the railway depot at Nottingham, England, and altogether upward of twenty-five million more are used in other stations of that country.

But more particularly the enameled bricks have entered extensively into building construction. There is hardly a new hotel, apartment house, office building or bank that does not have some parts finished off in these fireproof units. In the new buildings under way in New York, including the

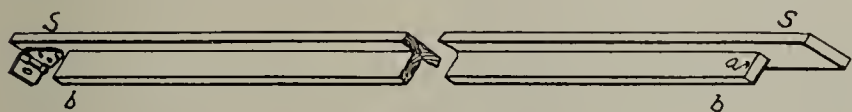


Fig. 8

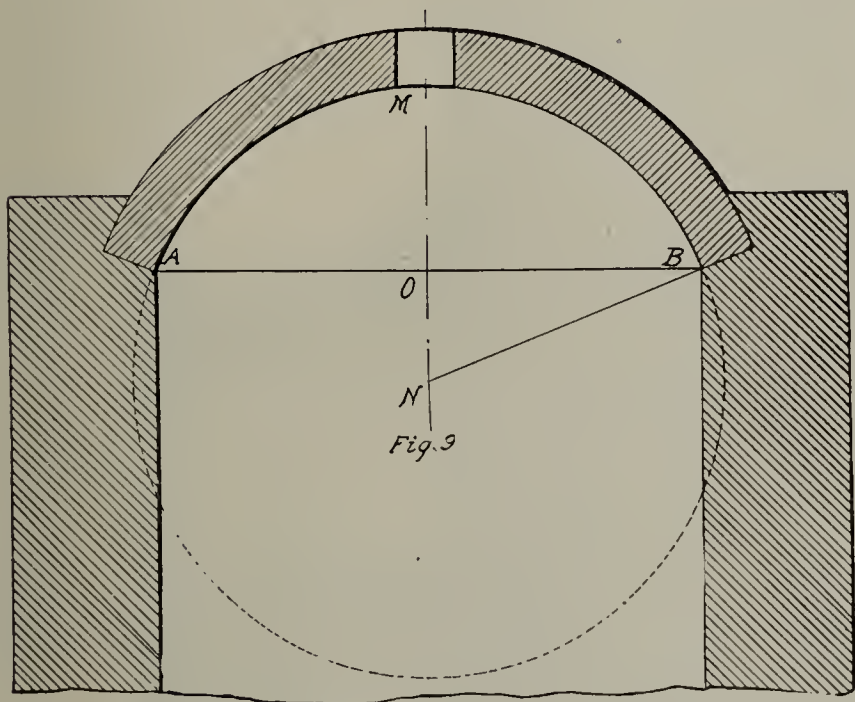


Fig. 9

new Plaza Hotel, Singer Building, Trinity Annex, and McAdoo tunnel buildings, there will be used several million enameled bricks of various colors and designs. The wainscoting of the main dining rooms, kitchens and grille rooms of the Knickerbocker and new Plaza Hotels have demanded the use of some beautifully tinted bricks. The advantage of the bricks over ordinary plaster is apparent, for they do not require retinting from time to time, and they are more sanitary and by all odds more fireproof. The bricks are taking the place of marble to a large extent, owing to the difference in cost. It requires far less skilled labor and cost to lay the enameled bricks than to cut, lay and polish marble, and once in the walls the bricks do not require the expensive attention that marble does. Marble is liable to discolor under the action of fumes and acids in a kitchen, but enameled bricks do not suffer in this respect. Marble weakens and cracks under an ordinary temperature, but the enameled bricks will withstand a very high temperature before suffering in this way.

Since the government's investigation of the slaughter

houses of Chicago the use of enameled bricks for the packing houses has become almost universal. In such cases the bricks are employed more for their sanitary than fireproof qualities, but the two are both obtained. In finishing off boiler and dynamo rooms of steam and electric generating plants the question of using both fireproof and sanitary wall surfaces has become important. The accumulation of grease and dirt in a boiler room has been responsible for many fires. Fire underwriters maintain that a boiler room should be as clean as a kitchen or hotel parlor to make it safe against spontaneous combustion or accidental fires. The presence of greasy waste and the accumulation of oil on the walls and floors makes sudden fires common. With the floors, walls and ceilings protected with fireclay bricks faced with hard burnt enamel, an accumulation of grease, oil and dirt is almost impossible. The presence of dirt is so manifest that the most careless engineer will keep the place clean. The enamel surface will not absorb anything, and this prevents the quiet absorption of oil and grease which wood and stone is so often guilty of. The construction of boiler and engine rooms in the sub-basements of modern sky-scrapers and mammoth hotels with enameled bricks is another move in the right direction. Instead of neglecting this part of the building, leaving it half-finished, where grease and dirt are apt to accumulate, the modern tendency is to finish off in light-colored bricks with a glazed surface that can be easily washed and kept clean. In modern rapid transit city tunnels the construction companies are required by law to finish off the stations with enameled bricks, both for sanitary purposes and for fireproof protection.

The use of enameled bricks for exterior construction in combination with terra cotta is also gaining rapidly in ground. This has been particularly true of many buildings in Pittsburgh, Cincinnati and Cleveland, where the smoke nuisance has always been a factor in the situation. The impervious surface of both terra cotta with a finished glaze surface and ornamental enameled bricks makes the damage to building fronts from soot and smoke almost a negligible quantity. The fronts can be cleaned at intervals at no greater cost than is required to wash the sides of a barn or carriage house. The smoke and soot can not permanently find lodgment on the glazed walls, and it is a simple matter to remove them. Enameled bricks make harmonious ornaments for exterior walls in combination with terra cotta black, and the fireproof character of the walls are enhanced thereby.

The variety of uses of enameled bricks has been increased with the successful effort to increase the number of sizes and different colors. At first it was possible to secure only the white or buff colored terra cotta, but now they run from creamy white to red and blue and green, with many intermediate shades. The architect is thus supplied with more abundant material for working out his designs either for interior or exterior use. Ornamental designs other than the very plainest were impossible of execution until manufacturers of the bricks made modern improvements in their products.

The question of popularizing enameled bricks still further by producing a lower grade which could sell at about half the present price has been considered by manufacturers, and architects would undoubtedly welcome any such innovation. But the fact is that a cheaper grade would mean a sacrifice of either the glaze or the brick backing, which in either case would prove detrimental to the best interests of builders. But the modern flat enameled bricks answer some of the demands of the trade. They are made so that they can be tied in the wall of ordinary brick or terra cotta backing with ordinary galvanized wire or iron brick anchors. Round ends can be obtained for use at corners and doors and window jambs. The anchoring and bonding can be made so secure that the metal part can not be touched by the heat until the fire has passed through several inches of hard fireproof glaze.

These flat enameled bricks are used extensively with terra cotta blocks for trimmings and outside ornaments. The non-absorbent quality of such an exterior wall helps greatly to equalize the inside temperature of a house or office building. The walls are less affected by heat and cold, as well as by dampness and fire, than almost any other that can be constructed.

In Chicago such buildings as the Merchants Loan and Trust Company, the new Marshall Field retail store, the Auditorium Annex Hotel, the First National Bank, the new Railway Exchange and the Marquette, Rookery and Tribune have enameled bricks extensively used either in the interior or exterior walls. In other cities the bricks have entered into the construction of the newer buildings on a large scale. Over a million enameled bricks have been put in the new Plaza Hotel, New York, described in the August number of the Fireproof Magazine, and only a slightly less number in the Knickerbocker and Hotel Belmont.

As important factors in connection with terra cotta blocks

Written for THE CLAY-WORKER.

EXPENSIVE STREET PAVING MATERIAL.

THE

CITY OF NORFOLK, Va., has wakened up to the fact that asphalt paving is too expensive for the "City by the Sea." In a recent report from Chairman Johnson, of the Board of Control, he said: "Asphalt paving is too expensive for the city of Norfolk." Mr. Johnson went on to explain that, while asphalt makes a good pavement, it costs so much to maintain it after it is laid, that it will, if used much further in Norfolk, greatly retard the much needed improvements of the unpaved streets in the city, of which there are seventy-one miles. He thinks it will be far better to go back to the Belgian block for new paving, and in ten or twelve years have most of the streets paved, than to get the city in a cramped position on the asphalt proposition, and let very many of the unpaved streets go unpaved. The Board of Control is of this opinion, too, and has recommended



View Showing Detail of Windows and Gable and Chimney of the Kiln Room at Van Briggles Pottery.

the enameled bricks promise to make many vital changes in the exterior effects of our modern city architecture. They take the place of stone and marble so well that these more expensive and less durable materials will be employed for ornamental fronts less and less.

GOOD BUILDING PROSPECTS.

This is a good year to push the brick business in country districts and smaller towns, because it is these that have fared best during the panic, and the larger cities have been hit the hardest and are slowest about recovering. The agricultural districts, especially, are in excellent shape and should do lots of building this year. Also, there should be prosperity in building in those cities which depend mostly on agricultural resources.

to the City Council that the future paving be done with Belgian block. Norfolk has 54 miles of paved streets, 18½ miles of which is asphalt; 71 miles of unpaved streets. The Board of Control has been, for some time, figuring on an asphalt repair plant, which will cost the city \$15,000, the appropriation for which it will soon ask of the City Council. I think it about time for the Board of Control to wake up along the line of street paving. Belgian block is becoming more and more a back number in all up-to-date well paved cities.

Vitrified brick are far in advance of Belgian block, in all modern cities of today, and the more they are used the more popular this paving material becomes. It is true, Norfolk has a few brick streets that do not show up as they should, but these streets were laid many years ago and of very inferior brick and inferior workmanship. Some of these streets were laid where swampy holes were filled and without the

proper foundation. If they had built some of their large buildings with as little regard for the foundation as they did their brick streets, the building proposition would be a more serious one than the paving. It would be just as reasonable to condemn brick for building purposes, under such conditions, as it would to condemn paving brick, laid under like conditions. I believe if the Board of Control would visit some of the large vitrified brick paved cities, such as Cleveland, and examine the brick streets, inquire into the age and cost of maintenance, they would then recommend vitrified brick instead of the noisy and dirty Belgian block. The little city of Suffolk has about forty blocks of brick streets which have been in service now for one year, and there are no signs of wear on these brick. These streets were well constructed, being laid on five inch concrete with two inch sand cushion. The brick used were the "Maxwell" and "Carlisle" block. The "Maxwell" blocks were pitch and tar grouted, while the "Carlisle" were cement grouted. These streets are cleaned just as easily, with a street sweeper, as an asphalt street. This can not be done on Belgian block. We have nearly as many blocks of bitulithic streets, laid at the same time, with the same subgrade. These bitulithic streets show signs of rapid wear and disintegration. Where horses are tied along the streets, they have stamped holes through to the concrete. A few days ago I saw a horse, owned by the Holland-Beamon Company, stuck fast in the bitulithic. I stood by and watched this horse try to free his feet, but he could not move until they got a crowbar and pried out one foot at a time. I had heard of such things before, but this time I was an eye witness and saw the horse in all his agony trying to free his feet from the sticky pavement.

The paving brick manufacturers could do some good missionary work in this section, especially in Richmond and Norfolk. They made a great mistake by not having a good exhibit of their pavers at the Jamestown Exposition. If the merits of brick pavements were properly shown up and advertised there could be created in this section a market for millions of paving brick. The nearest paving brick plants to this market are the West Virginia, Ohio and Pennsylvania plants.

H. L. JACOBS.

IS IT THE "DRY" WAVE?

There has been a great slump in the importation of diamonds during the past year, from which it might be gathered that between the prohibition wave and the panic the bartenders and hotel clerks have been pretty hard hit, and have had to let up on buying shiners.

Written for THE CLAY-WORKER.

A STRUCTURE OF COMBINED BEAUTY AND STRENGTH IN CLAY.

New Factory of VanBriggle Pottery, at Colorado Springs, Novel in Every Feature. An Ideal Pottery Built to Attract the Eye of the Traveler.

SITUATED IN THE BEAUTIFUL country of central Colorado, where Pike's Peak stands out in the sun, crowned with its glimmering crest of snow, and resting in peaceful splendor not far distant from the wonderful sandstone Garden of Gods, the traveler may view with pleasure the handsome factory building of the Van Briggle Pottery Company. The beauty of the surrounding country in this locality has been pictured to all Americans, so that the reader can readily comprehend the style of the structure of this pottery

when we say it fits in perfectly with the surrounding scenery. One would think at first thought that such a building would be an extravagance, but when it is known that through the beauty of this structure the travelers are intuitively imbued with the idea that their trip would be a failure without taking home a piece of this pottery, which has gained a world wide reputation and is more costly elsewhere than at the factory proper, he immediately realizes the importance of such an imposing factory.

It is indeed an excellent example of the beautiful effects obtained from the use of polychrome architecture. The building materials used are common brick, glazed brick, glazed terra cotta and glazed tile, all being combined with an artistic effect that more than pleases. As we approach the pottery and stand for a moment on the banks of a small, clear stream that

ripples along, skirting the factory's grounds, the first features that attract our attention are the two large green glazed tiled tops of the kilns standing out boldly above the roofs of the building.

The detail of these kiln tops can only be appreciated by observation. An accompanying illustration shows the decorative effect of the tiles and terra cotta pieces. These are all made with a pleasing green glaze, which, used with the red brick, makes a very artistic combination. The walls of the building are red brick set in white mortar. The walls under the gables, which, by the way, are numerous, are decorated with beautiful polychrome tile.

As we near the office entrance we observe the beautiful glazed tile panel, on which, standing out in bold relief, is the name of the pottery extending across a projecting wall and topping two small recessed windows. The caps to the windows



A Picturesque Van Briggle Kiln Top.

are all in matt glazed tile, while the columns between the windows are finished with a fine iridescent glaze. The window sills are of terra cotta. Wherever a little contrast is needed in the wall exposures of the building well selected decorated tiles are used to good effect, the arrangement of the light and dark colors being executed with much skill. The interior of the building is roomy and well lighted and ventilated by means of the large windows.

The equipment of this factory is of the most modern apparatus, consisting of machinery for a complete clay washing plant and dry press tile plant, with the necessary machinery for preparing sagger clay, wad clay, terra cotta pressing clay, including throwing wheels, jiggers, glaze grinding mills, etc. The flooring of the building is all in cement, making it very sanitary and easily kept clean. Two large regular up draft potters' kilns are used for the burning of their ware, which includes fine lines of art pottery, tile and small interior decorative terra cotta. The material used for the manufacture of the art pottery bodies is a stoneware clay secured from a local bank of buff burning clay. They find that the use of this

ability, good taste and much originality. Both studied in foreign countries and had for their highest ambitions the production of beautiful distinctive art work, hence it was only natural that being imbued with these characteristics and ideas Mr. Van Briggles formed a small stock company and equipped a small dwelling house as his first factory. He employed one



"Throwing" a Vase—the Start.

clay gives them more satisfaction than the blended clays which other art potteries generally use.

The fame of the Van Briggles pottery is due to its distinctive shapes and unusual colorings. Solid glazes are used for the most part, various tints of green being the favorite colors employed. Their orange, purples, and azure blue glazes are unusual and pleasing. Nearly all the ware is modeled in high relief in designs which are conventionalized wild flowers and other characteristic designs of the western country. Their pottery in light blues, pinks and whites, as well as the darker and more common colors, is generally familiar to the public. The company has been engaged in the manufacture of matt glaze art pottery since 1900.

The founding of the old pottery in Colorado Springs was the natural outcome of a trip to Colorado by Mr. Artus Van Briggles, who was forced to give up his position in the Rookwood pottery on account of his health and to travel into the western country in search of relief from his ailment. Mr. Artus Van Briggles and his wife were both artists of great



A Simple Form.



The Finishing Touches.

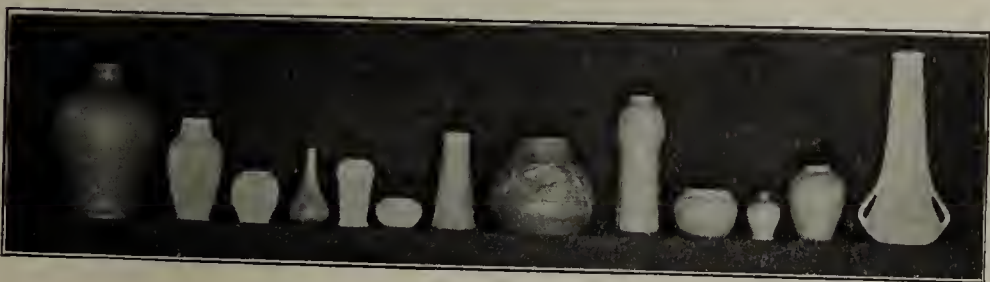
thrower and helper at first and as the reputation of and the demand for the ware grew he would make the necessary additions to his dwelling until finally the old quarters, together with all the additions the property was large enough to hold, became inadequate for the increasing demand. Thus it was

that the plant gradually grew from a small dwelling into a large pottery, the present factory being the natural outgrowth of the cramped, poorly equipped quarters. This new and modern plant was built in a very beautiful park which has just been plotted out. This is located one half of a mile from the center of the town. Colorado Springs is the great tourist center, and for this very reason the new plant was made as attractive as possible in order to attract the sightseers and thus increase the sale of their smaller ware. The cost of this new factory was approximately \$50,000. Mr. Van Briggie died

is one of the directors. Mr. N. Van Den Arend is the architect who furnished the plans for this factory. His reputation in Europe and America has been upheld in the artistic features of this factory, which bring out the many pleasing combinations of modern decorative work in polychrome tile terra cotta architecture.

Mr. Frank H. Riddle, who was born and raised in Colorado, and had his early training in the pottery field in the old Van Briggie Pottery, is the present superintendent, and was the engineer in charge of the general equipment of the plant during process of construction. He is a very capable man, taking charge of the manufacturing, labor, etc., in a most satisfactory manner. He is an active member of the American Ceramic Society, having contributed to that most scientific body many valuable papers on glazes, etc. He was formerly a student in the Ceramic school at Ohio State University. So brilliant was his work while there that at the end of his second year's collegiate work Prof. Orton appointed him an assistant professor and gave him the work of instruction of several classes. With Mrs. Van Briggie in charge of the Art department, Mr. Frank H. Riddle at the head of the manufacturing department, and Mr. Lyle E. Dix as manager in charge of all outside work, the work of the pottery is under very capable people.

As there are no art potteries of the same character west



Van Briggie Art Tiles and Pottery.

a few years ago, hence the erection of this factory was due largely to the energetic efforts of his wife in the promotion of this work. She was brave in her task, and through high executive ability and sincerity in her work she has found gratifying recognition in the praise tendered her by many prominent people in and out of the ceramic world. This factory will long be one of the show places of Colorado. A number of prominent citizens of Colorado Springs and the state are stockholders. Of these General Palmer is the most prominent. Mrs. Bellaney Storer, the founder of the Rookwood Pottery,



Frank H. Riddle, Superintendent.

of Ohio save for one in Illinois and one in California, the Van Briggie Pottery has a wide territory to draw from and its location in one of the most beautiful points in the United States gives it additional advantages. They cater to the tourist trade, which is indeed quite an item. We are pleased to picture to our readers a number of views taken at the Van Briggie Pottery.

J. E. R.

BRICK MANUFACTURERS OF NORTHWEST TO ORGANIZE.

A meeting of importance to the brick trade was held at Minneapolis on the first two days of May when an association of the brick manufacturers of the northwest completed a temporary organization, with Geo. W. Higgins, of Minneapolis, as president, and R. P. Morton, of Brickton, Minn., secretary. Plans were discussed for reducing the output, for establishing standard specifications for brick, the price situation, and an attempt was made to reach an agreement not to ship to points where other yards exist. No definite action was taken, but a committee was appointed to draft a constitution and by-laws and this committee will make its report at a meeting to be called for some time this month. It is also planned to have an annual convention in January or February, and an attempt to get all the brick men in Minnesota and neighboring states to unite in the movement.

Written for THE CLAY-WORKER.

BUTTON HOLE TALKS.

BROADWAY WAS CROWDED. It seldom or never is anything else. This time, however, it was jammed, for it was getting on into the afternoon and the happy—and unhappy—shoppers were thronging homeward from the scenes of their conquests or defeats. Elbows jostled, laggards were pushed aside, and the grand march homeward was in progress. All had the one purpose, the one goal they were seeking—home. A most mixed and varied crowd, and on their way to homes as varied as was the crowd, or possibly even more so. Palaces, suburban villas, flats, rooms and hovels. The walks were crowded and the streets a jam of cars, wagons, horses and autos.

Part way across the street the strong arm of my com-

panion reached out and caught me back out of the way of a hurrying great touring car as it swept past us with its "honker" sounding tardily. I was grateful to him, for I never did want to patronize the Juggernaut method of exit. While I am in no particular hurry for any method of departure, and while I hardly expect to select the final method, still I particularly disliked this one and wished to avoid it. Skipping safely across with a quick hop, skip and jump, my friend hastily asked me to take a good look at the occupants of the car, which I gladly proceeded to do. Not to dwell on the car itself, which was a particularly gorgeous affair with its fifty or sixty horses done up in gasoline, bound captive by metal and tamed and made tractable with levers and throttles, my eye rested on a little, weazen, dried-up old man, with white hair, shrunken muscles and wrinkled skin, who was rattling around in one end of

the big rear seat, while on his face was a look that testified that his mind was not where his body was, here in this gorgeous man-killer on Broadway. He was utterly unconscious of the crowd, of the jam of wagons, of the many other speeding "buzzwagons," of the noise, or of any of the visible or tangible surroundings, but was evidently intent on working out some deep scheme of the stock exchange, something he was unable or unwilling to shut up in his desk and leave behind. Beside him sat his athletic, well groomed son of about twenty-two, content and happy, looking out on the crowd and taking it all in. On the front seat, managing the levers and honking the scare horn was the customary hired pilot of the disaster wagon.

As the whole outfit rolled out of sight my companion pulled me into an entry way, hooked his finger into my buttonhole and—I knew I was in for another. "That little



View of Kiln Room of the Van Briggie Pottery, Colorado Springs, Colorado.

panion reached out and caught me back out of the way of a hurrying great touring car as it swept past us with its "honker" sounding tardily. I was grateful to him, for I never did want to patronize the Juggernaut method of exit. While I am in no particular hurry for any method of departure, and while I hardly expect to select the final method, still I particularly disliked this one and wished to avoid it. Skipping safely across with a quick hop, skip and jump, my friend hastily asked me to take a good look at the occupants of the car, which I gladly proceeded to do. Not to dwell on the car itself, which was a particularly gorgeous affair with its fifty or sixty horses done up in gasoline, bound captive by metal and tamed and made tractable with levers and throttles, my eye rested on a little, weazen, dried-up old man, with white hair, shrunken muscles and wrinkled skin, who was rattling around in one end of

bunch of skin and bones you saw there, Gates, came to this town a rosy-cheeked farmer boy, and you can see what N'Y'OK has done for him. He was frugal and saving, untiring and ambitious. The first two he inherited, the last two he acquired here. He worked and saved, borrowed and took chances, and by using extra pressure in his office and carefully taking his worries and cares home with him and to bed with him he has succeeded in getting twenty-eight hours into a day, with Sundays and holidays double time. He is written down as a success on the street and as a bad failure at the home fireside. Not just absolutely useless there, you understand, but only recognized there as the necessary member to dig up the needful for the whole aggregation, doing the act however mournfully, reluctantly, sorrowfully, but in the end effectually. There his usefulness to the home circle ends. He never had time to learn to

play with a baby, and his nerves were always too unstrung to permit the little domestic affairs to get in and mix with the business threads and tangles that have snarled and knotted in his brain until they own it and demand exclusive possession. He has raised a family and don't know it. More properly speaking, he has paid for a family. They haven't wanted for anything that money could buy and they haven't had any of those things that money can't buy. His children have seen his pocketbook often, but his heart, never. Seeing is believing, you know, and therefore they believe he has a pocketbook, but have really never thought of him as having a heart. They never even thought of bringing their little cares and troubles to him and getting sympathy and consolation for them, and being kissed and cuddled until their troubles all disappeared or were forgotten, or were lightly assumed by the loving, all-powerful father. Instead of this they hushed up, stepped lightly and got out of his way at his approach, so as not to intrude on the strained and tangled Wall Street nerves. The money accumulating and the home cuddling don't often come in the same anatomy, and they haven't in this case. The old man knows what a dollar is worth, how hard it is to get it, to dig it up. Now in order to get it you have to go out and take it off another man with a file, as Dooley so truthfully says. That athletic son of his, however, don't know any more about what it costs in energy and scheming to dig up a dollar than he did when

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



MONTH OF MAY did not make as good a showing in the way of building permits as the corresponding month of last year. This was a surprise to builders and brick-makers, for the demand has been strong and steady for material and contractors are generally good and busy. Of course, the permits taken out in May had little

to do with the work performed in that month, as most of it was on buildings started in previous months. Buildings are going up on every hand, both in the residence and business districts of the city, and there will be an especially agreeable change in the look of the downtown retail district by the end of this year, when some of the old buildings are replaced by modern steel structures. There were 343 building permits taken out last month, and the total cost was estimated at \$977,595, while in May of 1907 there were 402 permits issued for buildings of an estimated value of \$1,280,135. In the face of this 25 per cent. decrease, which is the first decrease made this year in building permits, the building material dealers are looking forward to this year being the best one we have ever had in Kansas City. They state that there is no trouble about getting money on real estate



Handsome New Factory of the Van Briggles Pottery Co.

a baby. He knows much as to what it will buy, but of the other, nothing. Some day he will probably learn, but he will reverse the old man's course and come out where his father started. The old man learned the value first and then accumulated. The young man will scatter first and then learn the value when it has all gone and he hasn't any.

"Some day the strained threads of nerves will break. They will carry away a light weight in the casket and gather in a heavy weight at the bank. The light weight in the casket won't bother them any more and the heavy weight from the bank won't bother them very long. The young fellow will find plenty to help him scatter the heavy weight and then he will be up against the dollar proposition and no dollar in sight, and the shattered bundle of nerves in the casket won't respond with more. He will feel doubly cheated in that he has tasted. Cornpones taste good until you go to cake, but after years of a cake diet cornpones are not really hankerable. The other part won't lose because he never had it. The confidence and cuddling can not be replaced. Money won't buy them or make up for them. All the old man has coming to him is six feet by two of neglect in the cemetery and he hasn't left a man to fill his place."

GATES.

No man has too many words, some of us just simply don't put them to proper use, or use them too much.

here, and it is evident that the timid holders of money feel that a loan on Kansas City property is about as safe a place as money can be placed. There is also every reason for this feeling, as the city is not only in a prosperous condition, but the entire surrounding country is in the same condition.

There has been too much rain during the past month, but still the farmers seem to have found working days enough to keep pretty well up with the growing corn crop, and wheat, oats, flax, etc., have been making a rapid growth. Wheat will be ready to harvest in Oklahoma by June 20th, and by July 1st the harvesting will be in progress in Kansas.

The miners of the southwest have gone to work again, and this means renewed prosperity for the mining districts. The coal miners have been idle for a couple of months, while awaiting an agreement with the mine owners, and now 35,000 of them are again earning wages. This will have an effect on building operations in the coal mining districts.

Just at the present time there seems to be a surplus of common brick gathering in the Kansas gas belt. There is apparently plenty of market for everything else but the common brick, but so many of the plants are turning out no other quality that the common article is a drag on the market. In the Kansas gas belt there are probably more brick plants, on the average, which are owned by people

who know nothing about brickmaking, than in any other part of the world. People out there have the idea that shale and gas is all that is necessary to produce good brick at almost no cost, so they promote companies to put in plants, and these promoted plants are generally fitted with the kind of machinery to produce nothing but a common brick. If some of them were placed in the hands of practical men and the right kind of machinery was placed, so a good paver or a good face brick could be produced, there would be a change in the market conditions out here, and the cities now demanding paving brick could stand some show of having their orders filled. It will probably take a good many failures to bring about such conditions, but eventually the Kansas gas-burned brick will be made to supply the demand, instead of merely to turn shale and gas into some kind of material that there is a possibility of selling.

Every building material dealer and contractor in the city should ask for a copy of the new code of building ordinances which is now in effect, and which has been printed for free distribution. The new code aims to provide for building on more substantial lines and to make greater safeguards against fire. One feature is the establishment of a Board of Appeals, to hear appeals from the rulings of the Superintendent of Buildings, who has been something of an autocrat to the present time.

Fred L. Dickey, general manager of the W. S. Dickey Clay Manufacturing Company, is to be the Republican candidate for state senator from the district covering the north half of this county.

The Kansas City Vitrified Building Brick Company has been incorporated, with a capital stock of \$125,000, by Frank J. Shinnick and others, and will establish a plant at Thirty-third and Genesee streets with a capacity of 80,000 brick per day. The people connected with this enterprise have been identified with one of the asphalt street companies, and are still identified with it, but it is claimed that no attempt is to be made to make paving brick, the entire output to be used for building purposes.

The Edwardsville Clay Manufacturing Company has been incorporated in Edwardsville, Kans., with a capital stock of \$100,000, and is about to put in a plant for the manufacture of brick, and say the capacity of the plant will be from 40,000 to 100,000 brick per day. They are offering \$25,000 of their stock for sale. D. F. Lindsay, the vice-president and general manager, is the practical man of the company. They have gas for fuel.

Mr. Bauer, of the Tyro Vitrified Brick Company, of Tyro, Kans., has been in the city the past week looking for a market for their product of common brick, which he found to be in good supply at this point, and that while the quotations were \$6.00 per thousand on track, the brick were really being sold at closer figures in almost every instance.

Mr. Eadie, of the Eadie Building Supply Company, states that their business is heavier now than ever before, and still on the increase. He says that the amount of building now in progress in this city is remarkable.

Both plants of the Lyle Brick Company and the plant of Flanagan Brothers are crowded with orders, and it is very evident that they are to be busy through every moment of this season.

The Buffalo Brick Company, of Buffalo, Kans., has recently booked orders for 8,000,000 paving brick, which will take their entire output for twelve months, their regular monthly output of this grade of brick being 700,000. The Eadie Building Supply Company, of this city, has contracted for their entire output of vitrified face brick.

The Coffeyville Vitrified Brick and Tile Company, of Coffeyville, Kans., reports that it is crowded with orders for face brick of all kinds, and have 1,000,000 red pressed brick sold ahead at the present time. They have orders for

all the vitrified paving brick they can produce within a year. The Viridigris Valley Vitrified Brick Company, of Neodesha, Kans., is now busy putting in six down-draft kilns, to take care of the increasing demand for their vitrified face brick.

The Kansas Buff Brick Manufacturing Company, of Buff City, Kans., is enlarging its plant, putting in down-draft kilns, and will produce vitrified buff, chocolate and granite face brick.

K. A. W.

THE NATIONAL ARCHITECTURAL EXPOSITION.

Announcement has been made that a National Architectural Exposition will be held in New York City, September 14th to 19th, at Madison Square Garden. This will be the first effort of the kind, undertaken, and it is under the management of Alfred Chasseaud, No. 1 Madison avenue, New York City. The purpose of the exposition is to bring together the new designs and ideas of architects in buildings, both in utility and beauty. Also, new things in structural material and the machinery for doing the work. It is also proposed to have painting, sculpture, the trades, manufacturing and craftsmanship in all forms represented.

There is no doubt but what an exposition of this kind will do lots of good in an educational way, and if properly carried on is worth while. Some emphasis should be placed on the proper carrying out of the idea, however, because there have been some efforts at building material expositions this year that were nothing to be proud of. At Chicago, the Casino was turned into a building material exposition for a week during some lumber meetings, and while some good things were shown and there were some splendid educational features, the entire effect was spoiled by including in it practically everything that might be seen at a county fair, typewriters, sewing machines, special attachments for sewing machines and almost anything that it was desired to exhibit, where the exhibitors would put up the money for exhibit space. In other words, it seemingly got to be a money making proposition, pure and simple, regardless of educational features and adhering strictly to building material exhibits. For this reason, we are particularly glad to note in the announcement of the National Architectural Exposition that no space will be allowed to exhibits of ordinary character, which possess no special features of novelty, originality and beauty. If this is strictly adhered to, and the architects and engineers, machinery people and building material people throughout the country will do their part in an exposition of this kind, it should do quite a lot of good. It should develop and promote many new ideas and add materially to improvement in beauty of design and utility of buildings in all parts of the country. It should not only be a great educational opportunity for architects themselves, but should be equally advantageous to the makers of machinery used in the construction of buildings and the manufacture of building material of all kinds, and, especially, for the manufacturers of clay products, who will come in for a share of good in connection with fireproof construction.

CUTTING BRICK, TILE AND HOLLOW BLOCK AUTOMATICALLY.

On pages 878-879 of this issue will be found some excellent illustrations of the famous Bensing brick and tile cutting tables. The manufacturers, Messrs. J. D. Fate Company, Plymouth, Ohio, claim to be able to prove that for either side or end-cut brick, drain tile or hollow block, these cutting tables are unequalled for capacity, accuracy and economy of operation. They are made of any desired capacity and they solicit correspondence from readers of THE CLAY-WORKER desiring enlightenment on any cutting proposition.



Clay, Cement and Lime Industries Exposition.—The exposition of the three principal industries will be held in Berlin from June 3 to 18, 1910. The committee has a prize competition for the best design to advertise this exposition. The first prize will be 500 marks. Mr. A. March is president of the exposition.—Tonind. Z. Z. No. 32, 1908.

A Clear Pottery Glaze.—A clear glaze which will start to melt at a temperature of cone 2, and which we run very bright between cones 7 and 8, is composed of

Feldspar	111.2 parts
Magnesite	16.8 parts
Carbonate of barytes.....	59.2 parts
Marble dust	30.0 parts
Zettlitz kaolin	38.7 parts
Flint	120.0 parts

The mixture should be ground at least twelve hours. As these glazes melt at cone 2, it will be best to fire with much air and oxidizing atmosphere at that point in order to get a clear glaze.—Sprechsaal No. 11, 1908.

Glazed Roofing Tiles.—For the use of a good roofing tile which can be readily glazed, a clay which can be burnt to a good high temperature and has a natural color is preferable. For those manufacturers who are not familiar with the manufacturing of glazed roofing tiles, the following points should be borne in mind. First, the advice of some technical laboratory should be obtained in order to determine if the clay is suitable for glazing purposes; second, all glazing should be done on biscuit roofing tiles; third, do not buy the glaze ready made, but grind it yourself in a ball mill at the factory; fourth, only glazes with simple composition should be used, such as brown, black and possibly green colored glazes; fifth, for the burning of glazed roofing tiles a muffle kiln of not too small capacity (350 cubic feet) should be employed.—Baukeramik No. 12, 1908.

German Pottery Notes.—The students of the Royal Technical University, of Charlottenburg, visited the whiteware pottery of Theodore Paetsch, in Frankfort-on-Oder. The factory was started in 1840 and employs 600 hands. The principal product manufactured is a calcareous whiteware, and mostly articles for kitchen and table use. The body is composed of three kinds of clay, which are shipped in from Lischwitz, near Saaz, and from Loethain, near Meizzen, while the kaolin used comes from Doelau, near Halle. The clay is washed on the top floor of the building in three large tanks. The slip from these tanks passes through an open trough, which has the shape of a worm. This trough makes seven bends, in which the sand from the clay settles. The slip now comes to the ground floor, in another large tank, where it is mixed with whiting and feldspar. After thorough mixing the slip is run over fine screens into large tanks which are located in the cellar. Here the slip is pressed with compressed air in seven large filter presses. It takes from four to four and one-half hours to fill a filter press. Each furnishes about half a ton of ready clay body. The clay is aged for fourteen days before use, after which it is run through a pug mill. The ware is made by jiggering, pressing or casting. It is dried by steam heat in large rooms. The saggers which are used here are made from Halle sagger clay, black Silesia fire clay and sagger grog. The burning takes place in ten round down raft kilns, the Bosch system. Each kiln has twelve fire holes and has a capacity of from 3,350 to 3,750 cubic feet. The biscuit burning takes a heat equal to cone 8, while the glost burn-

ing is done at cone 01. The filling and burning each takes one day, and after twenty-four hours cooling the drawing is done, which takes a day. After the biscuit burning all ware is decorated, either by stencil, transfer or aerograph. Before being glazed all the ware is burned in a muffle kiln to destroy all oil and paint traces. Nearly all ware is made with underglaze colors for decorations. The glaze consists of a frit, which is made in 500-pound charges on a frit kiln, from which the ready frit is run into water and ground in ball mills with flint pebbles. After the ware comes from the glost kiln it is brought to the decorating rooms, where the gold decorations are applied, and the ware is fired again in muffle kilns. The pottery makes its own stills and pins. It is equipped with two boilers, which furnish steam for a 250 h. p. engine.—Tonind. Z. Z. No. 28, 1908.

German Opinion of a German Paper Presented at the American Ceramic Society.—Dr. J. Koerner, the editor of "Sprechsaal," the leading German pottery paper, presented at the last convention of the American Ceramic Society a paper on the coloring action of certain rare oxides. Commenting on this matter, Keramische Rundschau says: "We have never before heard of the case where a foreigner presented his investigation first before an American society, and we would wish that our German technical men should possess a distinct national honor in that respect. It is certainly not a very honorable idea that a German should publish the results of his works and investigation in a round about way via America. The paper in question was certainly not so important but that it could have waited until the meeting of the German Association of Ceramic Industries. Should it, however, have been that it actually was very important news for the ceramic world, Dr. Koerner could have taken his own 'Sprechsaal' to publish the communication."

A German Brick Trust in Court.—A very interesting law suit was recently decided in favor of the brick syndicate of Karlsruhe. The syndicate, which is composed of all the brickmakers of that city, has signed agreements to maintain prices. One clause was, however, agreed upon, which specifies that whenever the brick were to be used for their own use, the members could charge whatever price they wanted. The by-laws of the organization provide also that the successor of a membership has the same right and obligations of the original member. One of the brickmakers of the city, however, hit on a scheme to get around these rules and regulations. He made a lease with one of the building contractors for the operation of his brickyard. The contractor had in view to use all the brick for some new buildings which he intended to build, and, according to the clause of the agreement, they were to be used for his own use and made at his leased brickyard. He made himself a price of 20 marks per 1,000, while the syndicate price was 26 marks. The syndicate demanded that the price should be 26 marks, and that the arrangement which the contractor had was unlawful, as it was only made for the purpose of furnishing the contractor cheaper brick than the syndicate agreed to charge. The brick manufacturer declared, however, that the contractor was his lawful successor, and as such was entitled to all the benefits of the agreement. The court before which the case was taken, took, however, the same stand as the syndicate, and declared the agreement between the contractor and brick manufacturer void.—Deut. Topf. & Z. Z. No. 19, 1908.

Cost of Production in Brickyards.—There seems to be a great variation in the cost of manufacturing in different plants, and in order to get an idea of this difference, Mr. W. Stengel, brick manufacturer, of Kursdorf, has published the data which he has collected from three brickyards which produce about the same quantity of brick. They have the same size of kilns and drying arrangements, and also employ the same class of labor. The first brickyard has a 50 h. p. locomobile. The drying racks are arranged on top of the continuous kiln and hold about 180,000 brick. The brick are brought up by elevators. The continuous kiln has fourteen chambers, each holding 7,000 brick. The brick

are moved on cars. Foreign labor is employed. The press makes 12,000 brick per day, or 72,000 per week. The kiln uses per week seven chambers of 7,000 brick each, which gives 49,000, so that 23,000 are stored for winter use. The following wages are paid per 1,000 brick:

Clay digging, loading of cars and moving to hoist (four men)	\$0.28
Hoisting of the car and moving to press (one man) ..	0.0675
Charging of the press (one man)	0.0675
Cutting and off-bearing to elevator (two men)	0.14
Taking away from elevator and loading on cars (one man)	0.0675
Moving the cars (one man)	0.0675
Hacking in drying racks and benching (three men) ..	0.2025
Setting kiln (three men)	0.50
Hacking brick which can not be reached by car (one man)	0.075
Night and day burners (two men)	0.2125
Cleaning of kilns, building doors (one man)	0.05
Engineer (one man)	0.0875
Loading of brick for shipment	0.15
Hacking brick surplus of 23,000 for winter use	0.145
General cleaning expense	0.0375
Repairs	0.0375
Lost	0.1125
Salary superintendent, office expenses	0.375

Total cost per 1,000 brick

\$2.6755

On the second brickyard local men were employed. The machine made 80,000 brick per week, of which the kiln which has a slightly larger capacity took 65,000, so that the winter supply was 15,000 brick per week. The following prices were paid per 1,000 brick:

Clay loading (two men)	\$0.15
Moving to hoist (two men)	0.15
Hoisting the clay	0.075
Charging the press (one man)	0.075
Cutting and off-bearing, loading on cars (two men) ..	0.15
Moving car to dry sheds (two men)	0.15
Setting kiln (five men)	0.65
Burners (two men)	0.20
Cleaning kilns, building doors (one man)	0.065
Engineer (one man)	0.10
Moving brick	0.025
Loading brick for shipment	0.175
Hacking surplus brick of 15,000 for winter use	0.065
General cleaning expenses	0.0375
Repairs	0.025
Lost	0.075
Superintendency, office expenses	0.375

Total cost per 1,000 brick

\$2.6925

In the third yard under observation foreign labor was used exclusively. The drying sheds are all around the kiln. The clay was prepared every day from 5 o'clock to 8 o'clock in the morning for the whole day. The press made 85,000 brick per week, while the kiln took 70,000 brick, so that the excess brick amounted to 15,000 brick per week. The prices paid were as follows:

Clay loading and moving to hoist (two men)	\$0.135
Hoisting and moving clay to press (one man)	0.07
Charging of the press (one woman)	0.045
Cutting brick and loading on car (two women)	0.09
Moving car to drysheds (one man)	0.0675
Hacking in drying racks (two women)	0.09
Benching	0.0125
Setting kiln (three men)	0.40
Cleaning kiln and building doors	0.0375
Burners (two men)	0.15
Loading brick for shipment	0.075
Hacking surplus brick of 15,000 for winter use	0.04
Cleaning expenses	0.025
Repairs	0.025
Lost	0.065
Superintendent and expenses	0.275

Total cost per 1,000 brick

\$1.6675

It will be observed that the greater the capacity of the daily production the lesser will be the cost of manufacturing. Also, that when all arrangements are of a simple nature and well protected, more women can be employed than men, which also will tend to produce lower cost of production.—Tonind. Z. Z. No. 28, 1908.



WE SHOULD KNOW enough to decide whether our land needs drainage, and of what kind, and why, and how deep, and for what crops the soil is best suited, and what treatment will be best to follow to get the best results.

There is but one voice on this subject, and that is, as to the immense benefits resulting from its adoption. Some years ago a query was sent out in Butler County, Ohio, as follows:

"To what extent is tile drainage practical in your township, and what is its effect on crops and land?" A few of the answers follow: "Improvement on the productiveness of the farm very decided." "Yield of crops is increased and the land is more easily cultivated." "Its effects are excellent. Have seen crops increased three-fold." "Very beneficial; think that on an average it will increase the yield of crops from 33 to 50 per cent." "Good for 50 per cent. increase of crops." "Best improvement out." "A very great improvement of soil conditions." "Excellent effect; a benefit of fully 33 per cent. in the yield of crops."

With such expressions of confidence in the benefits of tile drainage it would be reasonable to conclude that almost every land owner or farmer would tile-drain their land, but such is not the case. There are thousands of farmers who are fully convinced by their observations that tile drainage is the most important improvement that they could make effecting favorably the soil conditions—that the investment of money and labor in doing the work would pay fully 25 per cent. per annum, yet they do but little or anything in the way of tile-draining their land. Some farmers who express their confidence in the work of under-drainage have not laid a rod of tile. Why is that, though fully convinced as of the benefits, they do nothing? It is a difficult problem to solve, this do-nothing spirit, with so many instances around them proving conclusively that the best and most lasting improvement is found in tile drainage.

SOME HINTS ON TILE DRAINAGE.

No one but a rich man can afford to farm wet land, and it will only be a question of time and the size of his bank account as to how long he can do it. Some people think that only rich men can afford to tile-drain their land, but the fact is that only a rich man can afford to own a wet farm.

If I were going in debt for a farm and expected to make the money off of the farm to pay for it, I would sooner give two dollars to one for a farm well tile-drained than one not tile-drained.

The waste spots on the farm the farmer has to pay taxes on, and has to plow, cultivate and mow around them, or else turn around and avoid them. Why not tile-drain them, so as to plow and mow and reap them right straight through and harvest a crop as well as plant one in these wet places? It will pay in looks, in convenience, in better conditions, and in cash. Farming will pay if we will under-drain the land and give it a fair chance.

There is no use for farmers to put up the motto, "God bless our home, bless our farm that it may yield abundantly," while things necessary to produce this result are neglected or ignored.

Harvest time is a day of judgment on farming and it is

easy, by looking over the fields, to tell the good and faithful. Why not tile-drain and render a good account of the talents committed to our keeping.

When one invests money in tile-draining farm land that needs it, and he is the owner of the land, he is not liable to lose the principal and is certain of a large interest return, with the assurance that it will be repeated every year with good management, whether the season is wet or dry.

A GOOD DRAINAGE SYSTEM.

The plan of drainage herewith illustrated is intended to show a general survey of a particular field in advance of beginning the work—determining the sizes of tile to be ordered.

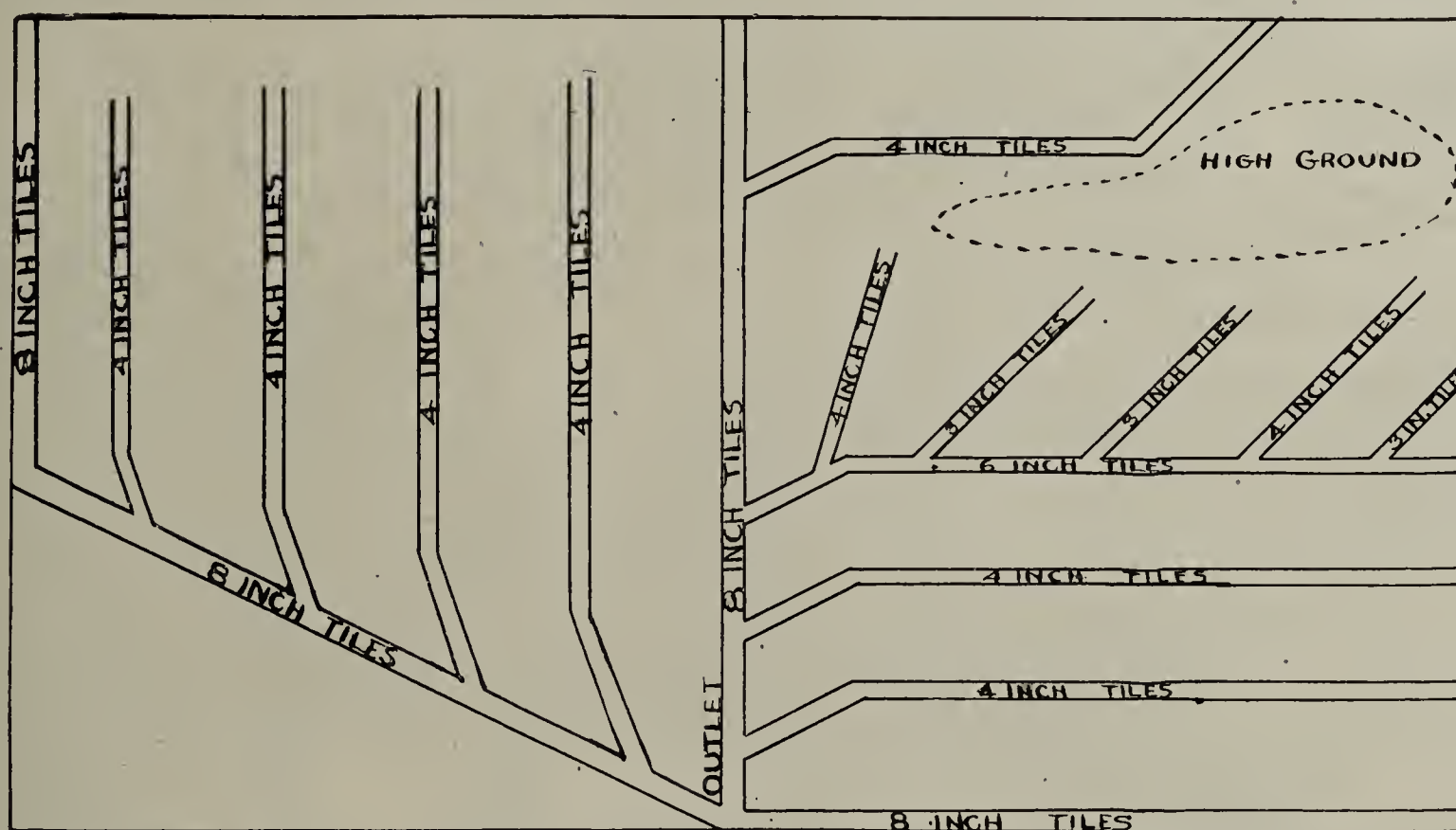
There are three drains in which 8-inch tile are used. In the use of such a large size it is intended that these drains some time in the future will be extended, so as to afford an outlet for the land adjoining. At present these large drains will suffice in part to take the water shed upon them from higher ground. Another feature of this plan

no amount of expense will adapt these lands to profitable agricultural uses without drainage.

In addition to the lands before referred to there are seven million acres of land reported in cultivation, including pasture lands enclosed. These have from a gentle to an abrupt surface drainage. Here and there are depressions and draws which are unfit for profitable cultivation without under-drainage. The entire area would be greatly enhanced in value for agricultural uses if sufficiently under-drained. The increased yield of crops would be quite 30 per cent., in many instances 40 or 50 per cent. All lands having a retentive clay subsoil need under-draining to a depth of 3 or 4 feet, whether level or rolling.

The tile drainage of gently rolling lands and more particularly the more abrupt rolling land will largely prevent the surface wash, which carries away the best of the surface soil. Besides, the rainfall properly belongs to the land where it falls, and will benefit the soil in the way of fertility if the water can be made to pass down through the soil 3 or 4 feet and then be removed by the tile drains below.

The drainage of these lands would effectually dispose



An Unusually Good Drainage Plan.

is, that the lateral drains enter the mains at an acute angle, which is an important factor in securing the full capacity of the drains. A lateral entering the main drain at a right angle will retard the flow of water and lessen its capacity.

WET LANDS.

In the State of Indiana there are more than two million acres out of twenty million acres of what are known as "wet lands" in partial cultivation. They are rich—some of them very rich in the elements of fertility—but in a large part unprofitable if not under-drained, for the reason that they are wholly subject to the uncertainties of the season. In the spring they are wet and cold; if a rainy summer follows it is hardly possible to cultivate them; or if a drouth follows the rainy season they are seriously affected. The drainage of this land would quite double its value for agricultural uses, adding to the wealth of the state at least twenty-five millions of dollars in the value of its real estate; besides the increased annual productions would aggregate millions of dollars more than at present. It remains to be said that

of the under-flow water near the surface that crops out here and there in the fields in the "seeps" or "wet places," as they are usually termed—making cold spots on account of the evaporation that is going on the most of the spring season, seriously affecting the germination and growth of the plant.

Treating the subject in its general aspect, there are few farms or little farming land in the state that does not need more or less tile drainage.

The need of under-drainage in this state is not an exception applying only to this state, but applies more or less to adjoining states, and must be reckoned with in the future, development of our country from Maine to the Pacific slope.

There are areas large and small in this vast domain that may be bought cheaply, which, if drained, would be increased in value a hundred-fold.

The growth of population and the enterprise of our people, will, we predict, make all of this land available for agricultural uses in the near future.

The man that gets the cream can make the most butter, provided he knows how to do the churning.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



AN EXTREME DULLNESS pervades the brick business in Toledo just at this time. This is especially true so far as building brick is concerned. If the business in the surrounding towns is no better than it is in this city at present, it is probable every brick yard in the city would shut down and wait for things to pick up. As it is, five of the nine yards here are closed down, and the other four are in no sense rushed with business. Fortunately there is a healthy condition in the small towns surrounding Toledo, and the call for building brick from that quarter has kept trade alive. It is estimated that there is not more than half of the business that there was last year and last year was not very rushing. The more optimistic are looking forward to a better trade immediately following the great political conventions, while others are of the opinion

money in the treasury to pay for the work, and right there every thing came to a standstill. Bond buyers refused to buy the bonds, and the work necessarily stopped. Millions of dollars worth of public work is now being held up for this cause all over this section. The people are anxious and ready to make the improvements, the preliminary legislation has all been passed, and every effort made to market the bonds so as to furnish labor for thousands who are out of work but there is no market for bonds. In some instances, private individuals are taking some of the bonds and helping out a little, but the great bulk of them are without a market. That this work will come later, possibly this fall, and probably with a rush when it does come, is not doubted. Some market is being found by local paving brick concerns in Canada, particularly in Toronto, where some nice shipments have been recently made. The city of Toledo has been successful in selling some of its paving bonds, and considerable work is now under way, but the volume of street paving business in Toledo will be greatly limited by the cramped



The Martin Patented Rack Steam Brick Dryer at the Delaware Terra Cotta Company's Plant.

that a change for the better will not come in time to be of any great advantage this season. There are a number of good jobs in sight here, including several large business buildings, which are already beyond the backing out point, and it would look as if there was some foundation for the idea that there will still be a fair business before the season comes to a close. Prices on building brick are very erratic, and it seems to be a case of take about what you can get for them and be thankful for it.

A few weeks ago there was every promise that the paving brick industry would be a hummer, but things have tightened up so recently that havoc is now being created even along that line. Many municipalities would be glad to expend large sums in street paving and sewerage work if they could. Plans were made for a record breaking season in this public work, and nearly every little burg in the country figured on large contracts. The preliminary legislation was passed and the stage reached where it became necessary to have the

financial condition, and the consequent difficulty in placing municipal securities to advantage.

Very much the same condition exists in reference to sewer pipe as that in the street paving business. Manufacturers of sewer pipe are largely dependent upon public contracts for an outlet for their product, and while Ohio municipalities are anxious to do work they can find no one who is willing to furnish the money, and sewer contracts are being held held up until funds can be raised. Here also it may be said that most of the contemplated work will be done later when it is possible to market bonds, but just when that will be is difficult to determine.

Work will soon begin on a large building for the use of the Toledo Mausoleum Association. The building will be 175 feet long and 40 feet wide, and the walls will be of white enamel brick. There will be 480 crypts, air and water tight when sealed. The Permanent Construction Company of Toledo has been awarded the contract at \$45,000.

Congress recently appropriated \$75,000 more for the new

federal building to be erected at Toledo, making in all \$575,000 set apart for the work. Just when work on the new structure will be commenced has not yet been decided.

Two new structures which will consume enormous quantities of building brick at Dayton, are the county infirmary building, estimated to cost \$80,000, and a \$100,000 pressed brick church, St. Joseph's congregation. Plans have already been prepared for both structures and work will begin in a short time.

At the recent meeting of the State Union of Bricklayers and Masons, held at Canton, Painesville was selected as the place of meeting in 1909. The following officers were also selected: Hugh Blair, of Cleveland, was re-elected president; George Harper, of Columbus, vice-President; and Henry F. Kloth, of Lorain, secretary and treasurer.

The little towns of Perrysburg and Maumee will both boast of paved streets in the near future. Preliminary legislation was recently passed. Although both cities are older than Toledo by a number of years, there is not a paved street in either of them.

The city of Delaware, Ohio, will have a handsome damage suit on its hands as a result of delays which held up the work

Written for THE CLAY-WORKER.

HANDLING AND DRYING BRICK.

THE TIME OF the open yard drying of brick is fast disappearing and the era of artificial drying is upon in full strength. In the matter of progress the manufacture of clay products has undergone as much transformation as any other manufacturing industry during the last twenty years. The improvement has been a marked one in all departments. The quality of the product has been enhanced by radical changes made in drying construction; the percentage of waste has been reduced to a minimum. The capacity of the clayworking plant has been increased ten fold by the use of a successful and up-to-date system of handling and drying, one that is adaptable for either soft mud or stiff mud brick.

The accompanying illustrations were taken in and around the up-to-date clayworking plant of the Delaware Terra Cotta Company, at Wilmington, Del., and we show in Cut No. 4 the brick coming from a stiff mud machine to a gravity conveyor, where the brick are placed on steel pallets. As soon as the pallet is filled it is let go by the boy, who has



General View of the Plant of the Delaware Terra Cotta Company, Wilmington, Del.

of the Metropolitan Construction Company, and J. F. Gantz & Co., its predecessor, in the paving of Sandusky street a couple of years ago. The plaintiff claims to have suffered to the extent of about \$24,000 by reason of the delay caused by friction between the city and the C. D. & M. Traction Company.

More than \$300,000 worth of brick buildings will soon be erected at Mt. Vernon, Ohio, in connection with the new tuberculosis hospital. Bids for the work will be received until June 25, and it is probable that from that time on for the balance of the season, building brick will be on the move in that neighborhood. About \$95,000 will also be expended in new brick buildings at the Ohio State University at Athens, Ohio.

James Gorman, of the firm of Gorman Brothers, prominent Toledo contractors, recently died at St. Vincent's hospital in this city. He had been ill for a month and had been taken to the hospital to undergo an operation for tumor on the brain. He was 56 years old and been a resident of Toledo practically all his life. He was, in addition to his contracting business, a member of the Kohler Brick Company of this city.

T. O. D.

his foot on a treadle, in order to keep the pallet in position until filled. The pallet loaded with brick runs smoothly on the gravity conveyor to the cable conveyor, which takes it into the Martin patented rack pipe steam brick dryer, shown in Cut No. 1.

After the dryer is filled the exhaust steam is turned on during the day and the live steam at night, and the drying is completed within ten or twelve hours (bone dry) ready to be placed in the kilns. The system of handling and drying is a continuous one, as the dry brick as they are taken from the racks are placed on the cable conveyor, which takes them to the kilns.

Cut No. 3 shows the dried brick as they come from the Martin patented dryer, ready to be set in the kiln.

You will note in Cut No. 2 that this plant is entirely covered by buildings; the machinery building is to the left, the dryer building in the center and the kilns to the right, everything practically under one cover; it is one of the largest brick manufacturing plants in the State of Delaware.

You will note the very limited amount of space that the Martin patented system of handling and drying brick occupies, the output of the plant being 40,000 brick every day, and that two off-bearers and a boy to place the pallets easily handle

the 40,000 daily capacity on this Martin patented system, which is installed by the Henry Martin Brick Machine Manufacturing Company, of Lancaster, Pa.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE BUILDING OUTLOOK for the summer months is rather encouraging. While building operations for the month of May did not show a large gain, it was nevertheless substantial building which was going up. On account of the fleet celebration the last ten days of the month of May were very slack. Had it not been for the coming of the Atlantic fleet on its visit to the Puget Sound, building in Seattle and Tacoma would have shown a larger gain. The total permits issued in Seattle were 939, with an amount invested of \$1,004,312. About \$300,000 of this was issued for large business buildings. In Tacoma there were 176 permits issued, with a total investment of \$306,684. Of this amount over \$100,000 was issued for brick buildings.

Charles Brown, brick manufacturer of Palouse, secured the contract for furnishing the brick for the Spokane-Inland depots at Palouse and Moscow, and also for the substation to be built at the latter place. The total amount used will be about 250,000.

Hanford, Wash., will soon have a brick and tile factory. Secondo Garst has bought seven acres on the water front north of town. The clay has been tested and will make



Dried Brick Ready for the Kiln—Delaware Terra Cotta Company.

excellent brick and tile. The exact capacity of the plant has not been decided upon.

There is serious talk of starting an enamel brick plant in Vancouver, B. C. Drew Ruffcorn, secretary of the Enamel Company, of Des Moines, Iowa, has signed arrangements with a group of Vancouver capitalists for the starting of an extensive plant for the manufacturing of enamel brick. There is every prospect that the plant will be in running order within the next few months.

The Denny-Renton Clay Company has completed what is claimed to be the largest downdraft kiln on the Pacific coast. The kiln is located at their Renton plant, and will be used for the burning of paving brick. The kiln will hold about 400,000 brick. A serious accident happened at this plant. An Italian, employed in the machine room, was hurt while trying to repair the repress machine. He sustained a scalp wound and his right hand was lacerated.

The first kiln of brick ever burned in Toppenish was

opened on May 20 and proved to be of superior quality. Another big kiln is almost ready to be burned, and the demand is still large. The building is now going on in large quantities, and as it is now assured that the reservation will be opened here before crops are put in, everybody is hustling to buy property and build, realizing that Toppenish has only commenced to grow, and although now a town of over 1,500 people, it was merely a hamlet ten months ago.

One of the oldest and well known brick manufacturers of the Pacific northwest, Mr. C. J. Monroe, died on Anville Island, near Vancouver, B. C. Mr. Monroe was engaged in the brick business for the last thirty years, and started plants in Seattle, Vancouver and Hartford, Conn. Mr. Monroe came originally from Ohio, where his relatives still live in Columbus.

The large deposits of pottery clay of Westminister, B. C., which were mentioned in the last letter, will soon be utilized. A new company will be formed at Burnaby for the manufacturing of stoneware and other pottery products.



Brick Coming From Stiff Mud Machine—Delaware Terra Cotta Company.

The financial backers of the new company include the Hon. James Dunsmuir, lieutenant-governor of British Columbia.

Felton & Weimer are considering the establishing of a sewer pipe plant in North Yakima. They have found the field for their brick so large and demand so great that branching out in the sewer pipe business will also prove a good investment.

The Northern Clay Products Company, of Auburn, has secured the contract for the terra cotta for the Y. M. C. A. building in Portland. The company has plenty of orders on hand and is working full-handed.

L. R. Kimple, of Chewelah, Wash., who started the brickyard this spring will soon put in more machinery for the manufacturing of pressed brick.

The Columbia River Clay Company, of Kennewick, which recently started their new plant, was damaged by fire to the extent of \$10,000.

F. W. Eastman, who has been superintendent of the Little Falls Fire Clay Company, of Spokane, Wash., for the last year and a half, has resigned his position and will possibly start up in business for himself in Tacoma.

Representatives of Montana capital are negotiating for the purchase of a valuable clay deposit at Buenna, Wash. In case the deal is consumed, it is contemplated to erect a large brick and sewer pipe plant that will give employment to about 110 men.

The Washington Brick and Lime Company, of Spokane,

has secured very large contracts for building brick and terra cotta, to be used in the Peyton building, the Telephone building and other large buildings which are being erected this summer in Spokane.

SIWASH.

Seattle, Wash., June 2, 1908.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



BUILDING SITUATION at the opening of June showed some improvement over the preceding month or two. During May 598 building permits were issued with a total valuation of \$2,709,731, as compared with 589 permits with valuation of \$2,084,015 in April. The demand for brick and terra cotta is good and some of the best brick plants, with modern equipment, have been forced to turn down orders. At the same time some of the primitive soft mud plants producing hand-moulded brick are finding it unprofitable to operate. A brisk demand for glaze brick continues at good prices, averaging about \$80 per thousand. Business is still quiet in fire brick, but a number of copper smelters are starting up and there will probably be an increased demand for California-made fire brick after July 1. Common red brick is not in great demand, there having been a local revival of reinforced concrete construction.

The Carquinez Brick and Tile Company is rushed with work at its plant at Eckley, Contra Costa County, and is sold ahead for several months on its common red brick of high quality, made from shale. Deliveries are now being made on the Palace Hotel job, which will require, probably, 5,000,000 brick. Shipments are also being made to Oakland, where an order is being filled for 600,000 brick for Taft & Pennoyer's, four story steel frame store building.

This company is also furnishing 1,000,000 brick for the elegant new apartment house under construction on the corner of Hyde and Washington streets for the Keystone Real Estate Company. It is said that the completion of this fine modern structure will be followed by the erection of another apartment house near by from similar plans. So many special comforts and attractions have been provided that a large proportion of the apartments have already been rented at high rates. The tenants can send their dinner dishes to the basement by dumb waiters to have them washed and soon after returned. The manager of the Carquinez Brick and Tile Company reports good inquiries and a good year is expected in the brick business, but not a great building boom.

A contract is pending for 1,500,000 brick for the new six story White House building, for which the steel frame has been erected on the southeast corner of Sutter Street and Grand Avenue.

The Popular Brick Company has opened an office at Room 251, in the New Russ Building.

M. A. Murphy, manager of the Carnegie Brick and Pottery Company, has returned from an eastern trip. The company's manufacturing plant at Tesla, San Joaquin County, is operating with a good force of employes, but it not doing quite as much business as a year ago. The glaze brick made at Tesla is in good demand, and orders on the books for 150,000 are yet to be filled. There is only a moderate demand for ordinary face brick. A number of small jobs are on hand but no large contracts have been taken recently for this material. A few contracts for architectural terra cotta are being filled. The Carnegie Brick and Pottery Company is supplying the terra cotta for the new Italian Bank building, which is being erected of reinforced concrete on the Gore lot at the intersection of New Montgomery avenue and Washington street.

The exterior facing and ornamentation will be of terra cotta. A lot of brick and terra cotta is being furnished for the new Fuller building. This company is selling a lot of salt glaze sewer pipe, much of it being used in Oakland, Berkeley and vicinity. The prices are about as follows: 6 inch, 15 cents a foot, net; 8 inch, 22½ cents; 10 inch, 30 cents; 12 inch, 37½ cents. There is the usual 10 per cent. off for carload lots.

The extensive building campaign of the Southern Pacific Company on the coast this year is using enough brick to make an ordinary town. The fine brick and terra cotta depot of the company at Berkeley, Cal., costing \$65,000, was recently completed and occupied; the half million dollar depot at Salt Lake City is now under way and the fine buildings at Los Angeles and Sacramento are all complete as to plans and only await the letting of contracts. From a brick standpoint, however, the big work now under way at Visitacion Bay is of more importance than all the rest combined. Here the eighty million brick to be used are already delivered for the new railroad shops now being built. These brick were made in the plants of this city and of San Jose. The plant will be equal in capacity to the company's large establishment at Sparks, Nev., and space has been reserved for considerable extensions to be erected when needed. The buildings will rest on concrete foundations on piles, the site having been recently reclaimed from San Francisco Bay. There will be a dozen or more steel frame brick buildings beside a number of smaller structures. The plant, when completed, will employ about 4,000 men and will be one of the largest of its kind west of Chicago. The company's new depot at Salt Lake City will be two stories high aside from the attic and tower. It will be built of steel, concrete and brick and will be one of the finest in the west.

The Southern California Brick Company has taken an option on two of the clay deposit claims of Joseph Sheerer, near Victorville, in San Bernardino County.

Oren Ruffcorn, secretary of the Enamel Concrete Company, of Des Moines, Iowa, has been investigating conditions at Vancouver, B. C., and has signed a preliminary agreement with men of that place looking to the establishing of an enamel brickmaking plant there.

The Union Brick and Tile Company began to install machinery at its new plant at Santa Monica, Cal., last week and Manager T. J. Griffin says that it will be turning out vitrified brick by August 1. The company has a good deposit of silicate clay at Santa Monica. Joseph Bech, of Los Angeles, Cal., is president of the company.

Hon. James Dunsmuir, Lieutenant Governor of British Columbia, and others are planning to establish a pottery at Burnaby, B. C., where a good deposit of potter's clay has been secured.

The Pocatello Pressed Brick and Manufacturing Company, of Pocatello, Ida., is putting in machinery at its plant near that place.

SUNSET.

San Francisco, June 3, 1908.

MORTAR COLORS THAT NEVER FADE.

Iron oxide obtained from the ore is the principal pigment in brick, cement or mortar colors. However, in the same piece of ore there may be a dozen different grades of oxides, each of them apparently suited by appearance and texture to serve as a pigment, but only one or two of these will be chemically permanent under ordinary weather conditions. All the rest will quickly change in chemical composition and therefore in color, under the influence of light, air, heat and moisture.

Ricketson's Red Brick Brand Mortar Colors, manufactured by the Ricketson Mineral Paint Works, Milwaukee, Wis., are made from the purest Lake Superior Bessemer ores, from which all but the absolutely stable oxides have been eliminated by a special process. It is for this reason that Ricketson's colors have such great strength and have shown no signs of cracking or fading in places where they have been exposed to the weather for over twenty years. Their great purity and the fineness to which they are ground makes them go farther and mix easier than the ordinary grades on the market.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE BLUE GRASS METROPOLIS.



ACTIVITIES IN THE construction world are showing more life than for some months, and there are indications that look very encouraging to the brick manufacturers, and to those who are interested in the clay product line here. The reports generally are more encouraging now, and there is a feeling of greater confidence in the business outlook than has been the case in a long period. Prices are pretty fair, and the number of orders have given the clay manufacturers of Louisville enough to keep them operating nicely.

There is still room for an increase, but the fact that conditions have improved as far as they have is sufficient to give the operators enough hope in the coming months to look for more business before the season has closed. Some of the plants say that they are operating full time, and that the indications favor a very nice business. The fact that there are so few large buildings being constructed here this year, has naturally had a bad effect on the brick industry. When people build small homes they often use some other material than brick. There are some promising prospects for large work, but as these things always move slowly, there will not be as much undertaken this summer as should be the case.

Street work is somewhat more active as well as sewer work. These lines of activity call for both brick and sewer pipe, and the plants say that there is now a decidedly more encouraging aspect than was the case a month ago. Fire brick is increasing in demand also, and the aspect for this industry has a better tone than it has had at any time this year. Unless there arises some unforeseen event the season should prove profitable enough taking all things into consideration.

The Louisville Brick Company says that there has been a very decided improvement in the demand with them in the past month, and that they are very busy at this time. They feel very much elated over the way business has increased, and believe that there will be enough activity to the business this year to make conditions at least favorable and that the industry will show some gain over what might have been hoped for early in the season. They are operating their plant on full time, and are looking forward to a nice business.

The Hydraulic Brick Company finds the demand to be somewhat improved, but they are not as busy as they would wish to be now. They are only operating their plants on about one-half time, and they do not see that the future offers as much encouragement as it should at this time of the year. They are hoping for a better demand, but the indications as they see them at present, are not as bright as they might be, and they are endeavoring to content themselves as best they can.

The Burrell and Walker Clay Manufacturing Company report the demand with them as being reasonably good, but not nearly as active as they had reason to hope for. There is an improvement, it is true, but the increase has not amounted to as much as it should, and they are only hoping that there will be a greater revival before very long. There is enough business to give them something to think about, and this has hope in it for the future. There is time yet for something to develop, and they are still hopeful.

The P. Bannon Sewer Pipe Company, say that there is a nice increase in the business, and there is an increased activity to the output that is an indication of a very nice business in this special line. They are well pleased over the change, and say that they have reason to hope for a very nice demand during the remainder of the season.

The Hillerbrand Brick Company find the demand with

them to be very fair, and report that they have about all the orders that they can well handle at this time. They say that the outlook with them is favorable enough, and that they have no cause for complaints at present. They are making some changes at their plant, and will increase their capacity. They have lately received some nice orders that will keep them operating for some time.

The Southern Brick and Tile Company find that they are busier now than they have been for several months, and report that there is enough activity to the demand to give them plenty to do at all times. The demand for both brick and tile has been quite satisfactory, and they feel that the outlook is as favorable as could be expected at this season. They are now operating their plants, and see nothing to make the future look discouraging.

The Kentucky Vitified Brick Company is getting busy, shipping their output to many sections of the country. They find the outlook to be much more encouraging than it has been for some time, and they are very well pleased over the indications for the season for paving brick. There is more work being done in this line than has been the case in several months, and they have reason to feel encouraged.

The Carrollton Brick Co., Carrollton, Ky., has just begun to ship its product into this market, and the report is to the effect that these brick are meeting with favor. They are anticipating a very nice business here as time goes on.

Mr. C. O. Smith, representing a number of brick concerns here, says that the demand has shown a very nice increase in the past month. He feels that there will be enough business in the summer and fall months to make things interesting enough for all parties concerned.

The Louisville Fire Brick Works are now operating their plant on full time. They say that there has been a very nice increase in the demand with them, and that they feel that there is now something to look forward to in the way of business. They are busier now than they have been for several months, and this is a very favorable indication for the future. Everything now looks far more encouraging than ever. They hope for a nice demand from now on.

The Winchester Brick Company, of Winchester, Ky., are now sending in their sand-lime brick to this market. They believe that there will be a nice demand for this line of brick in the near future, and they intend to push them in the future.

The Kentucky Fire Brick Company, Haldeman, Ky., are still finding the demand for their output to be encouraging, and say that they have lately received some very large orders that will be ample to keep their plant on the go for some time to come. The indications are very favorable for their industry.

The Louisville Pottery Company find conditions to be improving with them, and are now operating their plant on full time and with a full force. They have confidence in the future of the industry, and every reason to hope for a nice demand for their output now.

COLONEL.

CHAMBERS BROS. COMPANY HAVING A FAIRLY BUSY SEASON.

Mr. Howard Chambers, of Chambers Bros. Company, Philadelphia, Pa., states that the brick machinery business is fairly good with them. They are now installing an outfit of machinery in the plant of the Patterson Clay Products Company, Clearfield, Pa. The new No. 6 side cutter built by them for the Western Clay Manufacturers' Co., Helena, Mont., has been installed. Mr. C. H. Bray, the general manager of the plant, writes commending the new cutter very highly. Another pleased Chambers customer is Mr. W. Benjamin Davis, of Richmond, Va., who now has in operation at his plant a new Chambers side-cut machine, the first Chambers machine to be installed in Richmond. There has been gratifying demand for new Chambers end-cut machines in Chicago and vicinity. Mr. E. R. Frazier has placed a number of these machines in that section, all of which are working very successfully. Considering the trade conditions which prevail generally throughout the country, Chambers Bros. Company feel that they are getting their full share of current business. Two interesting testimonial letters appear on page 839 of this issue.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.

IT'S ALL OFF with the hard times and the financial stringency so far as the building business in Chicago is concerned. Chicago's own Commissioner of Buildings, Joseph Downey, has said so, and what he says generally goes when it comes to building affairs. The builder who disregards "Joe" Downey in Chicago under the present city administration does not go very far before being hauled up by a short turn.

"Joe" Downey's opinions are held to be pretty sound as a rule by business men. He is an optimist, but a hard-headed one at that. He believes that all will be happiness and much business ultimately, but he does not say the sun is going to shine right away unless he has seen a considerable rift of gold somewhere among the clouds. So that it means something when he starts off in his annual report like this:

"I take pleasure in reporting that the building industry has completely recovered from the effects of the financial crisis. The decrease of 1,249 permits for the erection of new buildings during the year I consider slight in view of the fact that during the year 1907 the cost of labor and material reached a higher point than ever before.

"The first quarter of the year 1908 compares favorably with the same period of the year 1907. Notwithstanding the fact that for two months or more there was little new work begun, the volume of building operations in the year covered by the report exceeds those of every year in the history of the city except 1892 (the year immediately preceding the World's Fair) and the years 1905 and 1906.

"Out of 2,000 buildings in the business district inspected by the department during the summer of 1907, alterations of one kind or another were ordered in 1,524."

Since Mr. Downey drew up these few cheering remarks there has been a marked tumble in the price of structural steel, and there is every reason to believe that from now on there will be a decided boom in the class of buildings—large ones—that employ this material as a basis. A drop of 10 cents per hundred pounds in plates and structural iron is reported, and while this may not seem much of a drop to the laymen, it is considerable in view of the enormous quantities used. These, of course, are Pittsburg prices.

Further encouragement is gathered from the fact that by the time this letter is in print another Republican National Convention will have been held, and a strong, conservative candidate, who is sufficiently progressive to insure his victory at the polls next fall, will have been nominated to succeed Mr. Roosevelt in the President's chair. Following this political action, it is believed that the general business world will undergo a marked change for the better. Confidence has been on the increase for some weeks. It is almost a certainty that Mr. Bryan will be placed in nomination at Denver in July by the old line leaders of his party, who are willing to sacrifice him for the sake of unloading their "Old Man of the Sea" from their aching shoulders once and for all. The election of William H. Taft is regarded as being as certain as his nomination by the convention next week. And the political certainty will have much to do with restoring normal business conditions, although there is not likely to be a return of the untrammelled prosperity of the last few years until after the work of revising the tariff has been accomplished.

At that, as Mr. Downey has pointed out, the business of building in Chicago has been far from dead, and about this part of the country there have been many evidences of activity by which the Chicago market—as usual—has profited. The paving brick men report one of the busiest seasons in their line that they can remember. Orders are coming in from all around, although, as usual, there is far less of this kind of work done actually in the city of Chicago than would naturally be expected from a metropolis of Chicago's size and progressive character.

The completed plans for the new Blackstone Hotel, to be erected at the northwest corner of Michigan avenue and Hubbard Place by the Drake Hotel Company, promise to

Chicago one of the most notable structures in the country. As usual, brick and terra cotta will play the important parts in giving character to the notable work of art that is to be.

It will be a twenty-story structure and will tower over the site of the old Timothy B. Blackstone homestead, having a frontage of 80 feet in Michigan avenue and 173 feet in Hubbard Place. The tendency of today to make modern buildings ornate as well as merely and highly practical has already been frequently noted, and this hotel building as designed will realize this aim more fully than any of the other new buildings in Chicago.

The facing of the first three stories will be pink Milford granite, while above, warm shades of pressed brick and terra cotta will be used to match the granite in finish and tint. Terra cotta will be used for the frieze, cornice, dormers and balustrades. The whole will be capped with a mansard in green tile surface. A touch of color will be given to the building, viewed from the exterior, by old bronze metal work in railings, balustrades and window frames.

The plans provide for 469 guest chambers, including fifty-one suites. All of the guest rooms will have baths. The main restaurant will be on the Michigan avenue front overlooking the lake and there will be another cafe on the west. The office rotunda is to be in the center of the ground floor.

Private dining rooms and a great library and assembly room will take up the third floor. One of the features will be the placing under the office of a club floor, devoted entirely to men and conducted on the order of a high class city club. At the top of the building there will be a roof and palm garden with electric grill service. The building will cost \$1,500,000, and the land on which it stands has been obtained from the Otto Young estate under lease for 144 years. The hotel will be managed directly by Tracy B. and John B. Drake, Jr., sons of John B. Drake, who formerly was proprietor of the Grand Pacific Hotel here. Marshall & Fox are the architects.

The Roman Catholic arch-diocese of Chicago is constructing St. Michael's Church, a rectory, convent and school building at Bond avenue and Eighty-third street, in South Chicago, at a cost of approximately \$100,000.

A factory building six stories high, to cost between \$175,000 and \$200,000, is to be erected by the Illinois Molding Company at the corner of West Twenty-third street and Western avenue.

A ten-story building is to be put up at 291 and 193 Fifth avenue by Arthur Duzon for Kling Brothers. The structure has been designed by Nimmons & Fellows, architects. It will be reinforced concrete, but will have a paving brick front.

There is evidence of considerable building in the downtown district, but there is apparently a disposition to put up buildings thoroughly modern in construction, but of smaller type than might be expected. It is plain that downtown Chicago is not to be a district built up wholly of skyscrapers—at least not at once. Thus a new six-story building of semi-fireproof character, to cost about \$80,000 is to be put up in Wabash avenue, between Madison and Monroe streets, to take the place of one destroyed by fire in the winter. It will be occupied by the Alfred Peats Wall Paper Company.

There is talk of an enormous office building in the southern part of the loop territory, but it is all talk as yet, although the semblance even of prosperity once more would probably bring it to a head in no time. Meantime the smaller run of buildings and some factories in outlying districts hold the day.

SCRIP.

THE RUST CLAY FEEDER AND MIXER.

The above named device is illustrated on page 847 of this issue. It is manufactured by the Marion Machinery, Foundry and Supply Company, Marion, Ind., who have out a new catalog illustrating and describing the device in detail, copy of which will be mailed to any reader free on application. Many manufacturers have found that their ware is improved very materially by the use of this device, which lessens the liability to lamination and results in a more uniform product.

Written for THE CLAY-WORKER.

CLAY SCREENINGS FROM BRAZIL, IND.

WHILE IT CAN NOT truthfully be said that the factories here have not been affected by the general business depression of the country, still the smoke continues to come from the chimneys and pay day is an actuality, although scarcely any of the plants have been operated for the past months to their full capacity. Many changes and shifts have been made and several factories have made a complete change in their line of products.

The National Fireproofing Company, better known as the McRoy Clay Company, which has been devoted exclusively to the manufacture of conduits, has been shut down for two weeks while installing new machinery for the manufacture of sewer pipe. When work is resumed employment will be furnished for many more men. Three new high pressure boilers and two of the latest improved large sewer pipe presses are being installed, having a capacity of 150 pounds to the square inch, with which they will be able to turn out large quantities of sewer pipe in addition to the large output of conduits, making it one of the largest plants in the United States. The Hydraulic Press Brick Company, which has heretofore confined itself to the production of face brick, expects to add machinery for the manufacture of paving brick, as the demand in that direction seems to be in excess of the supply. The plant of the American Sewer Pipe Company has been in continuous operation. While they are shipping quantities of goods their yard shows considerably more material than for some time past. The Indiana Paving Brick Plant, owned and operated by Mr. W. W. Winslow, of Indianapolis, has been running with a full force, and have more orders than they are able to fill for the famous Brazil Pavers. The Chicago Sewer Pipe Company are running full force and seem to be able to find a ready market for their pipe. Mr. R. H. Morrish, the genial manager, is a very busy man and some of us think he is working overtime, as he is also one of the owners and has charge of the Brazil Gas Company, which is doing well with an increasing business, and also has charge of the Brazil Fence Company, which makes a splendid wire fence. The company is a new one, but has a bright future.

The Sheridan Brick Company, noted for its red building brick, has made a complete change from a sand mold press brick to a stiff mud brick, which they may decide to make a uniform color by adding a sander to the output.

The Weaver Clay and Coal Company has been busy all during the year and are finding a good market at good prices for all the goods they make. They make hollow blocks and drain tile.

Mr. Ben Simpson, of the Carbon Clay Company, has brought suit against the Big Four Railroad for \$150,000. Mr. Simpson alleges that the railroad company appropriated some of his land for their right of way for their new double track, and that while blasting rock and excavating for a cut they broke into his valuable coal and fire clay mine, causing it to fill with water and dirt, practically ruining the mine. Simpson also alleges that the railroad company damaged his kilns and brick plant in making excavations, and appropriated coal and shale from his land without his consent, also disconnecting the switches and laying the plant idle.

A decision was handed down by Judge Hadley, of the Supreme Court, which is of interest to clay and coal companies. He held that the officials of a company can not bind the stockholders for the payment of physicians' care

of injured employees, except in extreme cases, in an emergency, where there is danger of immediate death unless prompt aid is given by a physician, on the principle that stockholders of a company shall not be at the mercy of officials, who could, in their official capacity, contract bills that are foreign to the natural needs of the business.

There will be contracts let in the near future for the paving of several streets with brick.

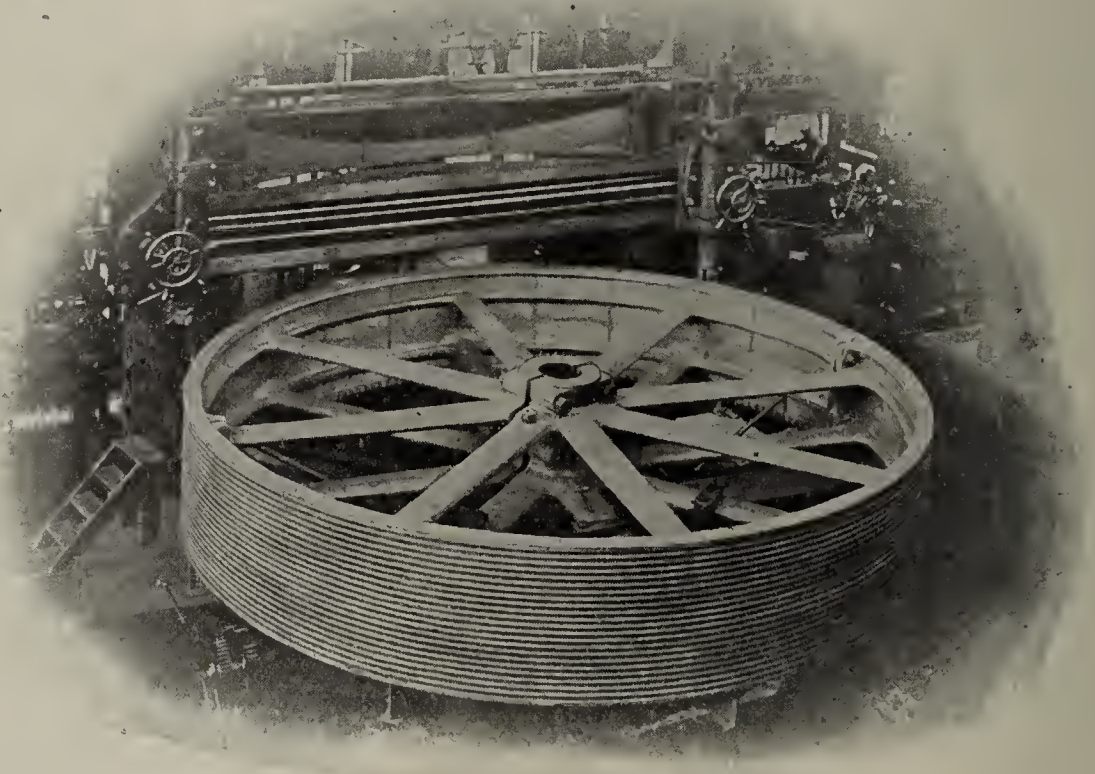
Building on a small scale is going on continuously. The sound of the hammer and saw are heard in nearly every block, as there is much repair, rebuilding and putting in of foundations going on, so that Brazil is very much alive and doing her share to keep the wheels of prosperity rolling.

M. E. B.

AN UNUSUALLY LARGE ROPE SHEAVE.

The accompanying cut shows a rope sheave of unusual dimensions recently completed by H. W. Caldwell & Son Co., engineers, founders and machinists, Chicago, Ill.

The sheave is 20 feet in diameter, has twenty grooves for 2-inch rope and weighs, finished, 48,000 pounds. It will



Immense Rope Sheave for a Mexico Refrigerating Plant.

be noticed from the illustration that the sheave has a double set of arms. The sheave was cast in one piece and then split for convenience in handling and erecting. The sheave was cast in the foundry of the Caldwell Company and finished on a 20-foot boring mill, as indicated by the illustration.

It is intended for use in connection with the main drive in a refrigerating plant located in Mexico, the large sheave receiving power from an electric motor, the transmission being by means of what is generally known as the American or single rope system.

H. DE JOANNIS NOW WITH BECHTELS, LTD.

Bechtels, Ltd., Waterloo, Ont., desire to announce to the clayworkers of the United States and Canada that since May 1st H. De Joannis, formerly editor of "Brick," Chicago, Ill., is now associated with them as manager of their sales and general publicity departments. Mr. De Joannis is well known to clayworkers on the North American continent, and his close contact with diverse clayworking conditions will contribute extensively to the strength of the Bechtel's personnel.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Using Fan for Forced Draft in Burning.

Editor The Clay-Worker:

I see in the May Clay-Worker, page 706, where brick-drying installations are being furnished by the Massachusetts Fan Company—that I am credited with having put in one 90-inch three-quarter housing fan in connection with direct-heat furnace system.

I wish to say that this is an error. I did get the fan, but not for the purpose mentioned. It has no connection with my dryer in any way. My dryer is still as windy and satisfactory as it was when I read my paper at the N. B. M. A. Convention at Birmingham in 1905. I am putting in the fan to furnish air for forced draft through grates of kiln fire boxes under a system of the Drymore System, of St. Louis. I ask that you kindly make the correction in justice to all parties concerned.

Lovick, June 5.

L. L. STEPHENSON.

What Is the Remedy for "Whitewash" on Shale Brick?

Editor The Clay-Worker:

Apparently most plants that manufacture a red brick made out of shale are annoyed more or less with whitewash. We have frequently heard the cause attributed to the oil used in manufacturing. We are satisfied that it is due first of all to the lime in the material as it is found in the bank, and that if it were not for this ingredient in the material, there would be no whitewash, but, nevertheless, there seems to be something that will cause the same material to whitewash more at one time than at another.

We are not annoyed with whitewash worth speaking of in our wire-cut brick, but frequently find it in our repressed brick. Our experience has been that by using the same kind of material we find that some parts of the kiln will be whitewashed, while other parts will be entirely free of whitewash.

This being the case, and considering the fact that the whitewash is nearly all to be found on the repressed brick, where more oil is used than on the wire-cut brick, we are inclined to think that something, perhaps the oil, might cause the lime and sulphur to adhere to the surface of the brick as it is escaping from the body of the brick. What is the remedy? We thank you in advance for any information that you may be able to give us.

"KEystone."

With the Delaware Brick Manufacturers.

Editor The Clay-Worker:

The Wilmington Brick Company, Wilmington, Del., is more than sanguine regarding the outlook, and is working on their seventh kiln. The brick manufacturers of Delaware are not scared at all, but are simply waiting until conditions improve.

J. B. Oberly reports orders ahead, but not much doing. He has recently had a Martin machine placed out at his plant, and is carefully watching results.

Allan & Alvan report things very quiet. The tone of voice, however, is particularly cheerful.

Beggs & Almond, 819 Shipley street, have an entire new plant, with a Chambers machine, Martin dryer and slide valve engine. They make 40,000 bricks per day. Their four kilns have a capacity of 240,000 bricks each, stacked forty high. They set a kiln, burn one and take one out per week. The plant has cost about \$45,000. They partly shut down for two weeks, then started up again. They have just finished a large contract for Lenderman Bros., contractors, for the Wood-

lawn Improvement Company—i. e., twenty-six houses at Sixth and Bayard, requiring one-half million bricks, face brick and common red building brick.

M. E. LOCKINGTON.

Water-Proof Brick.

Editor The Clay-Worker:

We would call your attention to an item appearing in your April issue, on page 574, "Water-Proof Brick in Demand in Pennsylvania." The heading of this item is the exact truth, but the matter is calculated to deceive, as the reader will naturally reach the conclusion that the company mentioned in the article is the manufacturer of "water-proof" brick.

An item similar to this one has appeared in various other publications, but we have not taken any steps to obtain corrections, owing to the difficulty of convincing the publishers of our just claim to being the manufacturers of "water-proof" brick.

With you we are differently situated than with the other publishers, owing to the fact, as you will probably remember,



A Waterproof Brick—Reproduced by Request From the January, 1898, CLAY-WORKER.

that eight or nine years ago you published in The Clay-Worker a photograph taken by you of the interior of our office, which was at that time located in the Carnegie Building. This illustration shows our salesman exhibiting a "water-proof" brick.

If you will kindly republish this cut, giving the date of the issue of The Clay-Worker in which it appeared, in connection with this letter, we will esteem it a favor. We have used the brand shown in the illustration continuously for the past ten years.

Yours truly,

GLONINGER & CO.

Pittsburg, Pa.

Concrete Not a Good "Fireproof" Material.

Editor THE CLAY-WORKER:

The comments made by the editor of "Cement and Engineering News" on the self-contained sprinkling system that concrete walls embody are almost as amusing as they are misleading. He evidently desired to show how much safer concrete walls are than brick in resisting collapse from fire, yet if his remarks are carefully read, they prove to be a veritable boomerang and a valuable argument for brick at the expense of cement. To appreciate this valuable and

gratuitous contribution to the advantages of brick, his comments are herewith reproduced, as also the original article that inspired it:

Comment by the Editor.

"The inner face of a concrete wall will not expand to the same extent during a fire, because the water used in mixing the concrete must first be driven off before the cement expands. This water taken up by the concrete unites with the cement as water of crystallization. Under high temperatures the water of crystallization is driven off in the form of vapor which cools the surface layer through which it escapes. While the outer face of a concrete block wall may be red hot, just back of the heated surface evaporation is taking place, which forms an insulating medium which prevents the heat from penetrating into the block until the water of crystallization has been vaporized; this prevents the block from expanding as in the case of brick walls, because the high temperature is doing work in breaking down or dehydrating the cement in concrete, which would otherwise develop expansion in the block. In other words, the concrete carries its own automatic sprinkler system, which will prevent the wall from expanding and consequently collapsing, as in the case of a brick wall, because all the water used in mixing the concrete must be expelled before dangerous expansion can take place."

Prevention of the Collapse of Brick Walls at Fires.

"We condense the following from the London Builder's Journal:

"Firemen and insurance surveyors know from experience with fires that brick buildings almost invariably collapse outwardly, due to the inner face of the wall expanding more than the outer face, forcing the wall outward. Chief Officer Ditman, of the Bremen fire brigade, mentions two distinct instances confirming this theory, which occurred during the present year, of walls expanding as above stated, and the method applied to counteract such expansion. The first case was that of a 9-inch external brick stable wall 33 feet high. This wall after the roof had burned away overhung to such an extent that the streets were cleared of spectators under the momentary expectation that the wall was about to fall into the roadway. Then two spray nozzles were brought into action on the inner face of the wall, and within ten minutes the wall righted itself and again became perpendicular. This wall is now in use. On May 1st in the case of a very large fire, a brick wall 30 feet high overhung about 18 inches at the top with a tendency of immediate collapse, when six streams of water were directed near the inner face of this wall with the object of cooling down the temperature between the wall and the burning interior, after which the water was thrown directly upon the inner face of the wall. In fifteen minutes the wall was brought back to perpendicular. This wall is also again in use. A paper on this conflagration was read before the Bremen Architects and Engineers Society and a technical paper covering the same subject was read at the Stuttgart meeting of the Association of German Professional Fire Chiefs."

When the walls of a building are exposed to an internal fire, they will expand from the heat and thereby be thrown more or less out of plumb, always leaning outwardly. This will happen no matter what material is employed in the walls—brick, concrete, stone, or terra cotta, as all materials expand when heated. The fiercer the fire and the longer it lasts, the greater will be the expansion of the inner hot side of the wall, and consequently the more severe will be outward leaning. The walls are, therefore, apt to topple over outwardly if thin or very high, in the case of severe fires, from being so badly thrown out of plumb by the much greater expansion of the inner face of the walls. If the fire is of short duration or the walls can be kept cool by spraying, not only may they be prevented from collapsing,

but also be restored to a vertical condition. In the two cases cited from the "London Builders' Journal," not only were the brick walls restored to plumb by removing the heat and therefore eliminating the expansion by playing water on them, but they were evidently found uninjured, as they were used again.

As the expansion of concrete is greater than brick, there is more risk of concrete walls toppling over than brick, from the greater expansion of the inner heated surface, so that moderate fires that might cause the collapse of concrete walls would be safely survived by brick.

This broad principle of leaning outwardly from internal fires heating the inner face of a wall to a higher temperature than the outer face, with the consequent greater expansion of the inner face, applies to all fireproof building material, although stone and concrete, having higher rates of expansion, will lean outwardly more than brick or terra cotta.

The statement of the aforesaid editor that concrete walls will not be warped outwardly because of the automatic sprinkling from the expulsion by the heat of the chemically combined water in the cement cooling off the wall is as ludicrous as it is misleading when thoughtfully considered. For the water of hydration that gives cement its value and strength is only expelled by a high temperature, or considerably above a red heat. If the inner surface of a concrete or brick wall is raised to or above a red heat, the warping or outward leaning would be so severe as to probably topple it over. If, however, the wall was so thick or low as to survive this disaster, the cement would be destroyed when its water of crystallization is expelled. For the setting and strengthening of cement is due to its chemically combining with water to form a hydrous-silicate, and if the fire should be so fierce as to drive off this water it would destroy the very agent that gives concrete its strength. If the concrete wall of a burning building had not therefore toppled over from excessive expansion, it would be ruined when the "self-contained automatic sprinkler" began to act, as that would mean the destruction of the bonding principle of the cement and the wall so affected would fall of its own weight.

H. A. WHEELER.

SEWER PIPE DISTRIBUTERS ORGANIZE.

Buffalo and many other cities are especially interested in the Sewer Pipe Distributors' Association, which was recently organized in New York City. A. H. Stowell, of the Lyth Tile Company, of Buffalo, N. Y., is secretary and treasurer of the new association. His offices are at 666-668 Ellicott Square, Buffalo, N. Y., where the offices of the Lyth Tile Company are located.

Arthur N. Pierson, of the A. N. Pierson & Co., of New York City, is president of the association, and John A. Kling, of the Cleveland Builders' Supply Company, of Cleveland, O., is vice president.

The above named officers, together with Charles H. Clasen, Baltimore, Md.; A. E. Bradshaw, Indianapolis; James G. Lincoln, Boston, Mass., and J. C. Adams, Pittsburg, Pa., constitute the executive committee.

The organization of this association was made by a most complete representation of the preferred dealers in sewer pipe included within the territory from Indiana to Massachusetts and Virginia. The dealers are all very enthusiastic as to the possibilities of the mutual benefit to be derived from the organization of this association.

The object of the organization, according to an official announcement, is indicated by the following statement: "The association was organized for the purpose of harmonizing the relations between the manufacturer and distributor and cultivating a larger market for sewer pipe and kindred clay products, and, by united effort, establishing universal trade customs, etc."

Written for THE CLAY-WORKER.

ST. LOUIS BRICK AND BUILDING NEWS.

BUSINESS IS FAIRLY good with the brick manufacturers. There is a satisfactory demand for brick, not only for building purposes, but for paving as well. Quite a number of streets in St. Louis are being newly built or reconstructed, and the demand for brick for that purpose is better than usual.

Manufacturing, however, is somewhat curtailed because of the scarcity of clay. Some of the plants have run short. The rainy weather that has prevailed for the past few weeks caused a great scarcity and several of the plants are only working up the clay they have on hand, and when that is exhausted they will be compelled to cease operations. Quite a number of the plants are taking advantage of this circumstance to overhaul their machinery and prepare for continuance of work in the future.

Fortunately the brickyards kept up the manufacture of brick when the demand was normal, so they are pretty well supplied for future demands.

The month-end report of the St. Louis Building Commissioner shows a marked increase in the number of new structures during May and the aggregate cost. May of this year only falls short of the same month last year by \$102,991. The number of permits issued for new brick buildings this May was 242, with an aggregate estimated cost of \$1,662,005, against 255 and \$1,728,208 last year; brick additions, 117 this May and \$110,548, against 155 and \$153,931 last May.

There were 379 permits issued for new frame buildings during the month, showing an estimated cost of \$101,027, against 392 and \$90,099 last May. The frame additions amounted to 52, with an estimated cost of \$7,187, against 79 and \$11,520 as compared with last year. The total cost of construction in May of this year was \$1,880,767, against \$1,983,758 last May.

The Illinois Supply and Construction Company report a satisfactory amount of business being done in spite of adverse conditions in the money market. Walter Grath says he is receiving many inquiries for presses and several good sized orders have been booked for future delivery.

The Scott Manufacturing Company has found its new location in the Third National Bank building a most desirable one in every way. The latch string is hanging out for all brick manufacturers and they are always welcome. Mr. Scott, president of the company, says business is quite good. In addition to numerous inquiries, several good sized orders have been received. The Andrus Brick Press, or "The Press That Scott Builds," continues to give the best of satisfaction. Every press being installed is an advertisement.

The Fernholtz Brick Machinery Company report business as good as could be expected.

The Williams Patent Crusher and Pulverizer continues to be extensively used by the brick manufacturers in the reduction of their clay or shale.

The triple pressure brick press manufactured by the Ross-Keller Triple Pressure Brick Machine Company is holding its own with any other on the market. Business is reported fairly good.

Geo. W. Jones, secretary of the Evens & Howard Fire Brick Co., says they are working as usual and are having a satisfactory call for their products.

The Luce Engineering Company, although a comparatively new company, is building quite a number of brick plants in various sections of the country. While conditions are far from satisfactory for the erection of new plants, they have about all they can do.

A. SAINT.

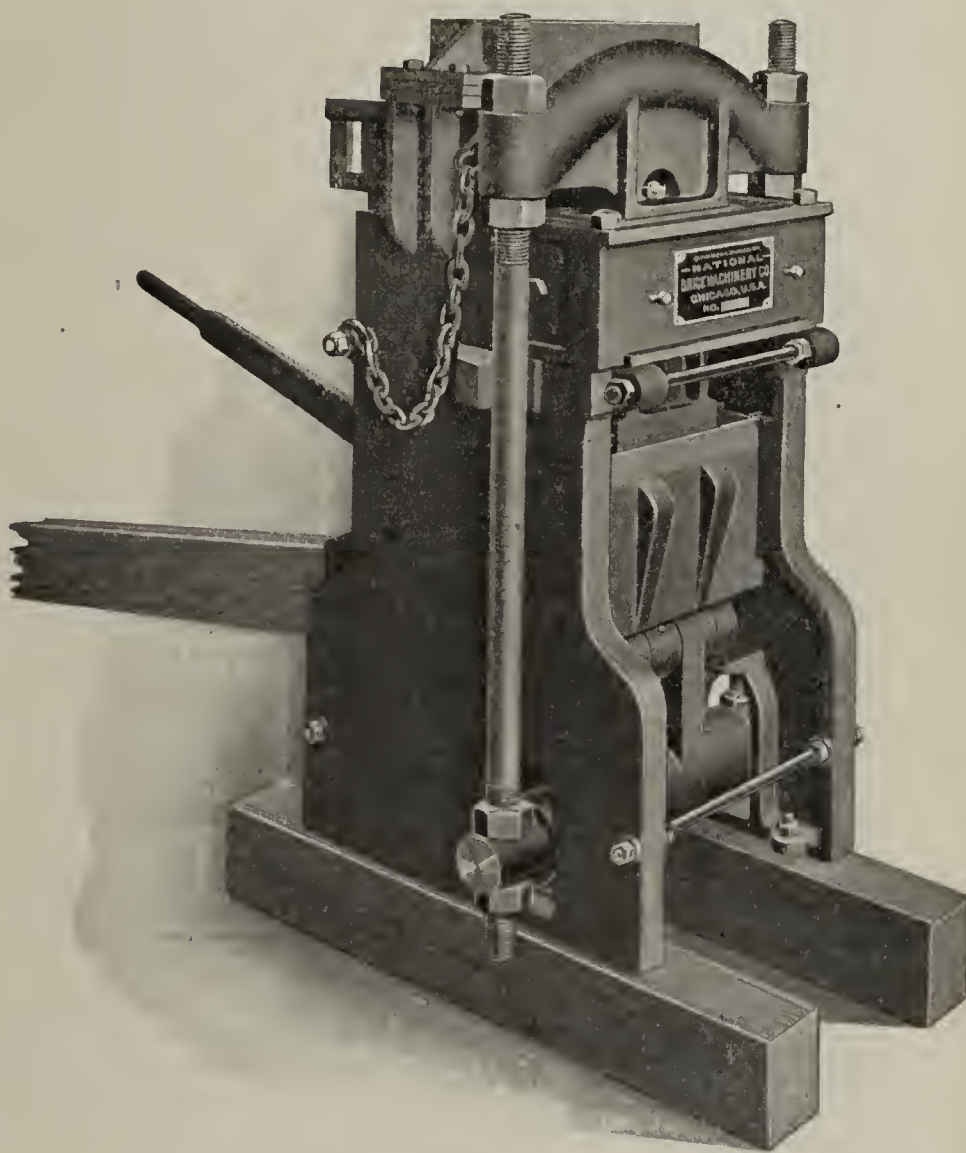
DRY PRESS FIRE BRICK IN MONTANA.

Mr. J. T. Gunniss, who has charge of the brick department of the Anaconda Copper Mining Company, recently spent several weeks in the east visiting various fire brick plants, and looking up machinery and different processes of manufacture. All the fire brick at the big smelter have been made by hand-molding up to this time. Mr. Gunniss

went through the famous fire brick districts of Ohio and Pennsylvania pretty thoroughly, and decided that for his conditions in the far west the dry press process offered the best and cheapest method for making his fire brick. He therefore ordered from the Chicago Brick Machinery Company a complete dry press fire brick outfit, with a four-mold press, which is now on its way to Anaconda, and will soon be in active operation. As the fire clay they have to work there is second to none in the country, making a very high grade refractory brick, Mr. Gunniss will doubtless have a model plant.

SIMPSON'S NEW HAND PRESS.

On this page will be seen an illustration of the Simpson hand press, a new machine recently placed on the market by the National Brick Machinery Company, Chamber of Commerce building, Chicago, Ill. There are many points of advantage in the press, especially the simplicity of construction and ease of operation, as well as the adaptability for making all kinds of brick and blocks, Roman and Norman brick and all kinds of ornamental products. Two men are needed to operate the machine, one at the front and the other at the back of the press, and on account of the simplicity of the mechanism they become, in a very short time,



so fully acquainted with the movements necessary that the maximum capacity is assured without any difficulty whatever. The pressing mechanism is actuated by the long wooden lever seen in the illustration and the lift-out by the small lever shown in the cut. The charger is arranged to permit of the material being fed into the mold evenly, and a hopper receives the charge as it falls from above. The thickness of the brick can be changed in a moment by manipulating the nuts that fasten the upper crosshead to the side bars, and by this arrangement the shimming of the plungers to allow for a thicker or thinner brick is obviated. The double toggle in the press allows for a maximum of pressure and assures a good product. The mechanism shows guides for upper crosshead, which arrangement obviates the tendency to make a brick thicker at one side than the other, as is the case with other machines. The National Brick Machinery Company will be glad to correspond with parties interested and will send price and further particulars on application.

A FINE SUMMER OUTING FOR CLAYWORKERS.

Denver the Mecca for the American Ceramic Society—Mid-Summer Meeting to Be Held There the Second Week in July.

An unusually interesting midsummer jaunt has been planned by the trustees of the American Ceramic Society, which provides for a trip to Denver and stops at the most attractive points in that country of wonders. The program is very alluring and we give it in full. If any further particulars are desired, write at once to Prof. Edward Orton, Jr., secretary A. C. S., Columbus, Ohio, then make your plans to join the excursionists en route or at Denver July 15, 1908.

Columbus, Ohio, June 10, 1908.

To the Members of American Ceramic Society:

The annual summer meeting of the Society has been under consideration by the board of trustees and a plan has been worked out.

Since the meeting was held in Beaver Falls, or the central part of our territory in 1906, and in Schenectady and the Hudson River district in the East in 1907, it has seemed only right to give the West the preference in 1908. The Democratic convention at Denver, Colo., during the first week of July has stimulated the Western excursion business and makes it possible for the Society to attempt a more ambitious plan than ever before.

Colorado Meeting.

Leave Chicago Monday, July 13 at 9 a. m., via the A. T. & S. F. Flyer. Arrive Kansas City at 8:50 p. m. same evening. Pick up St. Louis delegation at this point. Leave Kansas City at 9 p. m. and arrive at Pueblo, Col., at 12:20 p. m., Tuesday.

At Pueblo there are several clayworks of importance, and the Colorado Fuel and Iron Co.'s fine blast furnace plant.

As many points of interest will be visited during the afternoon and evening as possible. Starting next morning, Wednesday, the 15th, at 6 a. m., Colorado Springs would be reached at 7:25 a. m. Here the Van Briggles Pottery Co.'s new and beautiful plant will be visited. The company promises a most cordial welcome.

The afternoon will be spent in seeing the natural beauties of this wonderful spot. Manitou, the Garden of the Gods, Cheyenne Canyon, Pike's Peak and many other star attractions are available; the only question is how to choose between them.

Leaving Colorado Springs at 7:15 p. m., we will reach Denver at 9:45 p. m., and repair at once to the hotels.

Thursday morning the party could take the narrow-gauge railroad to Golden, where some of the richest and most remarkable clay deposits in the West are located. The trip to the mines, the fire-brick works and the Colorado School of Mines will amply fill the day at Golden.

Or, if the members prefer, the clay plants of Denver, comprising fire brick, sewer pipe, stone ware pottery and pressed brick works would be available for a day's visit. Also, visits to the great smelters where the ores of the West are concentrated and refined can be substituted.

After the Meeting.

Within close range of Denver are literally hundreds of the choicest resorts in the entire country. For those who enjoy camping, hunting, fishing, tramping, mountaineering or riding, or the less strenuous pleasures of the golf links, the polo grounds, automobile trips or hotel verandas, all in the view of the grandest mountains of our country, in the loveliest time of all the year, surely the Ceramic excursion would be only the precursor of even greater delights. Everyone's taste can be suited in Colorado, and America contains no choicer vacation ground.

The Railroad Rates.

The low price of \$30 round trip from Chicago to Denver and return is offered and a proportionately low rate from any point east of Chicago. Tickets will be sold going by one route and returning by another, on request, at time of purchase. The southern route being taken on the way out, a

northern route on returning would probably be enjoyed by most people.

Pullman tickets will be \$6, Chicago to Pueblo, or \$3.50 Kansas City to Pueblo. If enough signify their intention to go, a standard Pullman car can be chartered at these rates or a tourist sleeper can be had at a much less rate. Many persons prefer them for summer travel on account of the coolness of their cane upholstering. The tickets are good returning until October 1.

Guarantee Deposit.

Members of the Society desiring to take this excursion should respond promptly and must deposit as an earnest a fee of \$6 for sleeper from Chicago, or \$3.50 from Kansas City, or \$6 for a place in the special car if the numbers justify chartering one. Payment of this fee guarantees your place. Without it it will not be possible to hold reservations.

July 1 is the latest date at which reservations can be made, as the traffic is very heavy at this time and we must engage ahead if we want to travel in comfort. A large part of the pleasure of the trip will be the visiting which the car travel will permit. It will certainly be a jolly and congenial crowd and you want to be in on it.

Write the Secretary.

The success of this plan, the most attractive one yet framed by the Society since its organization, seems assured. The more the merrier. We can not get more than one extra car on the No. 9 or Santa Fe Flyer, so you had better think fast and send in your reservation. No space will be assigned without the money. Special literature will be sent to all who signify a desire to have the facts placed before them.

Ladies Invited.

On account of the wonderful opportunities for a summer vacation trip to Colorado members are invited to bring their wives and families. Those who have not yet taken the needful step to do this are advised not to put it off. At least one of the A. C. S. brethren has already accepted this suggestion and will be there with his bride.

A prompt and liberal response to this letter is solicited.

THE BOARD OF TRUSTEES,

By Edward Orton, Jr., Sec'y.

MR. ARTHUR KOPPEL DEAD.

Cable despatches record the death of Arthur Koppel, founder of the Arthur Koppel Co., on May 13, in Berlin, Germany, of heart failure.

Mr. Arthur Koppel was born in Dresden, Germany, in 1851, and started in business at the early age of seventeen years. He was first interested in a concern in the handling of structural iron and established his own firm in 1876, taking up the problem of transporting all kinds of material for narrow gauge railroads. He made the idea of portable industrial track popular and this material is to-day known all over the world, in all industrial, agricultural and mining concerns as the Koppel material. The concern, which in 1905 was made a stock company, owns fifty-two branch houses, all over the world, eight plants, of which three are in Germany, one in France, one in Austria, one in Russia, one in Spain, and one in the United States. The American business was established ten years ago and in 1906 Mr. Arthur Koppel came to the United States and decided to build a modern American plant. He, therefore, purchased 700 acres of property in Beaver county, thirty miles west of Pittsburg, Pa., where he founded the town of Koppel and erected the most modern plant in this line in the United States. With his family, wife, three sons and one daughter, 6,000 men in the different plants and concerns, and 1,500 employes, commercial men and engineers, are mourning the loss of this genius who always had the welfare of his men at heart.

There will be no change in the concern which has a board of directors. One of the managers of the New York office is Mr. Kurt Koppel, a son of the late Mr. Arthur Koppel. He is at present on his way to Germany.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. XLIX.

JUNE, 1908.

No. 6.

CURRENT COMMENT.

Most any man can find a fault, but it takes a genius to find a remedy.

* * *

In politics and war the victor takes the spoils, but in the brickyard they are thrown on the dump.

* * *

The best way to have things to please us in this world, is to learn how to be pleased with things as they are and can be made.

* * *

The repair item in clayworking machinery is a factor that calls for special attention, not only while the plant is running, but when considering the matter of purchasing new machinery.

* * *

Now that Congress and the Senate have quit exciting themselves and attracting the attention of the country, attention should be turned to business and to getting the wheels of industry moving at their old lively gait.

* * *

The country is safe again, for the great American farmer is gathering unto himself an abundant crop of wheat with which to fatten the world another season. Verily, the farmer, though insignificant individually, is a great staying power collectively.

* * *

The Junior Editor of THE CLAY-WORKER has taken unto himself a better half. The ceremony occurred the 17th inst. at Wellsville, N. Y., at the home of the bride, Miss Helen Darling. After a sojourn in the Adirondacks, Mr. and Mrs. James E. Randall will make Indianapolis their permanent abode.

* * *

The advocates of concrete for every purpose and against all other competitive materials frequently put up arguments that are so ridiculous as to be more harmful than helpful

to the industry which they are calculating on promoting. An instance of this is cited by Prof. H. A. Wheeler in this issue. Read it.

* * *

As a rule, it is the men that do the most for the world that have the least fault to find with it. And, to reverse the rule, those that find the most fault frequently do very little toward improving the world.

* * *

Prof. A. V. Bleininger, director of the clayworking department of the Illinois State University, Champaign, Ill., has been made happy by the advent of Albert Bleininger, junior, who arrived at his home May 18.

* * *

The Western Brick Company, Danville, Ill., are running to full capacity and at that are unable to meet the demand for their vitrified brick. Evidently Frank Butterworth has stolen a march on some of his competitors, for it is reported that he refused a good big order recently because he could not supply the brick within the time required, early shipment being necessary. This don't "listen" like hard times.

* * *

Considering the talk about dull times, it is quite encouraging to know that the great plants of the Purington Paving Brick Company, at Galesburg, Ill., are running full handed, with their total product sold for six months or more. The coal strike put them out of business for a few weeks in April, the first time the plants have had to shut down except for a few days' cleaning up in midwinter since they first started.

RAILROADS AND THEIR RATES.

Possibly the near approach of the Fourth of July has aroused a spirit of patriotism in the railway corporations, and possibly, too, they have been actuated by some other motive. Anyway, it is refreshing to learn that the heads of the various roads, after several lengthy consultations, have decided that it is not desirable to raise freight rates at the present time. Everybody could have told them that long ago, and many of the trade papers have told them so rather forcibly. Probably they knew it all the time and probably, also, they talked raising freight rates partly to keep the public from making an appeal for lower rates, so that they could strike an even bargain and let things stand as they are. If they have done this they have played a pretty wise game. They certainly know how to play the game anyway, and they have wonderful resources and are far-seeing. But no matter what the motive actuating them or what their latest attitude is in this matter, we should all rejoice that there is in sight a period of comparative freedom from battling with railroads over freight rate matters. The railroad question, the tariff question and the financial question have all received a world of attention the past few months, which no doubt has done some good, but lots of it might better have been applied to push business. But let's forget it all and rejoice that there is a season of quietude in this respect, and get busy with the regular routine of affairs of life and business.

CONCRETE AS FIREPROOFING.

Professor H. A. Wheeler writes tersely of concrete as a fire proof material and clearly points out how prejudice is bound to tincture the opinion of even an expert. He calls attention to an editorial in Cement and Engineering News," presumably written by an expert, and stating that concrete walls were much safer than brick ones because the former were not so prone to topple over as a result of internal fire. The Professor rightly takes the writer to task for making ridiculous statements, the most ridiculous of all being the advancement of the theory that the dehydration of the concrete, in a fire, would produce a vapor which would cool the surface of the wall and thus prevent its being damaged! The Professor promptly picks that assertion to pieces

by citing the well-known fact that the moment concrete is dehydrated to any appreciable extent its vitality has gone, it is no better than so much dried mud and could not hold itself in place, let alone any superimposed weight upon a wall so treated. The readers of the "Clay-Worker" must be familiar with the photographs that have been reproduced of the Baltimore and San Francisco fires. In both of these the highest temperatures were reached that have ever been developed in a conflagration. In a few places brick walls were torn down or dragged down by falling beams and columns—that had not been properly protected by fireproofing—but what was remarked most, even by the uninitiated, was how very well the brickwork generally stood the fire. There were streets after streets in San Francisco with brick walls standing and in perfect condition, but nothing else left but a few twisted iron bars, perhaps, to indicate that there had ever been aught else on the place than a brick shell. Miles of frame buildings were destroyed, but the chimneys, thirty, forty and fifty feet in height, were left standing. The most marked instances of damage to brickwork were in buildings of the second class, with wooden floor beams, roof girders, etc., that had been only too well tied in to the walls and anchored. When this wood framing burnt and fell in, of course, those portions of the walls into which the anchors were fastened were torn in.

No more positive refutation could be thought of anent the concrete people's theory than to see the brick walls of the great skyscraper structures in San Francisco and Baltimore standing absolutely safe and barely scarred after passing through the terrific ordeal. The reverse of the picture is not an attractive one. In Baltimore there was but one building with concrete walls, a little affair of four stories in height, and it has been torn down to make way for another building, and a brick one at that. In San Francisco there was one building with concrete walls in the hottest part of the fire zone and nothing was left of those walls but a heap of debris and many twisted bars. The concrete people are certainly voluble in their claims, but, so far, at least, have mighty little of a satisfactory nature to substantiate them.

THE UNCERTAINTY OF CONCRETE.

Not only is the conduct of reinforced concrete under fire quite problematic, but there are inherent troubles and possibilities in that mode of construction that make it dangerous to handle and an absolutely uncertain quantity, and therefore not a desirable material to use in building. The sole reason for its use by any one is on the basis of its being cheaper than standard construction of brick and steel and tile. Now then, to make it cheaper than that standard it has to be cheaply done, inferior materials used and these mixed and put in place by cheap, unskilled labor. And that means "cheapness" in a very undesirable sense of the term. It is small wonder therefore, that so many collapses of buildings, built by that system, have occurred in this country. The appallingly long list of such and fatal collapses has had one more item added to it within the last twenty-four hours. An apartment house in Washington was the scene of this most recent illustration of the dangers of concrete construction. Two men were killed and a number seriously injured, and some thirty families who were contemplating soon moving into the building are thanking their good stars that the collapse occurred when it did. It was the same old story; a not too skillful contractor, doing the cheapest kind of work permissible and hurrying it for all he was worth; an upper floor giving way, bulging out the supporting walls and carrying down the lower floors in one great mass out of which the unfortunate workmen were dug. The press of the country has had to tell the same story twenty times in the past few years. This is exactly similar to what occurred at Elyria, O., Minneola, L. I., Rochester, N. Y., and Long Beach, Cal. It is this sort of thing that caused the "Engineering News," the leading journal of the world in its class, to exclaim: "Carelessness, incompetence and unscrupulous skinning appear to have about reached the limit in reinforced concrete construction. Two failures of large buildings under construction, occurring within a fortnight of each other, both of which had their harvest of dead, is a serious blemish on the record of reinforced

concrete. A radical reform is imperative. The grey of our concrete structures is already too much stained with blood. Shall we allow that stain to spread and grow still darker?"

WHO IS RESPONSIBLE FOR THE LOSS OF LIFE AND PROPERTY?

The principal newspapers in Washington seem to lay the chief blame for the recent collapse of the concrete building in that city upon the building department. The real blame, however, may be traced to still higher up. Building departments can only do that which they are authorized to do by law, and can only inspect as thoroughly as their too often limited force, allowed by law, will permit. The fact that a city gives permission to build in a certain way and stamps such plans with its approval makes it, not to a degree, but completely, responsible to the citizens for that building. It should provide a sufficiency of inspection to insure that that building will be carried on in accordance with its approval. Or it should bar men from doing work in the city who do not exercise skill and care in construction. A few suits for damages against a city entered by parties suffering by reason of such collapses would quickly establish its responsibility vis-a-vis its citizens. The tax-payer has no interest in how a man may elect to erect his building or how destructible it may be if it does not interfere with or endanger other people and property. The moment it does, then the public has a real interest in that building and that interest must be safeguarded by the authorities. If, as this last collapse proves, it is almost impossible for cities to give adequate inspection to every building that goes up, then it has the right to and should bar dangerous and experimental modes of construction. The city has responsibilities in other directions that it meets and has laws passed to protect its people. With saloons, for instance, they have to be run in an orderly, decent manner or the license is taken away from them, and then there are districts in which a saloon is not permitted under any circumstance. Why not use the same judgment and apply the same remedies to our building troubles? It lies with us as citizens to see that these things are done properly. Our law-makers and authorities are supposed to act under our instructions as indicated at the polls. It is "up to" us and now is the time to express our views, our desires and give our orders to the law-makers.

BUSINESS.

There is evidence of steady improvement in the general business situation throughout the country, but the revival is not coming as rapidly as we would like to see. There is too much political pot boiling and not enough personal push. Every man seems to be more or less inclined to wait until political affairs are more settled, and with everybody holding back a little on this account instead of putting forth more personal effort to keep the wheels moving a little bit more rapidly, there is naturally not as much improvement apparent over a month ago as there should be. It is refreshing to note, however, that among the builders there is more inclination to get busy. The builders of cottages and small dwellings have been fairly busy ever since the spring season opened, and now those who contemplated building more pretentious structures, some for homes and some for investment, are getting their plans in shape and beginning to work in a healthy manner. Some of the cities are a little backward yet, especially New York and some other cities where they depend more on manufacturing industries than agricultural resources, but taking the country over there is a decidedly more healthy note in the building situation and there is now a disposition to go ahead with larger undertakings, which should mean a demand for lots of brick and terra cotta, and structural steel, and other products entering modern structures. Another good thing about the present situation is that there are very few, we might say no labor troubles, the only trouble is that the labor element is having a hard time to find enough work to do, and while there are a few little insignificant troubles in the way of strikes here and there, they really don't amount to anything serious, and, taking everything into consideration, we might say

that this is one spring and early summer in which there is no labor trouble. Moreover, there is not likely to be any all summer because everybody realizes that this is no time now for stopping and wrangling, but a time for harmony between capital and labor and concerted effort to get things going again, so as to keep the dinner pail full and pay day coming around regularly. So it looks like business as a whole is pretty good and while it may not get rushing any time during the summer it should grow healthier as the season progresses, and in the end it should prove to be a fairly good year in the clayworking industry.

A WISE LABOR UNION.

There has been some speculation among those interested in building as to how the carpenters' and other woodworking unions felt in regard to the increasing use of fireproof construction. It was generally thought that human selfishness would prompt them to oppose a mode of construction that threatened the utter elimination of their trade. But that the carpenters of the country are intelligent and progressive in spite of any self-interest is evidenced by what they are doing at Indianapolis, Ind. There the Brotherhood of Carpenters and Joiners is erecting a three-story office building. The law does not compel that buildings of the height be fireproof, but the carpenters, of their own volition, realizing the advantages that will accrue to that building by constructing it right, regardless of the minimum requirements of the city ordinance, have decided upon making it not a stone-faced, wood-joisted affair, nor a concrete block building, nor of reinforced concrete, but of the best construction known, a brick and terra cotta external wall, a steel frame, fireproofed with hollow fireproof tile, fireproof tile floors and partitions, a structure that can neither be destroyed by fire nor be seriously injured thereby.

A NEW AND DANGEROUS CONSTRUCTION.

One of the best known and highest authorities among construction engineers was recently asked why he opposed the growing tendency toward reinforced concrete construction of buildings. In reply he used this very apt parable: "You have no doubt seen the circus or vaudeville stunt of standing a man up against a board fence and having an expert get off twenty-five or thirty feet from him and shy knives and daggers and hatchets in so skilled a manner as to outline the man's shape on those boards with these exceedingly sharp and dangerous weapons. It's a fascinating trick. The 'victim' must feel a bit nervous in spite of the confidence he may have in the expert, for the latter, clever as he may be, sometimes makes a slip and there is certainly always a danger that he will do so. But suppose you stand that same man up in such position and let every Dick, Tom and Harry shy a knife at him, how much of him will there be left to tell the tale? So it is with concrete. Theoretically, it is a fascinating mode of construction and apparently quite simple. In the hands of a very careful expert it can be well done, but even with him it is always an extremely hazardous medium, for it depends upon so many conditions and is susceptible to so many accidents, and the least little slip in one detail vitiates the whole thing, that even in the hands of such an expert the chances are about ten to one that something will go wrong. But what must we expect when every builder in the country feels himself perfectly competent to handle a medium that perhaps not more than fifteen men in the entire land really know anything about? Is it any wonder that there are so many and such fatal collapses of reinforced concrete buildings, and are you surprised that I should not for a moment consider concrete unless I could personally mix it and put it in place and do all there is to be done to it myself? It is not work that you can delegate to others and particularly to the cheapest of cheap labor. And the only reason preference can ever be given to concrete is that it is cheaper than the standard steel, brick and tile construction. And to make it cheaper it has to be done by the cheapest labor. Hence, the enhanced danger, and there you are."

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ESTABLISHED COMPANIES, as well as beginners, find our services profitable. We correct faults of manufacture and keep plants up-to-date. Engagements for special service, or by the year.

THE RICHARDSON-LOVEJOY
ENGINEERING CO.

[See page 858.]

WANTED, FOR SALE, ETC.

FOR SALE.

Modern equipped brick plant. Modern dryer and conveyances, etc. Located on Erie Canal, between Albany and Schenectady, accessible to New York and up state markets. Capacity, about 50,000 daily with power for additional capacity. Seventy acres of land, stone quarry, timber and molding sand. Plant now in operation. Large unfilled order, and brick specified in specifications for many new school buildings to be erected in Schenectady.

This plant is exceptionally well equipped with machinery and appliances. Erie Canal runs through brick sheds. Company will dispose of plant as it now stands at a reasonable price to responsible parties.

Reason for selling: Owners are not brick manufacturers and are otherwise engaged and can not give plant personal attention. Enquire of JOHN SCANLON, 5 4 cm Cohoes, N. Y.

For Sale, Wanted, Etc., Ads Continued on
Pages 843, 844 and 845.

Written for THE CLAY-WORKER.

AMONG THE POTTERS.



POTTERIES IN THE East Liverpool and adjoining districts are not working to their capacity, and in many instances plants are idle for the summer shut-down. However, the loaf this season is expected to be a brief one, and indications are that the fall trade will be greater than during the season of 1906, which has been looked back to as a record breaking season.

During the first six months of this year manufacturers have tried to make it a rule to operate a certain number of kilns per week of three to five days each. The production of pottery in the East Liverpool territory has been reduced to from 50 to 60 per cent. at present.

There has been a little improvement in the condition of trade in the Wheeling district, and the plants in that locality are working better than for several months. In the Zanesville and Crooksville, Ohio, territory the plants there which are devoted in the main to the manufacture of stone-ware have seen a rather busy past month. However, trade with those plants was dull earlier in the season, as with all the other general ware concerns.

The old Ironsides pottery, at Bordentown, N. J., which has been in idleness for six months has resumed operations. This was accomplished during the latter part of May. Albert E. Rainbow, for many years associated with the Crescent plant, at Trenton, N. J., has been placed in charge of this property. The works is devoted exclusively to the manufacture of sanitary ware.

Early in July the annual meeting of the National Brotherhood of Operative Potters will be held in Odd Fellow's Temple, Atlantic City, N. J., and it is reasonable to presume that many future sessions will be held there instead of dividing the conventions among the different pottery centers. There are about seventy resolutions to be considered by the convention, which will remain in session very probably a week. Thomas J. Duffy, the present head of the organization will be re-elected to succeed himself, while Edward Menge will be re-elected national secretary. Other officials will also likely remain unchanged.

Mr. John C. Ross, general superintendent of the Gamble & Surles Brick Co., of East Liverpool, Ohio, has applied for patent papers for a new pug mill. This mill, while at present adapted for use in brickyards, is being improved upon so that it can be used in the potteries also. This new pug mill is merely a combination of the old fashioned pug mill with improvements of an up-to-date concrete mixer added. The mill is driven from the outside and by this method there is a saving of from one to five horsepower. The first machine is being delivered by the East Liverpool Foundry and Machine Company, and it was made under the eye of Mr. Ross. It will be installed in the Gamble & Surles plant, and should the actual tests to which it is to be applied prove its worth, the manufacturing of the mill will be conducted upon an extensive scale.

Twenty-four decorating kilns at the Newell pottery have been crowned and topped out. The original plans caused the kilns to be so built that all heat and smoke escaped through one large stack.

The Anglaise Tile Company has been incorporated at Columbus, with a capital stock of \$10,000, and will have chief offices at New Knoxville. The incorporators are George W. Hall and his associates.

Jefferson R. Warner, of the American China Company, of Toronto, Ohio, has become interested in the development of an extensive deposit of china clay in North Carolina. Ware made from the first clay taken from the field is superior to anything now on the market, not excluding the imported

article. Whether a line of specialties or dinner ware will be made to the exclusiveness of the other has not been determined. A certain amount of the clay in this field is said to be superior upon examination than that imported for the use of paper manufacturers.

The Smith-Phillips China Company, have discarded the use of coal as a fuel, and reverted to gas for kiln firing.

C. E. Grafton, a civil and mining engineer, has been engaged in making a complete survey of the sewer pipe and brick plants in the vicinity of Toronto, and Empire, Ohio districts.

The Atlantic Tile and Faience Company, of Perth Amboy, N. J., has been chartered, with a capital stock of \$100,000, by A. W. Cristiani, Red Bank, N. J.; Walter J. Briggs, 68 Broad street, New York, and George J. Plechner, Perth Amboy, N. J. The new company will manufacture ceramics, brick, tile, terra cotta and fireproofing articles.

The sanitary ware potteries now operated under the jurisdiction of the National Brotherhood of Operative Potters agreements are located at Camden, Elizabeth and Trenton, N. J.; Evansville and Kokomo, Ind.; Tiffin and Tiltonville, Ohio, and Wheeling and Cameron, W. Va.

The sewer pipe plant at Walker, near Wellsville, Ohio, and owned by the American Sewer Pipe Company, has been closed indefinitely. Operations at the East End plant of the same company at East Liverpool, Ohio, have resumed in full.

Thomas Anderson, of the Knowles China Company, Chester, W. Va., has been elected a member of the Western Standing Committee from the manufacturers' side. The duty of this committee is to arbitrate all differences which arise between the manufacturers and workmen by a conference with the standing committee representing the National Brotherhood of Operative Potters.

Girls employed by the Kenilworth Tile Company, at Newell, W. Va., struck because the firm reduced their wages to 90 cents a day. The girls wanted their old wage of \$1.10 restored.

At the regular meeting of the Trenton Potteries Company no action was taken upon the passage of the preferred dividend. Although conditions are rapidly improving, the directors deemed it wise to omit the dividend at this time.

O. MEGA.

STOP THE STOPS.

The battle cry of the Chicago Brick Machinery Company this year is, "Stop the Stops, or the Stops Will Stop You," and in addition to their up-to-date machinery outfits they have been giving special attention this year to the little leaks on the yard that absorb the profits. That they have succeeded in stopping some of these leaks is shown by such letters as the following:

CHICAGO, ILL., April 22, 1908.

Chicago Brick Machinery Co., Great Northern bldg., Chicago, Ill.:

Gentlemen—We enclose check for the two Chicago piano wire screens furnished last fall. We take pleasure in stating that the money paid you for these screens is a most profitable investment.

We had been subject to constant screen troubles, result in costly stops. Your screens have stopped the stops, and consequently the resultant loss of profit. These screens will pay for themselves many times over in the course of a season.

Very truly yours,

AMERICAN CLAY PRODUCTS COMPANY,

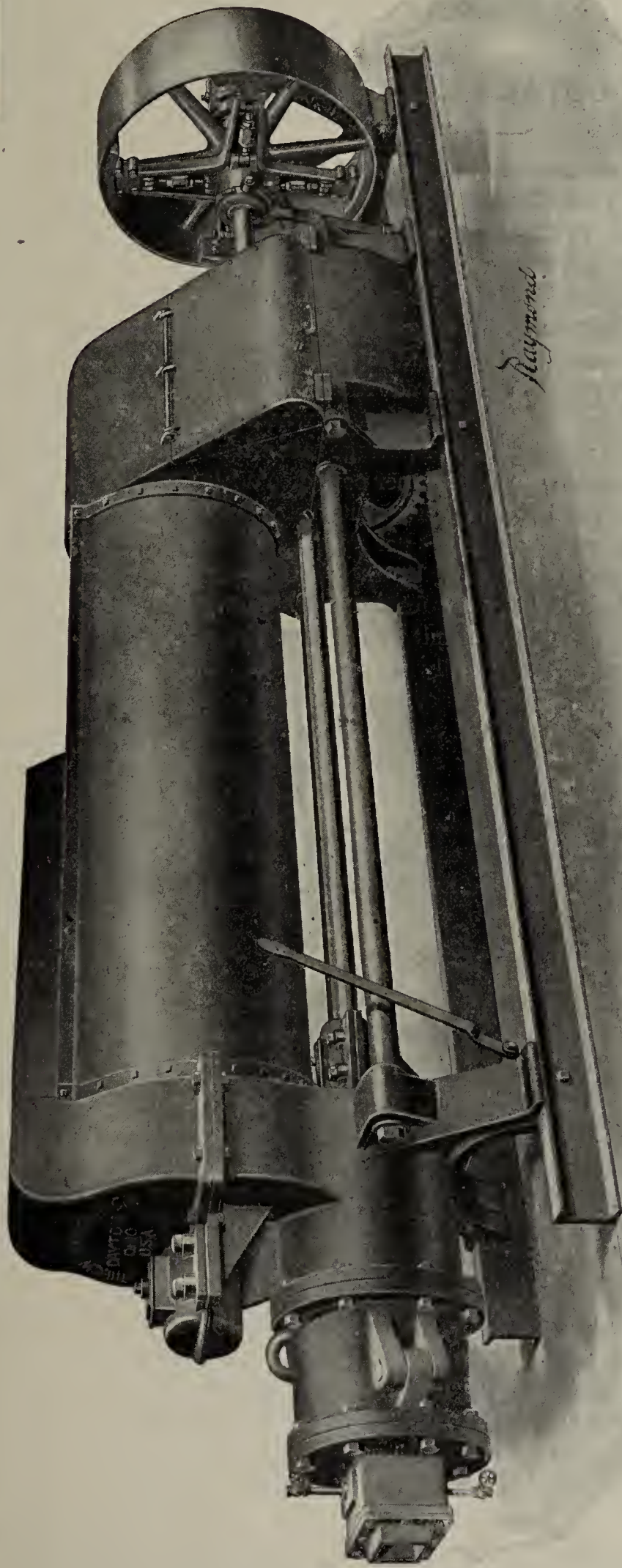
(Signed)

By Martin W. Lauer, President.

Under the caption of "Fashions in Face Brick," J. Parker B. Fiske, of New York, gives an epitome of the essential elements of successful brick architecture. Readers of THE CLAY-WORKER who are going to build homes for themselves, or who want to bring to the attention of prospective builders points that will prove helpful in the building of attractive homes, will do well to write to Messrs. Fiske & Co., Flatiron building, New York City, for a copy of this little brochure. The company also has agencies in Boston, Rochester and Schenectady.

SOMETHING NEW?

YES



The Raymond No. 2 Combination Brick Machine

Look at it. It has the earmarks of scientific build. Beauty, Strength, Capacity are featured in its graceful lines.

Its interior construction is particularly interesting. Interesting because new.

We explain all in our Exhibit 2089

THE C. W. RAYMOND COMPANY

The Largest Exclusive Builders of Clay-Working Machinery in the World

DAYTON, OHIO, U. S. A.

NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to *The Clay-Worker* who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With *The Clay-Worker*, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

*Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to *The Clay-Worker* to aid us in the matter by remitting promptly in advance, as the Government requires.*

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THE PORTSMOUTH

"LONG LIFE"

Pans, Screens, Presses, Dies, Wheelbarrows,
Sewer Castings, Paving Castings
and Municipal Castings of All Kinds.

STANDARD RATTLER FOR PAVING BRICK TESTS.

"SIMPSON BROS."

Brick Dies, Molds and Piano Wire Screens are Positively

THE VERY BEST

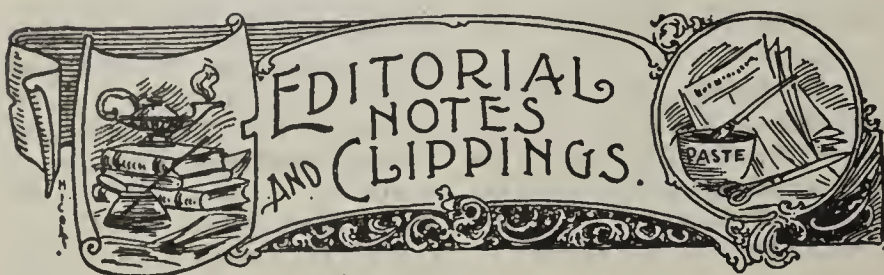
and therefore are the most economical.

THE PORTSMOUTH MACHINE & CASTING CO.,

LET US FIGURE WITH YOU.

PORTSMOUTH, OHIO.

Mention The Clay-Worker.



C. P. Slater and A. L. Eberhardt are interested in a small brick plant that is being started at Billings, Mont.

Mr. J. J. Hallock, of East Stroudsburg, Pa., has just installed on his yard an outfit of Martin stiff mud machinery.

The Middleport Brick Company, of Middleport, Ohio, has been incorporated for \$15,000 by Louis B. Denison and others.

G. D. Jones has purchased the tile plant at Kalona, Iowa, and is getting things in shape to manufacture tile the balance of the season.

The Crothersville Brick and Tile Company has been incorporated by J. G. Fitz, Louis Donahue and W. P. Rider to manufacture brick and tile at Crothersville, Ind.

Mr. Wm. F. Stimmel, Kutztown, Pa., has just completed his new plant, which includes the Martin improved patented rack pipe steam brick dryer system for handling over 30,000 brick daily.

The engine and drying room at Booth & Flinn's brick works at Pittsburg, Pa., were damaged by fire recently to the extent of \$4,000. Excessive heat in the drying room is said to have caused the blaze.

Fire at Potlatch, Idaho, the morning of May 23, destroyed the greater part of the plant of the Potlatch Brick Company, causing a loss of \$1,500. The plant is owned by Joseph Terteling and Ben Bland, and will be rebuilt.

The Independent Ice and Coal Company, Pittsburg, Pa., is installing a 140-inch ball-bearing fan, built by the Massachusetts Fan Company, Watertown, Mass., for use in connection with a new device for cooling the condensing water in its ice-making plant.

Messrs. Stevens Bros. & Co. and others have purchased a lot of land situated near the Georgia Railroad, and will at an early date commence the manufacture of brick, tiling, etc. The enterprise will be under the management of Mr. J. S. Bone, who has been connected with Stevens Bros. & Co.

The Pfothenhauer-Nesbit Company, New York, has been incorporated with \$100,000 capital stock to manufacture and deal in clay products, brick, etc. Incorporators are: S. C. Martin and E. C. Clark, of Pittsburg, Pa., P. Pfothenhauer and F. C. Manson, of New York, and W. H. Nesbit, of Montclair, N. J.

The Massachusetts Fan Company is also shipping the Paterson Clay Products Company, Clearfield, Pa., an eight-section heater, to be added to the fan and engine originally furnished for utilizing waste heat from the kilns. The heater will be used to bridge over times when there is no cooling kiln to draw from.

The brickyard of the Doukhobor Society, at Verigin, Saskatchewan, Canada, who equipped their plant with a complete Martin outfit of brick machinery about a year ago, are now installing a duplicate Martin outfit on their Benito (Manitoba) yard, including the Martin 1908 model brick machine, etc., etc., which was furnished by the Henry Martin Brick Machine Manufacturing Company, Lancaster, Pa.

The United Materials Company, placed the order for 80,000 cream face brick, which have been manufactured by the Stockton Fire and Enamel Brick Company, at Stockton, Cal., for the exterior walls of the new Luning building at the intersection of California and Drum streets. This eight-story class-A steel frame structure has its walls about half completed, and will be an ornament to the locality. For the exterior facing of the new Union League building, on the corner of Stockton and O'Farrell streets, 60,000 of the same company's cream brick are being supplied.

James M. Waugh has purchased the interest of I. G. Poston in the Poston Paving Brick Company's plant at Crawfordsville, Ind., and has assumed control as general manager. Mr. Poston has held the majority of the stock since the organization of the company, and the purchase of his stock gives Mr. Waugh the controlling interest of the company. The plant is now turning out paving brick at the rate of

5,000,000 a year. A number of improvements will be made at the plant.

Charles R. Morehouse, of Des Moines, Iowa, has purchased the plant of the Melbourne Brick and Tile Company, Melbourne, Iowa.

D. O. Loy will move his brick and tile machinery from Wataga, Ill., to Sheffield, Ill., where he has interested local capitalists and will build an up-to-date plant.

Unburned brick to the number of 80,000 were destroyed by water which flooded the Stipes west brickyard at Urbana, Ill. Fortunately for the company the east yard escaped any damage.

The wall of a continuous kiln that was being erected at the plant of the Golden Pressed and Fire Brick Company, Golden, Col., collapsed without any warning, seriously injuring two of the employees.

Mr. Thomas J. Johnson, superintendent of the Chesapeake Brick Company, Baltimore, Md., died suddenly at his late residence, Curtis Bay, May 10. Mr. Johnson had been ill for four months. He leaves a widow and four children.

David Davis, engineer of the Baldrige Brick and Tile Company, at Illiopolis, Ill., was instantly killed the night of May 30, by becoming entangled in the fly wheel. How the accident happened no one knows, as Mr. Davis was alone at the time of the accident.

After being idle for six months, the plant of the Marion Brick Company, Marion, Ind., has started up with a force of fifty men. The plant has been thoroughly overhauled and enlarged, and has enough orders on hand to keep it busy during the rest of the season.

Brandon Clarke's brickyard, one mile east of Vincennes, Ind., was destroyed by fire May 15. The loss is \$7,000. The plant was the oldest of the city and had been a land mark for fifty years. New machinery had just been installed and was making 50,000 brick daily. It was partly insured. The plant will be rebuilt.

Fire that started from one of the kilns did more than \$40,000 damage to the plant of the Standard Sewer Pipe Company, Rochester, N. Y. The flames were first seen in the roof of the building that covered all of the kilns. It spread so rapidly that there was no chance to check the blaze until the fire wall of the main building was reached. The plant will be rebuilt at once.

The Speeceville Brick Manufacturing Company, Speeceville, Pa., are in the midst of the construction of their new brick plant, which includes the Martin machines, etc., the Martin improved patented rack pipe steam brick dryer system for making and drying over 33,000 brick daily, the Henry Martin Brick Machine Manufacturing Company, Lancaster, Pa., installing the same.

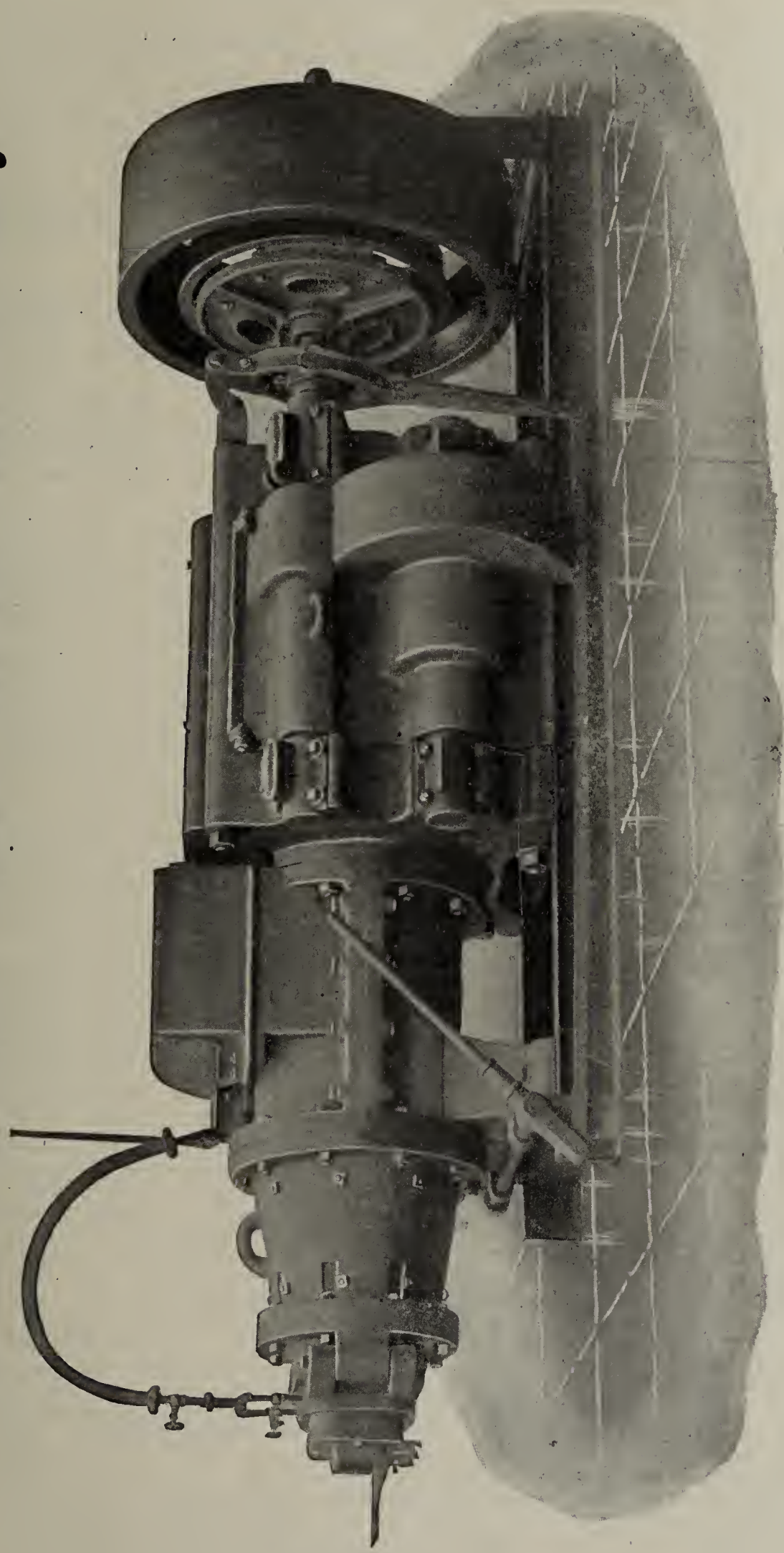
A reorganization of the Washburn (Wis.) Brick Company took place recently and new articles of incorporation were filed with the secretary of state and also with the register of deeds. The capital stock of the new company is \$20,000 and is divided into 1,000 shares. The signers of the articles are M. A. Sprague, L. N. Clausen and B. Ungrodt. The affairs of the old company will be taken over by the new and the plant in this city will be operated during the summer months.

Articles of incorporation were filed in Indianapolis recently by the American Clay Company, an organization which will establish a big clay manufacturing plant in West Terre Haute. The capital stock of the corporation is \$150,000. The following are the officers: S. C. Cowgill, president; John A. Dailey, secretary-treasurer and manager; L. R. Whitney, James Luther, Fred Oakley, S. M. Cowgill and Ivy Luther, directors. The plant will be built on the Harris land, immediately southwest of West Terre Haute.

The Tulsa Vitified Brick plant is enlarging their big plant at Tulsa, Okla., and will soon be turning out 75,000 brick a day, or at least the plant will have that capacity. It will then be the largest brick plant in the southwest. The new machinery was purchased from E. M. Freese & Co., Galion, Ohio. The company will in the future make a specialty of a good paving brick and with their capacity increased from 35,000 to 75,000 a day, they will be able to fill all orders they might receive. The quality of their clay has been tested by experts and found to be excellent for the manufacture of paving brick. Manager Howard says that the company had to increase the capacity of the plant

(Continued on page 838.)

Modern Stiff Mud Brick Machinery.



We've been building Brick Machinery a good many years and have naturally been brought into contact with a variety of clays and conditions and have been able to produce machinery more and more nearly adapted to the requirements of our customers. Our motto in this work has been "Prove all things and hold fast to that which is good." Consequently the features in our products which have not been found good have been discarded and improvements from time to time have been substituted.

Let us get acquainted with your troubles or your wants, and if we cannot do you good we will tell you so. We build Brick Machines in many sizes and patterns.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

(See ads on pages 874 and 875.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

in order to accommodate their customers in every city in Oklahoma and in many places in Texas and Arkansas.

J. F. Slater, formerly of the Grinnell Brick and Tile Company, Grinnell, Iowa, has now located in Gilman, Iowa, where he has purchased a brick and tile plant.

Richard Collins has purchased the brick plant of S. A. L. Warner, at Alpena, Mich., and is running same full time, with a good demand for all the brick he can turn out.

The Rocky River Brick Company has been incorporated by R. C. Huffman, R. E. Barnett, G. Stewart, J. Hoolieck and Paul S. Knight, all of Cleveland, Ohio, with \$40,000 capital stock.

Croninger & Meredith have taken up the manufacture of brick in connection with their tile business at Hartford City, Ind., and recently turned out a kiln of 30,000 brick that were first class in every respect.

Another big industry has been born in Des Moines, Iowa. The Globe Machinery and Supply Company has enlarged its plant to make brick cars and the Crescent Furnace and Foundry Company has increased its forces to cast the wheels that will be required by the Globe Company.

The plant of the Suburban Brick Company, at Bellaire, Ohio, was almost completely destroyed by fire which started in the engine room and spread so rapidly that it could not be controlled. C. H. Carpenter, general manager of the plant, advises that the works will be rebuilt without delay.

The plant of W. L. Clayton, at Greeley, Colo., was completely destroyed by fire the night of May 23, entailing a loss of \$30,000, which was partly covered by insurance. Owing to extremely wet weather the plant had been shut down for a few days, and there was no fire about the plant, so the fire is supposed to have been caused by tramps. Mr. Clayton is now maturing plans for rebuilding the plant.

Fire seriously damaged and for some time threatened to destroy the entire plant of the Red Star Brick Company, at Levant, near Jamestown, N. Y., recently. The entire engine room and boiler house were entirely destroyed and the rest of the plant considerably damaged. The loss amounts to three or four thousand dollars, with no insurance. The same company has plants near Warren and Corry.

The plant of the West Bay City Brick Company, at West Bay City, Mich., has been purchased by McClatchey & Jacobs, and thoroughly overhauled and equipped with new machinery, and now has a capacity of over 30,000 brick per day. The new firm starts out with orders on hand for over 2,000,000 brick. The company has eleven acres of excellent clay for brickmaking, and will keep the plant in steady operation during the summer at least.

Alleging that 15,000 brick fell on him April 6, 1907, while engaged in performing his duties in the interior of a kiln, Henry Martin is suing the Phoenix Brick and Construction Company, St. Joseph, Mo., for damages in the sum of \$5,000. Martin claims that the brick had been piled carelessly by another employe, and that he received severe injuries to his left side when they fell. The company asserts that Martin himself piled the brick that crushed him.

The Maumee Brick and Tile Company, Maumee, Ind., of which Mr. George Jaap is president, J. E. K. France, secretary, and Gottlieb Haller, treasurer, has decided to place an entirely new outfit of machinery in the old plant, which will increase the output of the company to 50,000 brick a day. The machinery will cost about \$10,000. The Nickel Plate railroad is building a switch into the company's plant on the New Haven road, and this will allow of quick shipments. Heretofore this has been a great handicap to the company, but with the new switch all difficulty in this line will be obliterated.

While last month, the projected building reported was largely from Minneapolis, St. Paul seems to have taken the lead this month on new work of large size proposed and there are several large buildings under consideration for that city. Of necessity, much of this will not reach the active working stage this season, the best that can be hoped for most of it being that the contracts can be let and possibly the foundations laid before winter. It insures, however, a good start for 1909. The most imposing work that is on the program is a new hotel building to occupy the site of the old Windsor House, the foundation of which will be put in this fall. Reed & Stem are at present working on plans for the building,

which will be eleven stories high, of brick, stone and terra cotta, fire-proof throughout. The estimated cost is \$750,000.

The plant of the Texas Pressed Brick Company at Wortham, Texas, has been sold by J. Wattinger to C. A. Lanius, of Abilene. The price paid was about \$25,000.

Lewis Desjardin has made a number of improvements at his brickmaking plant at Lisbon, Me., which will materially increase the capacity, and expects to run the plant full time right through the season.

The Dunkirk Brick and Supply Company has been incorporated at Dunkirk, N. Y., with \$25,000 capital. Those interested are: William L. Markham, Buffalo; Charles E. Whelpton and S. Morland Hamilton, Dunkirk, N. Y.

The Terry & Holmes Co., of Kingston, N. Y., makers of brick and building material, was incorporated recently with the secretary of state with a capital of \$5,000. The directors are: David Terry and Jay Terry, of Kingston, and F. L. Holmes, of New York.

Mrs. A. S. Speece, wife of A. S. Speece, president of the Speeceville Brick Manufacturing Company, died at her home in Speeceville, Pa., June 5, aged sixty years, from paralysis. Mrs. Speece is survived by her husband, seven sons and six daughters.

The Brookdale Brick and Tile Company, of Brookdale, Manitoba, Canada, has been granted articles of incorporation. The incorporators are: R. D. and Wm. E. Hales, Henry C. Smith, R. Dodds and C. H. Cameron, and they certify to \$40,000 capital stock.

The Martin improved and modern Style P disintegrator has been placed in operation on the plant of Messrs. Bross & Shearer, Shippensburg, Pa., who have also just installed a Martin improved pug mill, sander, etc., installed by the Henry Martin Brick Machine Manufacturing Company, Lancaster, Pa.

The Coffeyville Vitrified Brick Company has started its new plant at Coffeyville, Kans., with about 100 men on the pay roll. This is the plant that has been built on the site of the old plant, destroyed by fire some sixty days ago, and is absolutely fireproof. As a consequence, the company states it will carry no more fire insurance. The plant is one of the best in that section of Kansas.

The Minnesota Paving Brick Company, of Minneapolis, Minn., has filed articles of incorporation with a capital stock of \$150,000. The incorporators are: S. J. Hewson, Peter J. Mayer and C. J. Rockwood. The new company has bought the brick plant at Coon Creek and propose to start work on improvements and enlargements to the plant, to include dry kilns and equipment, new machinery, etc.

The steam shovel at the plant of the Western Brick Company, Danville, Ill., was badly wrecked recently by a slide in the bank through which the shovel had been plowing to furnish shale for the factory. The bank was about 50 feet high and the shovel was almost completely covered by the slide. Fortunately the men had just quit work, so there was no one in the cut at the time, or fatalities would have resulted. The shovel was badly damaged.

The fine new plant of the Clymer Brick and Fire Clay Company, Clymer, Pa., is fast nearing completion, and the company expects to have brick on the market within the next thirty days. The plant is equipped throughout with modern machinery, and has a daily capacity of 70,000 brick a day. The officers of the company are: John S. Fisher, president; Henry Hall, vice-president; G. W. Lenkerd, secretary; R. M. Wilson, treasurer.

Ross Wynn and J. H. France, of Phillipsburg, Pa., owners of the fire brick factory of W. H. Wynn & Co., at West Decatur, Pa., have purchased outright the property of the Sandy Ridge Fire Brick Company, Sandy Ridge, Pa., including the brick plant, thirty-four houses and the company's store and 375 acres of land, most of which contains valuable deposits of clay. Both gentlemen are practical fire brick men and expect to make a great success of the Sandy Ridge plant, which has been in successful operation for years, and is recognized as one of the best in that section. It has a present capacity of about 40,000 brick per day, but the new owners will make improvements that will increase same by about 15,000. The business will be largely under the supervision of Mr. France, Mr. Wynn giving most of his attention to the West Decatur plant. The plant will be operated under the old corporate name of the Sandy Ridge Fire Brick Company.

Bits of Sunshine From Some Users of the Chambers Brickmaking Machines

W. H. Brecht, President C. W. Mennig, Vice-President
E. A. Brecht, Secretary

THE FLINT BRICK AND COAL CO.

MANUFACTURERS OF

PAVING, SIDEWALK, BUILDING AND
SEWER BRICK

Works: Flint Valley
Office, 518 Equitable Building

Telephones:
Iowa Long Distance 768
Mutual 768

Des Moines, Iowa, May 16, 1908.

Chambers Bros. Company,

Philadelphia, Pa.:

Gentlemen—

Enclosed herewith we hand you New York
Exchange No. 23007, which is, according to our
records and contract with you, in full settlement
of our account.

We have had the machine and automatic
indenting cutter in operation now for thirty
days. The outfit is all that you claim for it and
meets with our expectations in every respect.
The only regret we have is that we did not in-
stall your machinery long ago.

Wishing you continued success, we beg to
remain,

Very truly yours,

THE FLINT BRICK & COAL CO.,

(Signed) By W. H. Brecht, Pres.

J. M. Maring, President W. A. Gorby, Vice-President
W. C. Rankin, Sec.-Treas.
F. W. Butterworth, General Manager

WESTERN BRICK COMPANY.

PAVING, RED AND BROWN BUILDING BRICK

Capacity: 75,000,000 Annually

Danville, Ill., April 6, 1908.

J. H. Chambers, Genl. Mgr.

Chambers Bros. Co.,

52nd and Lancaster Ave., Phila., Pa.:

Dear Sir—

We are in receipt of yours of the 4th and it
is certainly a pleasure to put in such a machine
as your new cutter. The writer, as perhaps you
know, has always been rather a crank on the
subject of a safety factor on machinery around
the Brick Plant, and this new cutter is certainly
satisfying to us in that respect.

We are cutting from two hundred seventy-
five to three hundred brick per minute, and doing
it so easily that it scarcely seems doing anything.
We expect to increase the capacity of this ma-
chine just as soon as weather conditions are right,
to one hundred forty thousand brick daily, and
we expect to get them out in between eight and
nine hours, and still do not feel that this cutter
is anything like up to its capacity.

We are very glad indeed to say that it is
satisfactory so far, in every respect.

Yours very truly,

WESTERN BRICK COMPANY,

(Signed) F. W. Butterworth.

Chambers Brothers Company

Auger Brick Machinery

PHILADELPHIA, PA.

CHICAGO, ILL.

Written for THE CLAY-WORKER.

WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS.



HERE HAS BEEN a general resumption of business in practically all lines throughout this part of the state, and with the increased volume of business in iron and steel manufacture, there has been also an increasing demand for refractory brick of all kinds. There has been a large amount of repair work going on for several months at the blast furnaces and iron and steel mills of this district, and as the greater portion of these plants have been either partially or entirely closed down, there has been a fine opportunity to put everything in the best of shape. Now, however, there are a large number of these plants resuming, and in consequence the portions of the plants that have been running steadily are being closed down for repairs, so they will be in as good shape as possible for the busy run in this line of business this summer and fall.

Building has also taken quite a spurt, an increase of about 25 per cent. having been reported for May over the figures for April. This has resulted in the common red and pressed brick manufacturers enjoying a far more prosperous month, and it is expected in the best informed circles that the increase will now be steady for the remainder of the year. There is a large amount of buildings of the better class in prospect, but builders have been scared for the past six months, and in hundreds of cases have called their projects off until better conditions rule.

Paving brick manufacturers report that they are already enjoying a very prosperous spring, and that the prospects are that the business will increase heavily during the next month or two. In anticipation of a dull season stocks had been allowed to run lower than for years, and as a result when the orders for pavers were placed they seemed to come in groups, and these stocks were badly depleted within a five weeks, and, in some cases, the stocks were cleaned out entirely. Now, however, the majority of the paving brick plants are in operation and usually running to capacity. Street paving is particularly active in the smaller towns in this immediate district, and in spite of the financial stress under which the entire Pittsburgh district has been laboring, there seems to be little or no trouble in disposing of bonds for street and other municipal improvements.

The manufacturers of terra cotta sewer pipe report practically the same conditions as the manufacturers of vitrified brick, as given above. There is an immense amount of this class of work being done this year, and sewer pipe plants in some cases are being pushed to capacity to keep up with the current business, and have shipped out all standard stock.

C. P. Mayer, president of the C. P. Mayer Brick Company, of Bridgeville, Pa., has returned after a business trip throughout the northern parts of Ohio and Illinois. He succeeded in booking several large orders that will keep his plant busy for several months to come.

The Harbison-Walker Refractories Company, Farmers' National Bank building, Pittsburgh, has received the order for about 90,000 high grade white-faced building brick that will be used in the construction of the new \$100,000 business block that is to be built at once at the corner of Ninth street and Liberty avenue, Pittsburgh, for the John A. Renshaw estate. The structure will cost about \$100,000, and will be one of the finest absolutely fireproof buildings in that part of the city.

The Gratztown Brick Works, Gratztown, Pa., are running full on several large orders, including one for fifty carloads of brick for coke ovens that are being built in the vicinity of Gratztown and West Newton, Pa. This company has an excellent grade of clay for coke oven linings, and is steadily increasing its business in this grade.

The National Fireproofing Company, Pittsburgh, has received several large orders for fireproofing and underground conduit system materials recently, one of the largest and most important of which is for export shipment. This contract is for about 200 miles of conduit, and will be shipped during the next few months to Belgium. Another large con-

tract that this concern has been awarded calls for the entire conduit system for the immense new terminals that are being built in New York City for the Pennsylvania Railroad Company. The company's plants are all running on good time, and several of them to capacity.

The Kittanning Brick Company, Kittanning, Pa., has received the order for the brick that will be used in the construction of the new high school that will be built this summer at Mt. Pleasant. About 50,000 brick will be required for the outer facing of the building, all of which will be of a light gray color.

Owing to a number of telephone and mail inquiries for the Pittsburgh staff representative of THE CLAY-WORKER having gone astray recently, we beg to advise that the office of George D. Steele, our representative, is located in rooms 1410-1412 Commonwealth building, Fourth avenue, Pittsburgh. Bell telephone, 3960 Court. Mr. Steele will be glad at all times to have all interested in the brick and clayworking industries call on him when in the city, and will at all times welcome items of interest.

After thoroughly investigating the merits of brick street paving as compared with all other kinds of paving, the borough council of Indiana, Pa., has decided to pave all streets in the future with the vitrified pavers that have become so popular in western Pennsylvania. Accordingly, the contracts for paving Philadelphia, Sixth, Seventh, Eighth, Ninth, Tenth and Eleventh streets with vitrified brick have been awarded to McCreedy Bros., of Morgantown, W. Va.

At the recent meeting of the stockholders of the Courtney Fire Brick Company, of Courtney, Pa., the following board of directors was elected for the coming year: W. C. McCallister, Joseph Lytle, James P. Moore, W. G. McCracken, James R. McGregor, R. O. Keeney and K. C. Scott. All of the old officers were re-elected. The annual report shows that the company is in a flourishing condition, with sufficient business booked ahead to insure the steady operation of the entire plant for some months to come. No material improvements will be made this year, although some needed repairs have been authorized.

Through the falling of the roof of the clay bank of the Westmoreland Brick Company, at Hunker, near Greensburg, Pa., two men were killed. The men had undermined a large space in order to get at the best clay in the bank, when, without warning the roof fell in, crushing the men. None of the other men were injured, however.

The plant of the Clinton Clay Company, Lock Haven, Pa., is one of the busiest of the many clayworking plants in Clinton County, and there is every evidence that this condition will continue for the remainder of the summer and fall at least. Owing to the dull trade, the concern had a large stock of its product on hand in the sheds and storage yards, but this has been entirely cleaned up, and all shipments are now being made from the kilns. The orders on hand are sufficient to keep the plant in full operation for the next three or four months at least. Several cars of sewer pipe are being shipped daily to different parts of the state.

The Dunbar Brick Company, of Dunbar, Pa., is holding up the double tracking of the Baltimore Railroad on the section between Connellsville and Mt. Braddock. The railroad company wants a portion of the land that is owned by the Dunbar Brick Company, and this the brick company refuses to give up, claiming that to do so will cripple the plant by diminishing the yard room and preventing the expansion of the plant in the future. This is the case, as to give up this ground will seriously cripple the plant, it being

**CLEARFIELD BRICK MANUFACTURING CO.,
CLEARFIELD, PA.**

Works at Krebs, Clearfield Co., Pa.

FIRE CLAY PAVING BRICK.

located just along the line of the railroad. The railroad company declares that condemnation proceedings will be resorted to.

The Keystone Clay Products Company, Greensburg, Pa., has received the award of the contract for the wire-cut brick that will be used in the construction of the new power house and heating plant that will be erected at the Westmoreland County Home, at Greensburg.

While the plant of the Queen's Run Fire Brick Company was closed down during the latter part of April and May extensive repairs and improvements were made, which have made this plant one of the most up-to-date plants for the manufacture of refractory materials in the Clinton County district. Repairs and new equipment were made and added in the brickmaking and molding departments, and the capacity has been increased several thousand pieces per day. The plant will be started in full before the end of this month, as the company has received a number of good orders that will insure its steady operation for some months to come.

The plants, interests and holdings of the Reese-Hammond Fire Brick Company, of Pittsburg, Pa., were sold last month at public sale to satisfy a mortgage, to M. R. Murphy, representing the First National Bank of Pittsburg. The price paid by Mr. Murphy was \$129,250. The property sold includes all of the employes' and other houses and buildings, lands, mines, plants Nos. 1, 2 and 4, machinery and equipment, live stock, raw and finished materials on hand, etc., located at Bolivar, and in West Wheatfield Township, Indiana County, Pa. Several years ago, as was reported in THE CLAY-WORKER at the time, the affairs of the Reese-Hammond Company became badly entangled, and the Westmoreland Savings and Trust Company, of Greensburg, Pa., was appointed receiver. In a short time, by careful and conservative management, the receivers were able to place the concern on a sound basis again, and the receivers turned the plant and properties over to the company. Poor management again resulted, however, and it was but a short time until the concern again became financially embarrassed and involved, with the above result. The plant will not be operated for the present, at least, although arrangements may be made whereby the entire plant may be started up in full during the coming fall. The plant is one of the largest and best equipped for the manufacture of fire brick and refractory shapes in the country.

Excellent progress is being made in the construction of the fine new plant near Lock Haven, Pa., for the Watson-town Brick and Tile Company. The main buildings are about completed, and the equipment will be installed by the latter part of this month. Five of the proposed twelve kilns will also be completed by the first of July, and the others will be built as soon as the brick can be burned. The new plant when completed and in full operation will have a daily capacity of 100,000 nine-inch equivalent, as well as a large capacity for tile and other special shapes.

Lawrence P. Palmer, superintendent of the plant of the Dunbar Brick Company, of Dunbar, Pa., was married last month to Miss Maude Allen Hoggsett, of Uniontown, Pa.

A. SMOKER.

THE "NEW SOUTH" BRICK MACHINERY IN DEMAND.

J. C. Steele & Sons, Statesville, N. C., write that they are doing a very satisfactory business in spite of the general depression. They have recently made shipments of brick machinery as follows: Automatic side cutting table to Williamsport, Md.; a No. 3 outfit of machinery to Lawrenceville, Va.; a No. 4 outfit of machinery to Smithfield, N. C.; a No. 3 outfit of machinery to Elizabethton, Tenn.; a No. 3 outfit to Newberry, S. C.; automatic side cutting table to Greensboro, N. C., also a No. 3 outfit to Washington, Ga., together with a good many smaller outfits. Brickmakers generally are beginning to see the wisdom in preparing for a large future business.

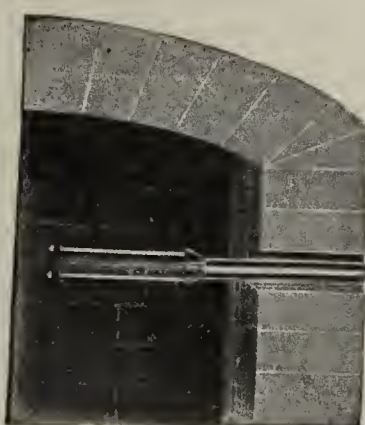
Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

Pittsburgh Kiln Construction Co.,
1251 Morse St., N. E., Washington, D. C.

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

EDWARD
BROWN
& SON,
311
Walnut St.,
Philadelphia,
Pa.

Pulsometer Steam Pump



DRAINING CLAY PITS.

For this rough-service you need a pump that is simplicity itself—one that will handle any kind of dirty, muddy, gritty liquids without suffering the least injury, in short a

PULSOMETER STEAM PUMP.

No engine, belt, oil, packing or special foundation required; just a steam pipe from boiler—that's all.

Operates as well suspended as stationary.

Simple to Install.

Simple to Operate.

Illustrated, descriptive catalogue gratis.

PULSOMETER STEAM PUMP CO.,

14 Battery Place, New York.

Chicago Agency, 61-69 No. Jefferson St.

Written for THE CLAY-WORKER.

BUFFALO BRICK AND BUILDING NEWS.



HE BRICK and tile trade in this section, while quiet, is in a very healthy condition and the men in the trade take a very hopeful view of the future. The fact that the brick manufacturers did not raise their schedule of prices at the time other forms of building material advanced has proved a factor in the even tenor of the market. But little cutting has been done, the old figures being generally maintained. While there is little large work in hand the various plants are busy with small orders and some are stocking up in anticipation of the rush which they confidently expect will soon come.

Mr. L. D. Walrath, manager of the Queen City Brick Company, takes a very hopeful view of the situation. "While we are kept busy right along there has been no rush of orders. The yards have had a chance to work off all of their old stock and they are now sending out brick of this year's make, while at the same time stocking up for the rush which we feel will come on very shortly. We have plenty of small orders on hand to keep the plants busy, and at the same time give us a surplus for stocking purposes. One of the large contracts we have just finished is an order for about one hundred thousand for the new residence being built on Delaware avenue for O. E. Foster. We have another order for two hundred and fifty thousand for the new factory building of the Foster-Milburn Company, on Dewitt street, and one for the new Jackson residence at Delaware avenue and Bryant street which will require three hundred thousand. From what I hear around the city I look for a lively trade next spring, the inquiries being such as to promise one of the liveliest seasons we have had in many years."

Mr. W. H. Boughton, of the Manufacturers' Agency, whose offices are in the Mutual Life Building, has a very hopeful view of the situation. "While business is not rushing by any means," said he, "there is sufficient ground for the belief that we have seen the worst. While there has been no splurge, all of the makers have been kept busy with small orders and have been enabled to clear up their yards to a considerable extent. I have visited nearly all of the prominent architects of the city within the past few days and they feel highly pleased over the outlook. Many of the new buildings which were projected a year ago and were delayed, owing to the financial depression, have begun to take form and are now being pushed to completion. People are beginning to wake up to the fact that now is the time to have the work done as material and labor is in fair supply at fair prices. One of the most interesting facts about recent construction in Buffalo is the growing use of terra cotta for ornamentation and for roofing purposes. In the use of expensive bricks the people of Buffalo are waking up, and in a number of instances these high quality brick are specified. We have just closed a contract for one house where one of our new styles of finished brick is to be used. We have had a very profitable year so far and it compares very favorably with our business of last year. In fact the business so far this month is greater than it was up to the same time last year."

John H. Black, of the Builders' Exchange, who handles fancy pressed brick and terra cotta, says that while business has been quiet in his line, the inquiries warrant him in expecting a great improvement very shortly. "It is too early to speak of several large contracts which will soon be let," said he, "but from what I hear among the architects, there will be a great revival in the building line very shortly. We have about struck the bottom and everything points to improvement from now on."

Mr. A. H. Stowell, secretary of the Lyth Tile Company, which has offices in Ellicott Square and a large factory at Angola, Erie County, N. Y., reports that the concern is working full time with a full force. Among the recent orders filled was one for 145 carloads of United States sewer pipe

for the city of Guelph, Ont. "While we have been fairly busy on orders," said Mr. Stowell, "we look for a betterment of conditions in the very near future. We have no regrets over the slack market as we have been kept satisfactorily busy. In fact, for the greater part of the spring season, the factory has been behind on its orders. I look for a further improvement in the near future."

Mr. Clifford S. A. Coe, secretary and treasurer of the Lancaster Brick and Tile Company, is well satisfied with the business done by that concern so far this year. "We have had enough to do keeping up with our orders," said he, "and now that we have caught up, we are keeping the plant working full time preparing stock for the rush which we confidently expect will come before the close of the season. In our tile department we have been unusually busy and are proud of the business we have done."

Mr. N. A. Finch, secretary and treasurer of the Jewettville Pressed and Paving Brick Company, whose offices are in the Builders' Exchange, reports business as fair with good prospects for the immediate future. While the concern has been busy it has had no large orders of late, the smaller orders keeping the company's plant running full time.

KNICKERBOCKER, JR.

Written for THE CLAY-WORKER.

MODERN SKY SCRAPERS SAFE.

The Tribune Building, Chicago, Tested by Fire.

THE FIREPROOF qualities of the Tribune Building were demonstrated effectively early on the morning of April 29, during a blaze which originated from some unknown cause in one of the storage rooms on the eighteenth floor.

The rooms situated on the top floor of the structure, on the Dearborn Street side, were filled with records and other inflammable material. This burned rapidly, but the flames were confined to the three small apartments where they started.

It was the highest fire from the street level since the days of skyscrapers in Chicago. The flames were extinguished by water, forced through the standpipe of the building to the top floor by fire engines, and the pressure proved ample.

The fire was just under the roof and the heat of the flames is indicated by the fact that the wire reinforced glass in the skylight melted in places, and in others became so soft that it dropped down in fantastic shapes. Also a ten foot steam pipe which ran through the room in which the fire originated, although covered with asbestos was totally destroyed.

In the section swept by the flames was a room used by the electrician and the carpenter of the Tribune Company, and two rooms used for the records of the auditing department of the newspaper, containing data for a number of years back. Many of these records were destroyed.

These three small rooms had glass windows set in their partitions of fire brick. This glass was destroyed by the heat and permitted the flames to spread. Had there been no glass in the fireproof partitions the flames would have been confined to one room, according to the firemen.

The partition walls were left intact and the floors were uninjured. The flames did not spread outside the outer partition wall separating the storage rooms from the corridor. The building was fireproof with terra cotta hollow tile.—Chicago Tribune.

Between seventy-five and 100 operatives will be given employment by the new brick plant of the Union Brick and Tile Factory at Santa Monica, Cal. The company is composed of Los Angeles people. Joseph Bech is president of the company. T. J. Griffin is vice-president and general manager, and H. B. Stafford is secretary. It is expected that the company will be turning out vitrified brick within sixty days.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.

NOT MUCH CAN be said about the brick business of New England, though it is generally conceded that the trade is in better position than was expected when the situation in nearly all other enterprises was considered. Boston reports little or no business, and what there is done, at a relatively low range of prices. The market has not been active for some months. It is not active now, but there is something doing all the time and most dealers are courageous and anticipate better business in the near future. In some localities construction is at low ebb. In others the market is affected seriously by conditions which can not be offset or changed. It will be necessary, therefore, to abide by conditions as they are found, accepting such opportunities as may arise. It is understood that buyers can secure brick for about their own figures. In fact, they have bought them in most cases for their own prices and they are still able to do so.

In Massachusetts many yards have not yet started. It is understood that some will never start. Others will open, but perhaps not for the present. The situation doesn't warrant any material changes in the policy outlined last month, and it must be admitted that the outlook doesn't warrant any considerable developments outside of the regulation consumption, which at present is not especially active.

If Boston has little business it seriously affects the entire state and sales are more or less influenced thereby. In fact, Boston affects more than Massachusetts alone. It is responsible for much of the activity or dullness of some of the rest of New England, notably New Hampshire and the southeastern part of Vermont. If, then, Boston has little to offer in the way of encouraging reports, little can be expected of the remainder of the New England States which are dependent upon it for their market.

Vermont makers are not undertaking any important developments in their respective yards. They prefer to act

conservatively and perhaps miss a few sales rather than to have many thousands, or possibly millions, of brick on hand with no sale. It is a difficult proposition to determine with accuracy when conditions are thus unfavorable and the outlook for development or resumption of business uncertain. In some parts of the state business conditions have improved, but the market has not felt the influence materially as yet.

HIRAM.

A LONG-FELT WANT FOR BRICKMAKERS.

The brick counting device now offered the trade by John Starkey, of Minerva, Ohio, as per ad on page 844, will fill a long-felt want. For years past there has been need of a device of this sort, by means of which manufacturers could keep an accurate and reliable record of the number of brick handled by wheelers or truck men. By methods now generally in vogue, the actual quantity of brick handled or shipped is largely a matter of guess work. Even where special tally men are employed for the purpose of keeping count little dependence is to be put in them. An instance is cited by Mr. Starkey that illustrates this point well. When the first Starkey counter was placed on a yard this season, the wheelers were all Americans and experienced brickyard workmen, who insisted that they could and did tally correctly, and that on that account the machine was not needed on that plant, but that it might be a very good thing on plants employing foreigners and inexperienced help. A trial was made, the men keeping their own tally as usual, and the machine showed when the first car was filled that there were twenty-two wheelbarrow loads (eighty brick to the load) more brick in the car than was indicated on the tally boards kept by the men. Thus there was a saving to the manufacturer of 1,760 brick on the one carload. It is needless to say that after that the tally boards were discarded, and it was found that a great deal of time was saved, which previously had been wasted by the men comparing boards, stopping to tally, adding totals, etc. The device is simple in construction, accurate in operation and is guaranteed to record correctly every load that passes over it. Full particulars may be had free on application to Mr. Starkey.

FOR SALE, WANTED, ETC.

FOR SALE—Several thousand steel flanged pallets, 34x10 inches. In good condition. Can be purchased at a bargain. Address
THE CLEVELAND CAR CO.,
West Park, Ohio.

FOR SALE—Twenty thousand pallets, with racks for same, four trucks, three clay carts, shafting and belting. Address
J. H. MCGREGOR BRICK CO.,
Bloomington, Ill.

FOR SALE—Brick plant with modern machinery in perfect condition (only used six months.) Daily capacity, 30,000. Freese cutting table; Raymond machines. Apply
BRICK,
Care Clay-Worker.

FOR SALE—Three-mold Boyd dry press, with a lot of ornamental and shape dies. One 36-inch Steadman pulverizer. Four-mold Simpson dry press with extra mold box cheap. Address
THE B-K BRICK CO.,
Denver, Col.

WANTED—Position as foreman. Am an experienced, practical and theoretical brick and tilemaker; familiar with all kinds of machinery and repairs. An expert burner. Can give good references. Address
OTTO,
Care Clayworker.

FOR SALE.

Owing to the death of one of the firm, one-half, or, if desired, entire interest in a brickyard property located in New Jersey, the present capacity of which is ten million per annum.

It consists of ninety acres of ground, with an abundance of clay and sand for the manufacture of common brick, machinery, sheds and buildings in first class order and ready to start at once.

Best of railroad shipping facilities and good freight rates to many of the large cities. For further particulars and terms, Address
BOX 153,
Matawan, N. J.

FOR SALE—Brick and tile plant in the best part of Iowa. Plenty of clay, best quality. Good reason for selling. Price, \$9,000. Address
H. L. SWIFT,
Riverside, Iowa.

FOR SALE.

One 30 h. p. boiler and 25 h. p. engine; makers, Leffel Water Wheel Co.; one extra heavy Quaker brick machine, belts, shaftings and conveyors for same; one Quaker sander; one Quaker or Wellington 5 leaf dump table; three Wellington mule trucks used 5 days; three Raymond single deck, ten pallet trucks, nine brick trucks; 20,000 five-eighths, three board top and three cleat white pine pallets; 15,000 33½-inch by 10-inch, 5,000 32½ by 10-inch pallets, made by Mershon, Schuette, Parker & Co., Saginaw, Mich., and racks for same, consisting of white pine posts and cleats. These racks are double posts. Rooves and dashes for same and enough grate bars and kiln doors for 36 arches. The plant has been used five years and is in A No. 1 condition. Anyone buying this plant living within a radius of 400 miles will be paid his fare both ways. Address
A. GRUBE & SON,
Springfield, Ohio.

FOR SALE—ENGINES AND BOILERS.

—Engines—

Corliss and Automatic—20x42 Allis, 18x42 Hamilton, 18x36 Wright, 16x32 Buckeye, 14x24 Atlas; also 12x30, 10x30, 13x16, 13½x15, 12x18, 12x14, 12½x12, 10x10, etc., etc.
Throttling—18x26 H., S. & G., 18x24 Erie City, 16x20 Chandler & Taylor, 14x24 Atlas, 14x14 Vertical, 12x18, 11x16, 10x16, 10x12, 10x10 Vertical, 9x12, 8x16, 8x12, etc., etc.

—Boilers—

Horizontal Tubular—84x18, 78x16, 72x18, 72x16, 66x16, 60x16, 60x14, 54x16, 54x15, 48x14, etc., etc.
Fire Box—60, 50, 40, 35, 30, 25, 20, 16, 14, 12 and 10 horse power, etc., etc.
Vertical—55, 35, 30, 20, and 15 horse power, etc., etc. Pumps, heaters, tanks, saw mill and general machinery.
THE RANDLE MACHINERY CO.,
1735 Powers st.,
Cincinnati, Ohio.

FOR SALE.

In order to double our capacity we have replaced the following list of machinery, which we have for sale, all in good condition:

1 Freese combined machine—40,000 capacity.
1 automatic cutter—60,000 capacity.
1 platen cutting 27-16.
1 platen cutting three brick 27-16 and eight blocks 3¾.
1 platen cutting 3¾ for five blocks.
1 platen cutting 2¾.
1 platen cutting 2½.
2 sets of nozzle casing.
6 hubs for pug mill.
8 pug mill knives.
6 propeller blades, slightly worn.
2 dies 43-16 x 8 13-16.
1 die 45-16 x 9.
1 die 55-16 x 8 13-16.
1 iron pulley 64-inch diameter, 8-inch face, 3½-inch bore.
1 wood split pulley 60-inch by 10-inch face, 3½-inch bore.
1 wood pulley, iron hub, 66-inch by 16-inch by 3½-inch.
The above will be sold at reasonable price.
THE UNITED BRICK CO.,
Greensburg, Pa.

Continued on page 844.

DO YOU NEED MODELS or MOULDS?

We can furnish you with them for any line of clay products, ornamental or plain. Plaster-blocks and cases made to order. First class work guaranteed.

IRONTON CLAY SPECIALTY CO.,
Ironton, Ohio.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE—One 9-foot iron frame Phillips & McLaren Co., dry pan, almost new. Address **PHILLIPS & McLAREN CO.**, 6 1 L Pittsburgh, Pa.

WANTED—Freese intermediate machine. State condition and how long in use and lowest price. Address **BOX 85**, 6 1 c Station A, Pittsburgh, Pa.

FOR SALE—Forty thousand wood pallets, 34-inch by 10-inch. Address **THE HENRY MARTIN BRICK MACHINE MANUFACTURING COMPANY**, 6 1 L Lancaster, Pa.

FOR SALE—Or will exchange for soft mud brick machine, one intermediate Wonder machine. State how long machine has been in use and condition. Address **W. LEONARD**, 6 1 cm Delton, Mich.

FOR SALE—Clay machinery. One auger machine, medium size, also one clay screen. Both in good condition. Will sell cheap. Write **MOUND CITY ROOFING TILE CO.**, 6 1 d St. Louis, Mo.

WANTED—A man to take charge of machine department of a stiff mud yard. Must be a good machinist and know how to make face brick. Address **"GOOD MAN,"** 6 1 c Care Clayworker.

FOR SALE.
I have fifty acres of fine clay suitable for the manufacture of red face brick. The property is located within thirty miles of New York, near tidewater. Write for full particulars and price. Address **C. A. B.**, 6 tf d Care Clayworker.

FOR SALE—Complete set of Cleveland roller bearing cars, (about 275) for a Sharer twelve-track tunnel dryer, equipped as flat, double deck, or rack cars. Also a lot of wooden racks. A bargain. Address **RICHMOND BRICK COMPANY**, 6 1 d 34 Hubert st., New York City.

FOR SALE—Complete modern brick and tile plant; 30,000 daily capacity, make vitrified brick from shale beds, owned. No others in hundred miles. Ship to 30 towns; three clamp kilns, capacity, 750,000; one down-draft kiln, Stewart patent. Steam dry kiln; 50 steel cars; complete equipments in running order; plant now running at full capacity. Come and see it. Address **W. H. CAPPS**, 6 1 dm Villisca, Iowa.

FOR SALE.
A first class stiff mud brick plant at Lawrenceville, Va., on Southern Railway, half way between Norfolk, Va., and Danville, Va. Steele's machinery. 100 h. p. boilers and engine. Up-draft kilns, with grates for burning coal. Capacity 25,000 per day. Eighteen acres of clay land. National Dry Kiln erected spring of 1907, with transfer system and full complement of cars. All in good condition and in shape for ready operation. Full particulars on application to **WALTER C. ARCHER**, 365 Withers bldg., Norfolk, Va. 5 3 cm

FOR SALE.

Brick and tile plant. If properly managed will pay 20 per cent on investment. Reason for selling, death of partner. Address **J. J. BROWN**, 6 2 cm Crawfordsville, Iowa.

FOR SALE—Several automatic end-cutters and brick edgers for Chambers Bros. brick machine. Cheap. Inquire **ILLINOIS BRICK CO.**, 5 3 c Chicago, Ill.

WANTED—One kiln burner, one pressman and one kiln setter for sewer pipe plant. Must be thoroughly competent men and give references. Good wages. Address **"CANADA,"** 5 3 c Care Clay-Worker.

FOR SALE—One 2-mold Simpson dry press. One eight-foot iron frame dry pan. One No. 6 Brewer brick and tile machine, with all necessary dies and cutters. One tile elevator, one clay elevator, one clay disintegrator. Address **O. W. DUNLAP**, 2 tf L Bloomington, Ill.

WANTED.

Clayworkers who are having troubles of any sort in the operating features of their plant, whether in the making, drying or burning, to know that my experience of twenty-five years enables me to give valuable practical advice that will prevent further loss and trouble, if skill and knowledge as a practical worker and chemist can accomplish that purpose. Terms reasonable and contracts made contingent upon success. Address **J. J. KOCH**, 5 tf L 3325 Caroline st., St. Louis, Mo.

FOR SALE—About 125 single deck iron cars for drying brick. Used very slightly, and good as new. Will sell part or all of them. For full particulars, address **BOX 304**, 4 3 cm Liberty, Mo.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
THE T. B. TOWNSEND BRICK AND CONTRACTING CO., 4 tf d Zanesville, Ohio.

FOR SALE.

Important to Terra Cotta, Ceramic and Pottery Manufacturers.

A plant equipped for the manufacture of sinks and wash trays, ready to start at any time.

Buildings have 21,000 square feet of floor space. There are three round muffled kilns, no center chimneys. 50 h. p. engine and 100 h. p. boiler. Elevator, dry pan, pug mill, circular saw, four glaze grinding mills and a large assortment of molds in good condition.

Kilns may be used with any sort of coal and can burn up to 3,000 degrees Fahrenheit. Railroad track on the property and may ship by Pennsylvania, Central New York, or Lehigh Valley railroads, or by water. This is a clay district and is but 22 miles from New York. Diagram and full particulars on request. Address **CHAS. K. SEAMAN**, Receiver, 6 1 dm Perth Amboy, N. J.

CANADIAN TRADE.
Wooden Brick Pallets.
WRITE US
BARCHARD & CO., Limited, 135-151 Duke St., TORONTO, CANADA.

Brick Drying and Conveying.

You can save one-half the cost, in fuel and labor, of your present method of drying, by installing a Walsh System. Address **HIRAM H. WALSH**, 5 tf L 131 Lander Street, Newburgh, N. Y.

The Starkey Automatic Brick Counter.

(Patent Applied For.)

A machine that counts the number of wheelbarrow loads of brick absolutely correct and cannot be tampered with. To forget or to swell the count are both impossible.

We will sell a limited number of machines on trial and at a low price to introduce them.

Write for descriptive catalog, terms and prices. Address

JOHN STARKEY,

MINERVA, OHIO.

Mention The Clay-Worker.

DOVER FIRE BRICK CO.,

509 Cuyahoga Building, Cleveland, Ohio.

Operating plants at North Bend, Clinton County, Pa., and Strasburgh, Ohio.

"NORTH BEND." "DOVER." "BUCKEYE."

We have have been furnishing fire brick for kilns for over forty years.

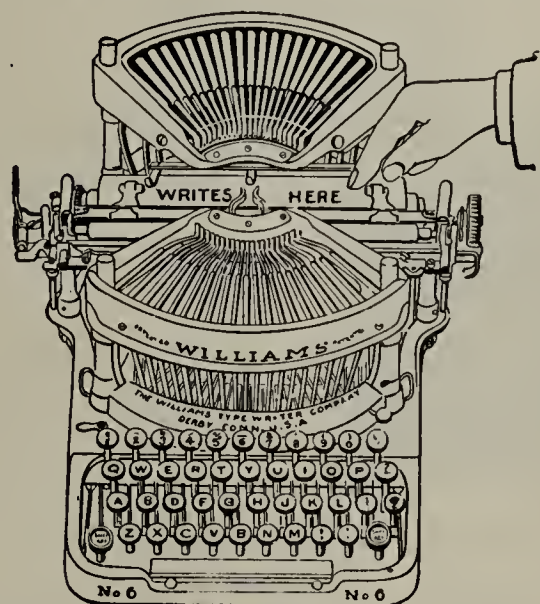
WRITE US FOR PRICES.

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Saves the beginner time when learning.

Saves the learned time when beginning.

New
Number
Six
Visible
Writer



Saves time, energy, worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.

Old machines of any make taken in trade.

The Williams is sold under a positive guarantee and on easy terms.

If you want the best value in a typewriter ever offered, write us.

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Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.

MADDEN & CO.,

Rushville, Ind.

Full Line of

CLAYWORKING MACHINERY.

See two-page ad in April No. Clay-Worker.

New Specially Designed Machine for Large Drain Tile and Hollow Ware now ready.

New automatic attachment for any hand cutting table.

Send for circulars and catalogues.

WANTED—First class brick setters, one pug mill man, one dry pan man, and one table man. Standard wages. Address
BURKE BRICK CO.,
Ft. Smith, Ark.

4 3 c

WANTED.

A position as superintendent by a responsible man, who is thoroughly familiar with all the details of a brick plant, and capable of handling all kinds of help. Can give the best of references as to ability, etc. Address "N. H."

2 tf d

Care Clay-Worker.

FOR SALE—Brickyard covering fourteen acres of land; has four down-draft kilns. An ideal soft mud machine and pallets for six days' work. This yard is located in the outskirts of a city of 10,000 inhabitants, with a McKinley Interurban railroad on one side of it, and within a short distance of three other railroads. Original cost, \$8,000. If sold at once, will sell for \$4,000. Address

4 3 cm

IRA C. GIBONS,
Princeton, Ill.

IF YOU WANT TO BUY, SELL OR EXCHANGE

Any kind of business or real estate anywhere at any price, write

FRANK P. CLEVELAND,
Real Estate Expert,
965 Adams Express Bldg.,

4 tf d

Chicago, Ill.

FOR SALE.

No. "0" Thew Shovel ½-yd. dipper, good. 6 "Little Giant" Traction Shovels.

2 land dredges 1 yd. x 1 ¼ yd.

Locomotives, cars and rails for up-to-date clayworkers.

We buy and sell.

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26 Cortland Street, New York, N. Y.,
1508 First Nat'l Bank Bldg., Cincinnati, O.



SWITCHES FOR SALE.

Right and left hand one, two and three way switches of various gauges, radius and weight rail, at special prices.

THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

(See additional ads under Table of Contents.)



They Never Fade

Twenty
Long Years

of time and weather
have tried out Ricketson's
famous Red Brick brand

COLOR

For Mortar, Brick,
Cement, Stone, etc.
Proved to be absolutely
permanent. Red,
Brown, Buff, Purple
and Black.

Ricketson's Mineral Paint Works,
MILWAUKEE, WIS.

G. K. WILLIAMS & CO.,
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Largest Manufacturers in
United States of

Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
on application.

Chattanooga Paint Co.,
Chattanooga, Tenn.

Manufacturers of

**Red Oxides for Brick-
makers' Use.**

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

COLORING

All Mineralogists Know
Clinton Hematite Red
is the highest grade
Oxide of Iron.

Be sure you get the genuine, with the "Little
Yellow Side Label" on each package.

MADE ONLY BY
Clinton Metallic Paint Co.,
CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.
NEW YORK.

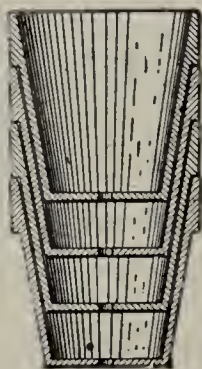
Sole Importers in the United States of the

Precipitated  Carbonate
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The only preventative for scum and discolor-
ation on Facing Brick and Terra Cotta, neu-
tralizing the Sulphate of Lime in the Clay and
Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
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Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.



Double Up and Down Draft Kiln.

1st. They can be built as cheaply and are more
durable than old style up draft Dutch kilns.

2nd. I can change your old style up draft kilns
into my type down draft.

3rd. My type kiln needs no roof, consequently
saves lumber, reduces fire risk, saves labor of re-
moving and replacing kiln roof each burn.

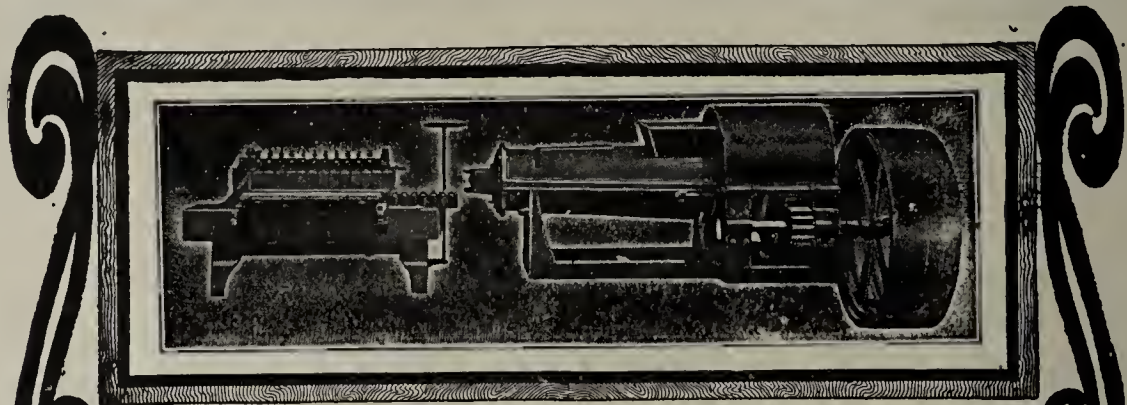
4th. Less skill required in burning; draft un-
der perfect control; easier to direct heat to any
desired point; practically burns all hard brick.

In conclusion, you cannot afford to ignore these
statements, as their truth is easily verified
through investigation, these kilns being no exper-
iment, but being in use by many intelligent, prac-
tical and successful brickmakers, whose names I
shall be pleased to furnish you, whose plants are
easy of access and whose statements cannot be
biased by personal interest.

Wood burning kilns changed to coal burning.

Brick plants installed and put in operation
Write for booklet. Correspondence solicited.

F. W. DENNIS,
145 WATER ST., NORFOLK, VA.



THE PIONEER. Kells Brick and Tile Machine

has been the synonym of excellence in the Brick and Clay-
working industry for the past thirty years.

It has had few rivals and no superiors. Improved from
year to year to gain increased

Strength, Simplicity, Durability, Efficiency and Quality

of finished product, until it has reached the highest state of
the Mechanical Arts in Brickmaking.

Our new handbook will give you the detailed informa-
tion desired.

The Kells Foundry and Machine Co.
ADRIAN, MICH.

THE WEBB WIRE WORKS

MANUFACTURERS OF
MUSIC WIRE NEEDLE WIRE

NEW BRUNSWICK, N. J.

We manufacture BRICK AND TILE CUTTING WIRE, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.



C. A. SHOOP, Pres.

N. R. WITHERS, Sec. and Treas.

H. L. JACOBS, Gen. Mgr.

SUFFOLK CLAY COMPANY,

MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

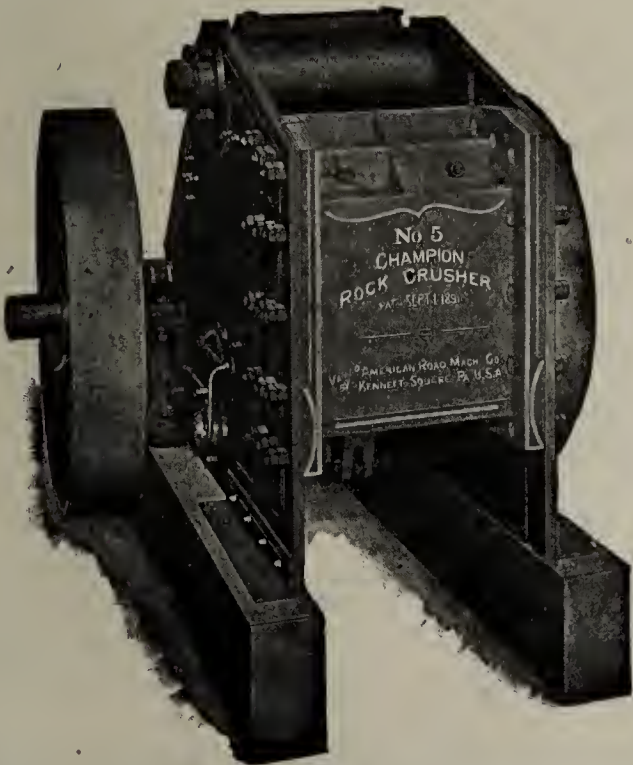
Marion Machine, Foundry & Supply Co., Marion, Indiana:

Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

Very truly yours,
For further information address

SUFFOLK CLAY CO.,
H. L. Jacobs, Gen. Mgr.

MARION MACHINE, FOUNDRY AND SUPPLY CO., MARION, IND.



NO. 5, 11x26 CHAMPION CRUSHER.

It Looks Good

on paper.

It Looks Better

crushing shale, fire clay, rock and other hard material.

THE CHAMPION CRUSHER

is expensive, to do without, because it saves you money.

Catalogue is free on application. Address

AMERICAN ROAD MACHINE CO.

KENNETT SQUARE, PA.

The Department of Clayworking and Ceramics

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RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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Offers through its College of Engineering, full courses of instruction in Civil, Mechanical, Electrical and Mining Engineering, and in Architecture, Ceramics, Chemistry, Industrial Arts and Manual Training.

ITS DEPARTMENT OF CLAYWORKING AND CERAMICS, established in 1894, was the pioneer of its kind in America, and has been from the first successfully training men to overcome the technical problems of clay manufacture.

Tuition is free. Laboratory fees are nominal. Faculty of over one hundred instructors. Equipment very extensive.

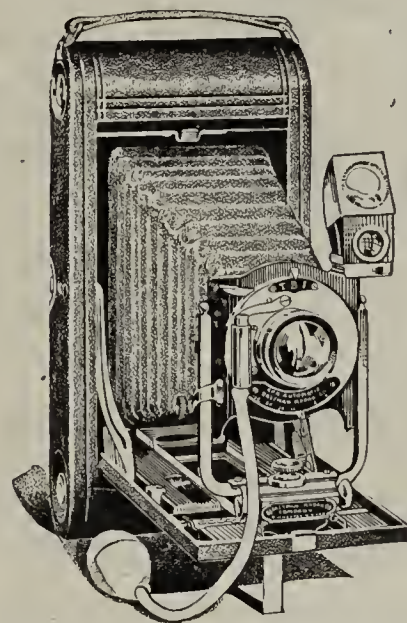
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Department of Ceramics.

DR. W. O. THOMSON, President.

Columbus, Ohio.



TAKE A KODAK WITH YOU.

Any one can take good pictures by the

KODAK SYSTEM.

Its daylight all the way.

Kodaks \$5.00 to \$105.00.

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EASTMAN KODAK COMPANY,

Rochester, N. Y.

Catalogue Free by Mail.

When Writing to Advertisers
Mention The Clay-Worker.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick, and gives valuable recipes. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. "Vitrified Paving Brick," \$1.00; tells all about the best materials for and methods of manufacturing paving brick. All or any of these books mailed postage prepaid, on receipt of price. Write for list of other valuable books for clayworkers. Address, T. A. RANDALL & CO., Indianapolis, Ind.

Terms First-class
reasonable. references.

If you have trouble with Clay, Machinery or Kilns, then consult

THE BRICKMAKERS' ADVISOR,

Julius J. Koch,

(25 years practical experience)

3325 Caroline Street, St. Louis, Mo.

Special attention paid to dry clay press processes and down-draft kilns.

Contracts made contingent upon success.



Anyone sending a sketch and description may quickly ascertain our opinion free whether an invention is probably patentable. Communications strictly confidential. HANDBOOK on Patents sent free. Oldest agency for securing patents. Patents taken through Munn & Co. receive special notice, without charge, in the

Scientific American.

A handsomely illustrated weekly. Largest circulation of any scientific journal. Terms, \$3 a year; four months, \$1. Sold by all newsdealers. **MUNN & Co.** 361 Broadway, New York
Branch Office, 625 F St., Washington, D. C.

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Send model, drawing, rough sketch or photograph of your invention and I will examine the records FREE of charge and advise you whether you can obtain a patent.

All patents taken out by me are advertised FREE in the leading mechanical, electrical and scientific magazines in the country.

Write for my special offer for obtaining Patents, Trade-Marks, Designs, Copyrights, etc. 20 years experience. Best references.

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Loan and Trust Building,
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LACLEDE=CHRISTY FIRE BRICK

"CHRISTY" PLANT
formerly
Christy Fire Clay Co.

Are the Best for

"LACLEDE" PLANT
formerly
Laclede Fire Brick Mfg. Co.

BUILDING KILNS.

Laclede=Christy Clay Products Co., St. Louis, Mo.

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**Fire Brick for
Building Kilns.**

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Brickton No. 2 } Ottawa, Ill.

General Office:

45th St., Clark to LaSalle Sts.
CHICAGO, ILL.

Phone Yards 525.

Evans & Howard Fire Brick Co.

ST. LOUIS, U. S. A.

Sewer and Culvert Pipe. Locomotive Tile.
Furnace and Boiler Tile. Fire Brick and Cupola Blocks.
Flue Lining and Chimney Pipe.
Sanitary Earthenware. All kinds of Fire Clay Products.

"Mitchell St. Louis No. 1"

Brand of

FIRE BRICK

Awarded Gold Medal at St. Louis for
Kiln Construction.

— Made by —

MITCHELL CLAY MFG. CO.,

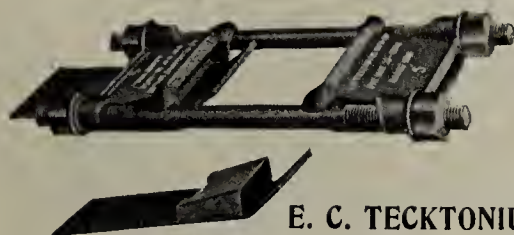
5627 Manchester Avenue.

ST. LOUIS, MO.

\$2.00

THE CLAY-WORKER,
ONE YEAR, (IN ADVANCE)

\$2.00



The Best and Cheapest
BAND LUG
on the market.
Write us for price.



E. C. TECKTONIUS MFG. CO., Racine, Wis.

Conveying, Elevating and Power-Transmitting Machinery.



The only perfect spiral conveyor. Continuous flight—no laps or rivets.
A Complete Line of the Best Supplies.

Belt, Chain and Cable Conveyors.

Ask for General Catalogue.

H. W. CALDWELL & SON CO., Chicago.

Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

White Pine Pallets

For Brick, Roofing Tile,
And Sewer Pipe Boards.

The Best Are the Cheapest.

Send Specifications and Get Prices.

Mershon, Schuette, Parker & Co.,

Saginaw, Mich.

TRIPLE PRESSURE BRICK PRESS

The strongest and most efficient Brick
Machine made, and the only Press that
gives three distinct pressures to the brick.

We build and equip complete

SAND-LIME BRICK PLANTS,

SHALE AND CLAY BRICK PLANTS.

Ross-Keller Triple Pressure Brick Machine Co.,

Offices Fullerton Building,

St. Louis, Mo.

\$2.00

THE CLAY-WORKER
ONE YEAR (IN ADVANCE)

\$2.00

MANGANESE
FOR ALL USES.

LUMP, GRAIN AND GROUND

60-70% 70-80% 80-90% OXIDE.

CLAY WORKERS GOODS A SPECIALTY.

SAMPLES AND PRICES ON INQUIRY.

METALLIC ALLOYS CO.

99 JOHN ST NEW YORK, N.Y.

SUCCESSORS TO KENDALL & FLICK.

TAPLIN, RICE & CO.,

AKRON, OHIO.

Sewer Pipe and Clay-
Working Machinery.

ESTABLISHED 1862.

The Anton Vogt
Down Draft Kiln

and the

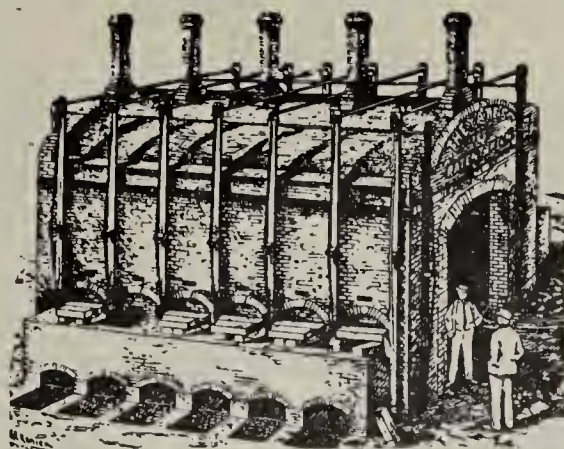
QUESTION OF THE HOUR.

Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,

Ada, Okla., U. S. A.



For Economy of Fuel and Percentage of Hard Burned Brick,

This kiln will give satisfaction. Constructed to burn without smoke and give an even distribution of heat, producing uniform burns.

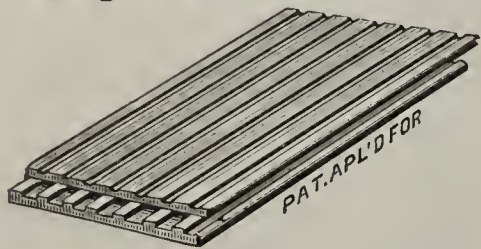
Hot air dryer. Continuous and muffle kiln.

ALFRED YATES,

SHAWMUT, PA.

Or Eastern Terra Cotta, Brick and Tile Co.,
327 Old South Bldg., Boston, Mass

Roofing Tile Machinery.



Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

MUELLER BROS.,
2935 Clark Avenue. St. Louis, Mo.



If...

**You Want
to Sell
or Buy...**

Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

**If...
You Want
a Man**

for any position or a position in any connection with the Clayworking Trades use the

**For Sale
and Want
Columns
of...**

**The...
Clay-Worker.**

RATES

For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.

**The Best, Quickest, Cheapest
Method of Securing Results.**

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

**NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.**

MINERS AND GRINDERS.

If you intend to build or rebuild your brick plant acquaint yourself with the

Chmelewski Patent Kiln

That's just the thing you need to get prosperous.
For descriptive booklet write to

DR. HERMAN ROBERGH,

Sole Agent in the U. S. A. and Canada.

24 Cottage Ave., Fitchburg, Mass.

The Improved Flue System.

The most profitable kiln on the market
for burning any clay product.

**Absolute Draft Control. Economy of Fuel and Time.
All Hard Brick.**

Kiln and Yard Rights, with Plans, Specifications, etc., sold at very reasonable rates. Booklet, estimates and full information cheerfully furnished.

GEO. E. SNOWDEN & CO.,

[Formerly J. P. Bradley & Co.]

New Cumberland, W. Va.

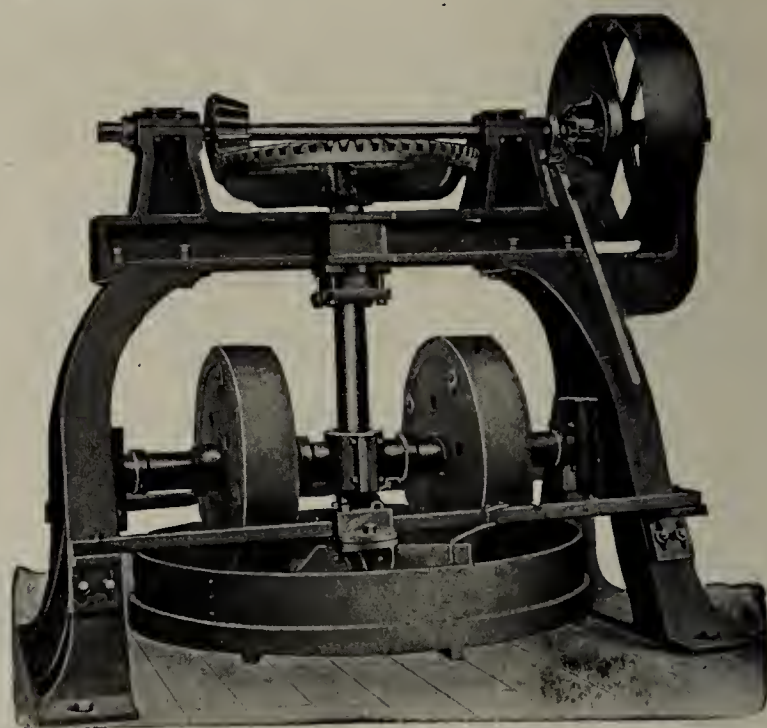
PHILLIPS & McLAREN CO.

PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



\$2—The CLAY-WORKER One Year in Advance—\$2.

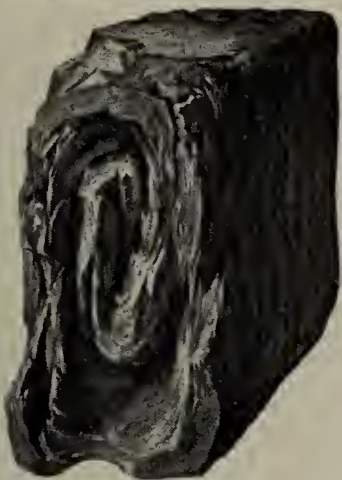


Photo showing brick before we took charge.

LAMINATION

THE two photos here shown illustrate an extreme case of Lamination, and the results we obtained in correcting it. Write and get our definite proposition in which we guarantee results.

LUCE ENGINEERING CO.
1815 Third National Bank Building : : ST. LOUIS, MO.

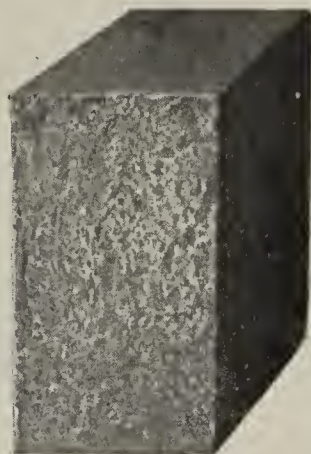


Photo showing improvement after we had finished.

ANDRUS BRICK PRESS MAKES REAL MONEY

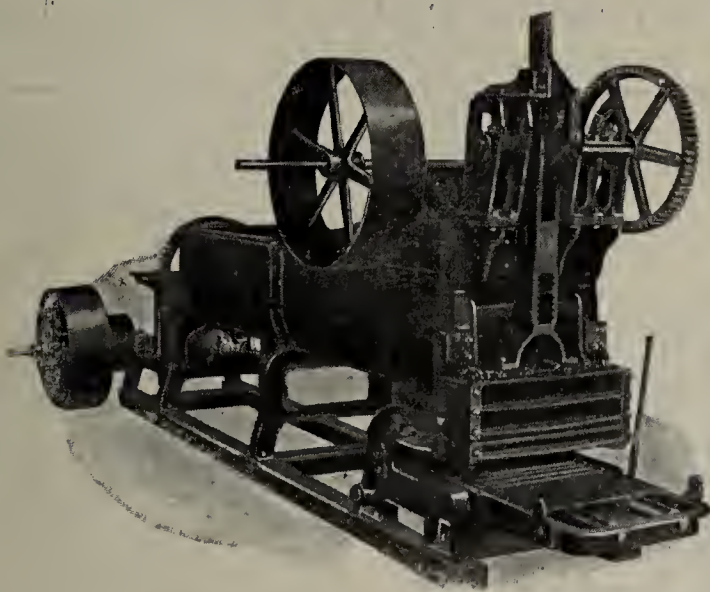
Send for proof; also details about our Hand Presses, Dry Pans, Pulverizers, Mixers, Crushers, Elevators, Screens, Clay Plows, Clay Gatherers, Shafting, Hangers, Pulleys, Belting, Trucks, Barrows, Kiln Irons, Dryer Cars, etc. SCOTT MANUFACTURING CO., 3rd National Bank Building, ST. LOUIS, MO.

Mention THE CLAY-WORKER

WHEN WRITING TO ADVERTISERS,

Mention THE CLAY-WORKER.

The Potts Horizontal All Steel and Iron Sand Mould Brick Machine,



DISINTEGRATOR

having Chilled Rolls, Adjustable Steel Cutting Bars and Ring Oiling Bearings, and

MOULD SANDER

makes the Best and most complete outfit for making sand mould brick.

Cost of repairs reduced to minimum.

Quantity and Quality of brick made can not be equaled by any other outfit, no matter what you may pay for it.

The best Drying proposition ever offered.

DONT FAIL TO WRITE FOR CATALOG.

C. & A. Potts & Co. Indianapolis, Ind.

The Richardson-Lovejoy Engineering Company,
Consulting Engineers and Factory Architects.
Manufacturers of Controlling Apparatus.

Geological Examination of Properties.
Chemical Analyses.
Clay Testing.
Investigation of Manufacturing Propositions.
Plants Designed and Construction Superintended.
Dryers for Any Clay Product.
Kilns of Every Type.
Faults of Manufacture Corrected.
Modernizing for More Economical Operation.



PUBLICATIONS.
Brick Works Engineering.....Free
Brick Kilns.....Free
Apparatus for Controlling the Drying of Clay
Products.....Free
Apparatus for Controlling the Burning of
Clay Products.....Free
Drying Brick.....\$.25
Burning Brick in Down Draft Kilns.....1.00
Kiln Records.....1.00
Seumming and Efflorescence......50

TECHNICAL BUREAU FOR CLAYWORKERS, 1534 N. High St., Columbus, Ohio.

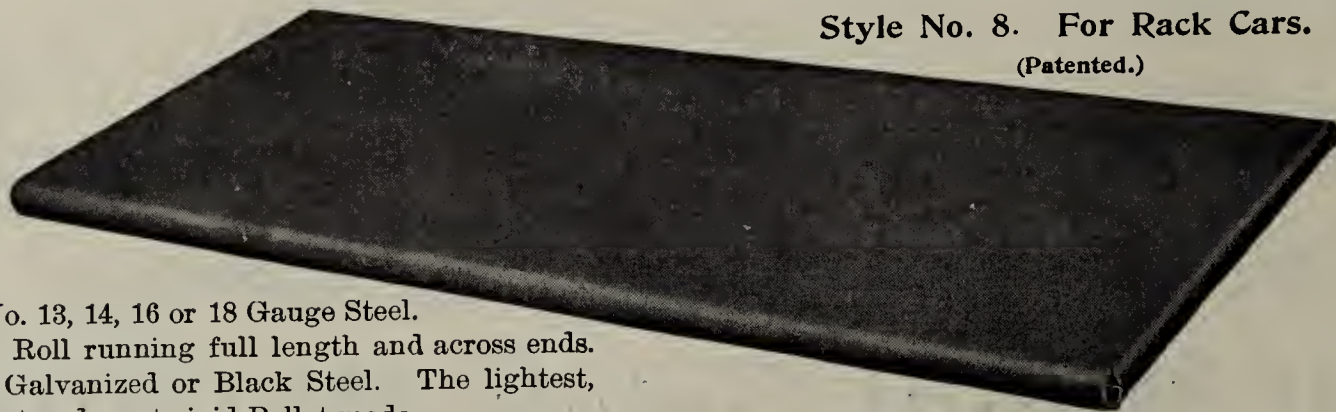
MENTION THE CLAY-WORKER,

WHEN WRITING TO ADVERTISERS,

MENTION THE CLAY-WORKER.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

The
ROESSLER-HASSLACHER
CHEMICAL COMPANY,

100 William Street,
NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese
and all Chemicals used by the Clay Trades.

HAIGH'S NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning

ROOFING TILE, DRY PRESSED, FACING, FIRE, PAVING AND COMMON BUILDING BRICK, and Burning from 5,000 to 100,000 Brick per Day.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

THIS KILN CAN BE FIRED WITH COAL, WOOD, OIL, NATURAL OR PRODUCER GAS.

For further
particulars
address

H. HAIGH, Brick Works Engineer, Catskill, N. Y.



Automatic Improved DRYERS

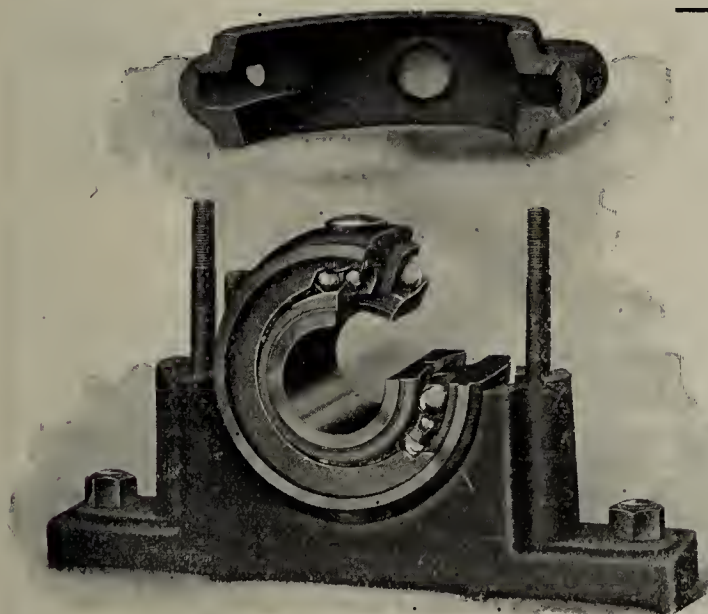
ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

AMERICAN PROCESS CO.,

62-64 William St., New York.



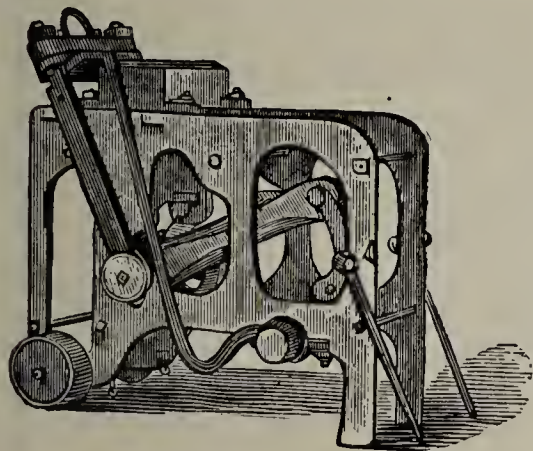
BALL-BEARING FANS HAVE WORKED A REVOLUTION IN FAN EFFICIENCY.

Journal friction is reduced by over 85%. Continuous oiling is no longer necessary. Durability has been materially increased, while no care is required. Expert service is given through our Cleveland office.

Massachusetts Fan Company

General Offices and Works, WATERTOWN, MASS.

Boston New York Chicago Cleveland Pittsburg St. Paul
2-27

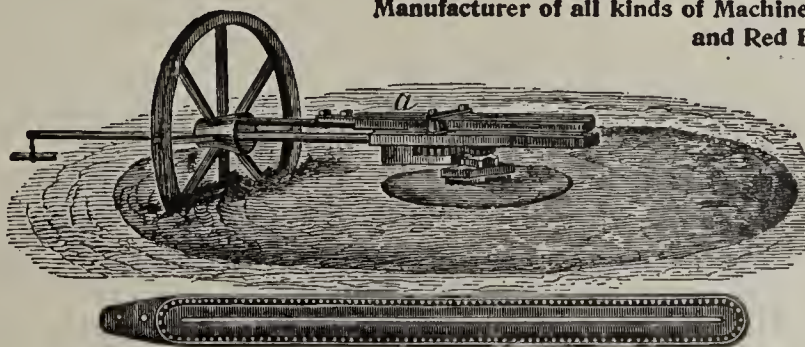


RED BRICK PRESS.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

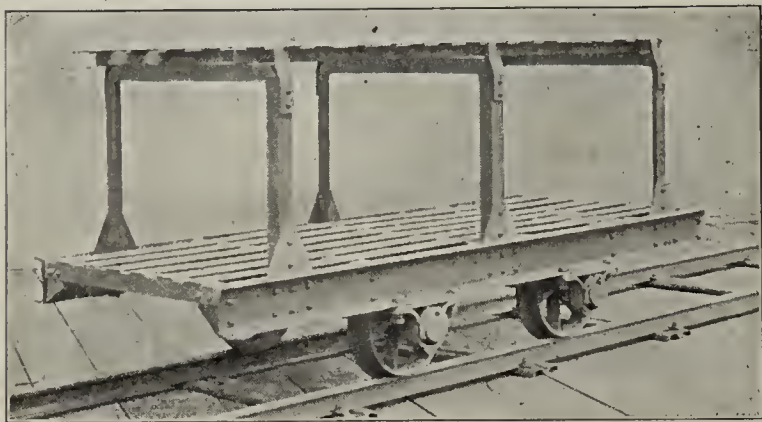
Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.



MORE WORK. LESS COST.

Cut out wheelbarrows and other out of date equipment.

KOPPEL CARS and PORTABLE TRACK

save 50 per cent in cost of transportation.
Write for estimates.

ARTHUR KOPPEL COMPANY

Offices and Warehouses

NEW YORK
136 Morris Bldg.

CHICAGO
339c Monadnock Bldg.

BOSTON
53 Oliver St.

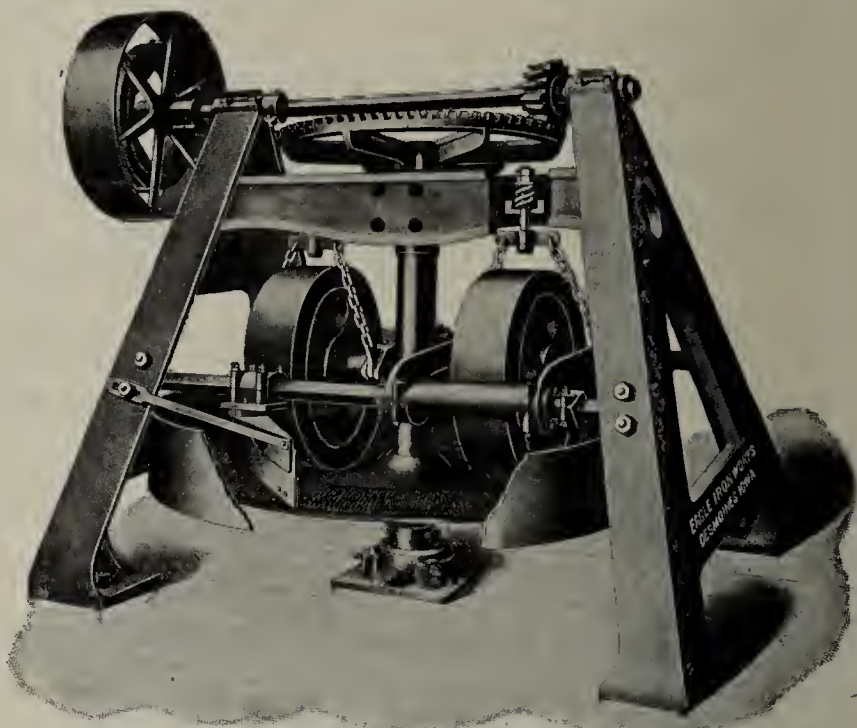
PITTSBURGH
1607 Machesney Bldg.

SAN FRANCISCO
1515 Chronicle Bldg.

BALTIMORE
449 Equitable Bldg.

WORKS AT KOPPEL, PA.

Independent and Suspended Mullers the distinguishing feature of our **DRY PANS.**



Other valuable features which our catalogue
fully describes.

EAGLE IRON WORKS,
Des Moines, Iowa.



JACOB BÜHRER'S TECHNICAL BUREAU CONSTANCE, GERMANY.

ESTABLISHED 1860.

Construction of Brick, Tile and Lime Works for coal or gas firing and of kilns with or without artificial dryer.

Bührer's Shortened Kilns are very suitable for burning ordinary and enameled goods, lime and cement.

Brick and Tiles made by the plastic process of clays of normal qualities may be dried in the Bührer Dryer in 1½ to 4 days.

The Bührer Fan applied to existing kilns increases the output from 50 to 100% of first-class goods with great economy of fuel.

Bührer changes existing kilns after his system for quick-burning.

Clay is tested in a thorough way. Ask for pamphlets. Correspondence solicited.

BUHRER BRICK AND TILE WORKS WITH BUHRER FANS.

TAKEN UP IN FEBRUARY, 1908.	Num- ber of Kilns.	Num- ber of Fans.	Single Fan Wings.	Artifi- cial Dryers	Length in feet of the fire canals worked with fan draught.	Total output of these works in bricks of 10" x 5" x 2½".
Works in Operation . .	115	118	154	84	35,620	631,500,000
Works in Construction.	18	15	16	11	6,331	101,000,000
Total Amounts.	133	133	170	95	41,951	732,500,000



The Brick concerns, who have investigated, say that we make the best belt for transmitting power or conveying material under the severe conditions of the trade.

"We find it gives better service and lasts from two to three times longer than the other belts we have been using; these were rubber, leather and cotton duck."

"We recommend your Leviathan belt, especially for brick plants where there is much dust to contend with."

A folder containing many more convincing expressions has just been prepared. Write for it.

MAIN BELTING COMPANY,
1224 Carpenter Street, Philadelphia.
59 Market Street, Chicago.



YOUR PORTABLE TRACK EASILY MOVED—

Because:

Our Pressed Steel Shoe Joints do away with the trouble of loosening rusty nuts, which are at times impossible to loosen. They are made of pressed steel and are unbreakable.

Our Pressed Steel Shoe Joints

are bolted to one rail only. They slip on readily to the connecting rail and hold securely to the base and web, thus making a firm and well connected track. These shoe joints permit you to move your track quickly and without trouble.

We build a complete line of *Dump and Brick Cars, Portable Track, Frogs, Switches, Turntables* and can make prompt shipment from our

LARGE STOCK.

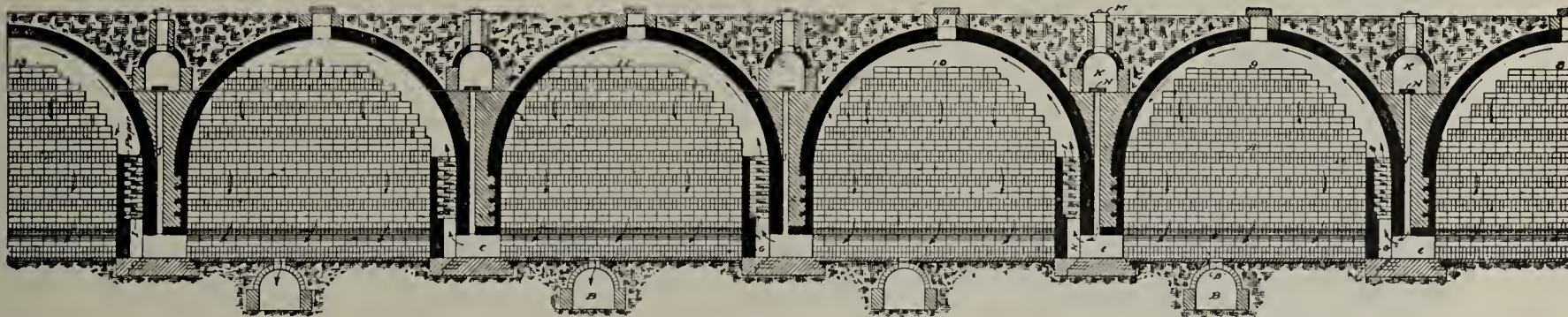
Write for Catalog 2 on Cars and Portable Track.

ERNST WIENER COMPANY.
RAILROAD SPECIALISTS FOR ALL INDUSTRIES.

162 Morris Bldg., New York, N. Y.

BOSTON, 141 Milk Street. CHICAGO, Monadnock Bldg. BISBEE, ARIZ. DENVER, COLO.

THE YOUNGREN CONTINUOUS KILN PRODUCER GAS FIRED.



This kiln has now been developed to a state of perfection that places it far in advance of any other system of kilns for burning any and all kinds of clay product.

The kiln is fired with producer gas which is generated from ordinary bituminous coal in a gas producer attached to the kiln. This renders the operation easy and places the regulation of the temperature under most accurate control.

For particulars address

P. L. YOUNGREN,

299 Twenty-Fifth Street, MILWAUKEE, WIS.

THE BOSS SYSTEM OF BURNING BRICK.

WATER SMOKE WITH ALL SLACK
BURN WITH ALL SLACK
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME
LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS COMMON BUILDING BRICK
BURNS PAVING BRICK
BURNS DRY PRESSED BRICK
BURNS HIGH CLASS FRONT BRICK
BURNS TERRA COTTA

Thirty years' experience; will guarantee to burn any kind of clay, including the most refractory fire clay for 40% less fuel cost than by the old method. Can be applied to kilns already built without any alterations. Write for Catalogue.

JOHN C. BOSS,
Office, 404-405 Monger Bldg., ELKHART, IND.

TAKE A VACATION THIS YEAR!

You Can If You Use
The **BECHTEL P. D. Q. DRIER**

Price Low

Drying Efficiency High

Quality and Quantity of
Output Maximum.

Write for Details and 1908 Catalog.

BECHTELS LIMITED,

DEPT. C,

Waterloo, Ont., Canada.

STEAM SHOVELS FOR BRICK YARDS.



We have a large number of Shovels in brickyard service in all parts of the country, and can furnish machines of any dipper capacity desired from $\frac{3}{4}$ to 5 cubic yards. If interested write for catalog.

The Marion Steam Shovel Co.,

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.

Marion, Ohio.

F. H. HOPKINS & CO., Agents,
Montreal, P. Q.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.



These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Sqaure Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.

You Can't Afford to Cut Special
Shapes by Hand,

Not when your competitor is using a

BRADFORD **BRICK RECUTTER MACHINE**

This machine will cut arch and key brick, also track paving brick, uniformly and accurately.

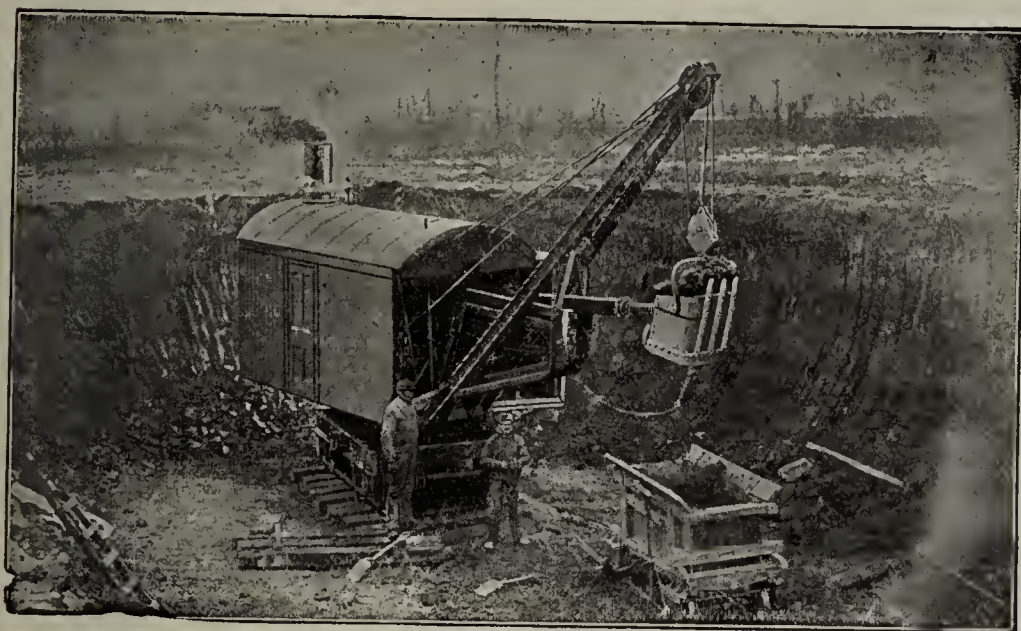
The [machine [is [easily and quickly adjusted to shape desired.

We would like to tell you what it did for the other fellow.

G. W. FLEMING CO.,
BRADFORD, PA.

**Handle Your Clay
With One Man and**

The Thew Steam Shovel.



Type No. 0—Ohio Brick Company, Toledo, Ohio.

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

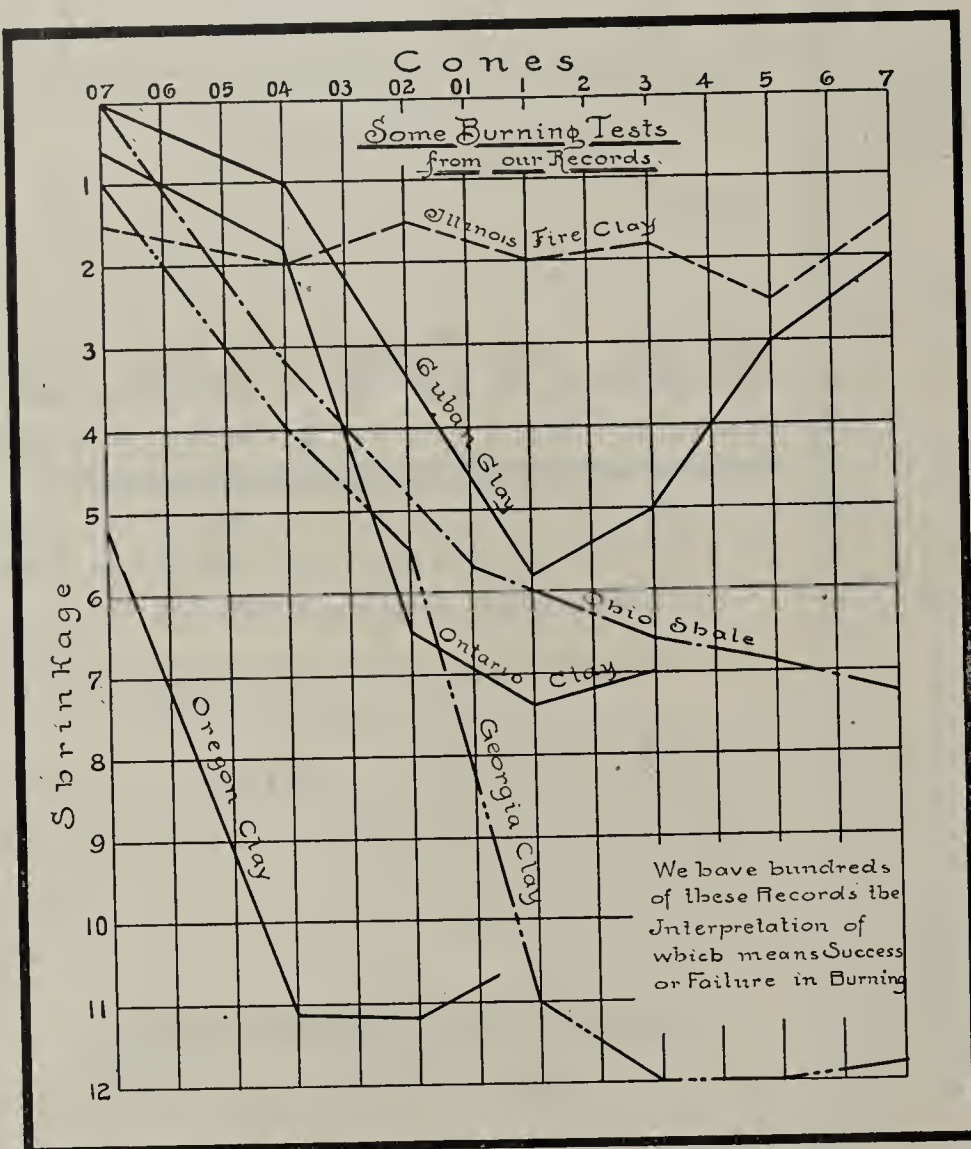
Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

Made in four sizes.
Mounted on Car Wheels
or Traction Wheels.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick p erday.

WRITE US FOR CATALOGUES OR INFORMATION.

**THE THEW AUTOMATIC SHOVEL CO., LORAIN,
OHIO.**



The Richardson-Lovejoy Engineering Co.

Columbus, Ohio.

CLAY TESTING.

Know Your Clay Before You Build a
Plant to Work it.

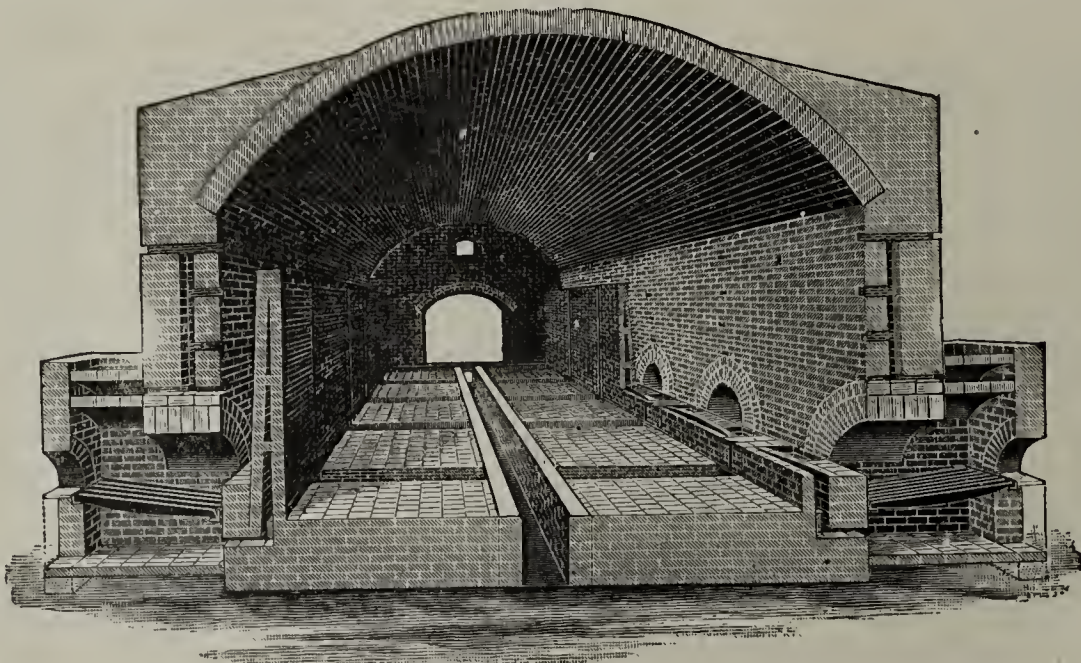
Physical and working properties, plasticity, bonding power, tensile strength, drying qualities, burning and color range, vitrification range and character, scumming and other numerous troubles to which clay is heir.

Clay is Full of Troubles, which our tests show, and we tell you whether your venture is safe or better let alone.

Send for "Ceramic Engineering" free.

The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

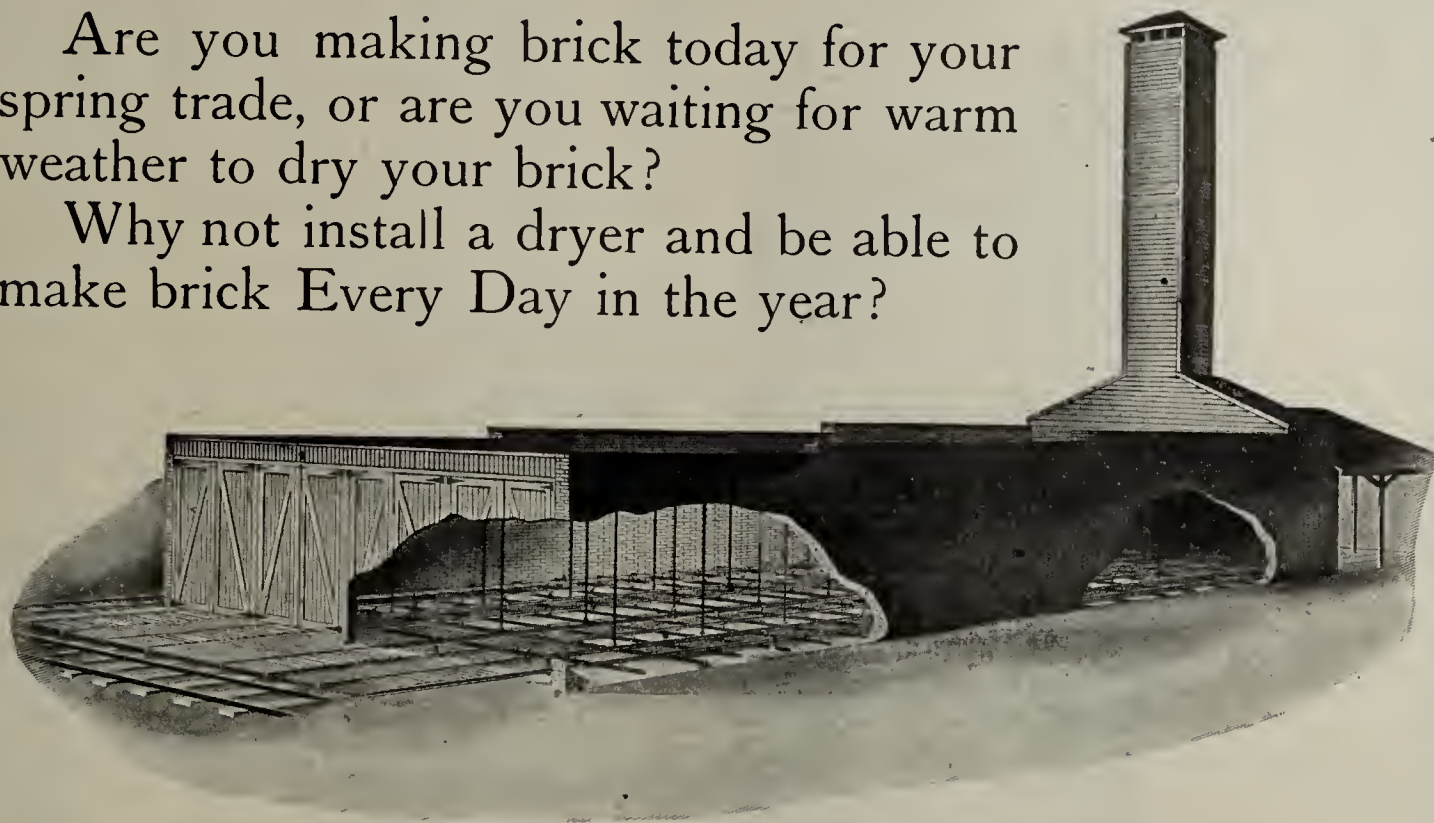
The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

The Original ^{EXHAUST STEAM} Dryer is the National.

Are you making brick today for your spring trade, or are you waiting for warm weather to dry your brick?

Why not install a dryer and be able to make brick Every Day in the year?



TATUM & BOWEN, Pacific Coast Agents,
Seattle, Wash., and Portland, Ore.
C. H. BEALE, Southern Manager,
Montgomery, Ala.

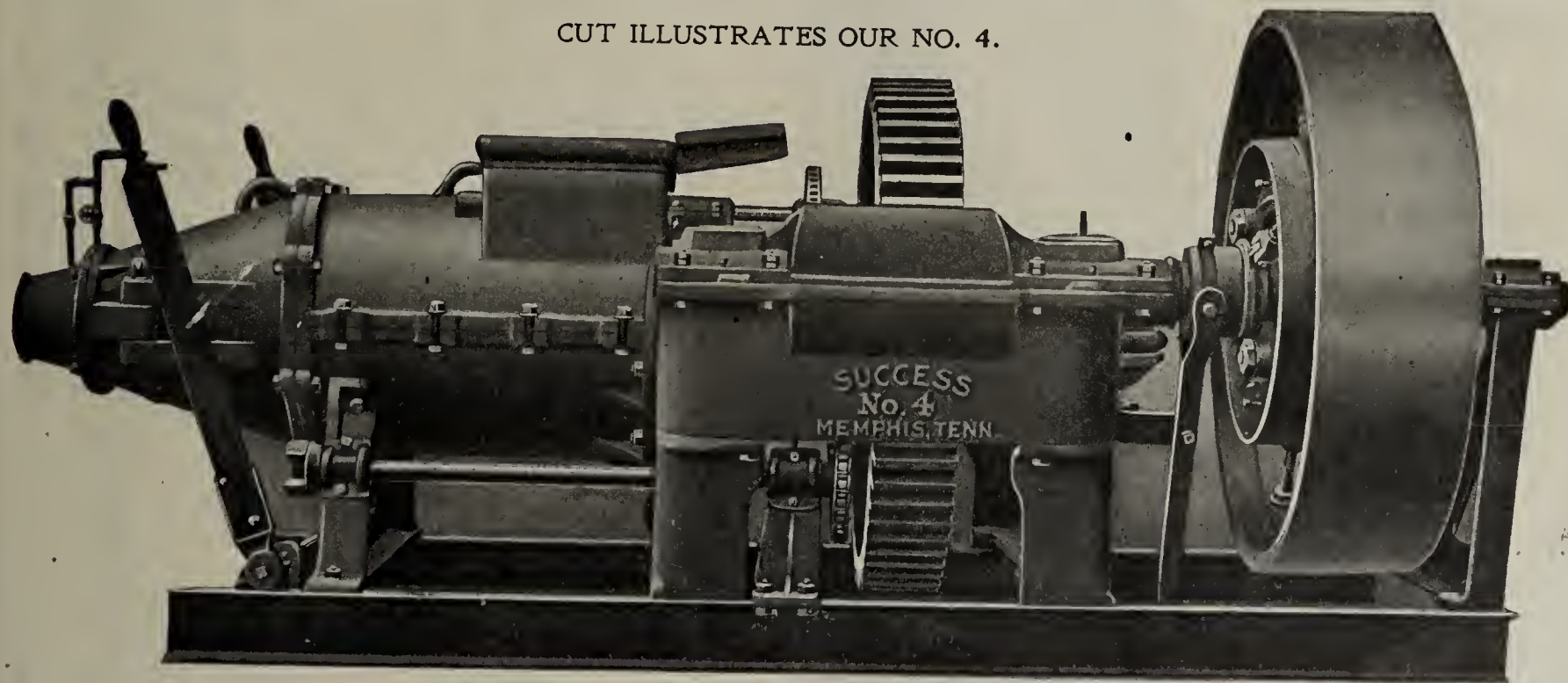
No Fan. No Engine. No Fire Danger.
Steel Roof Supports. Steel Roller Bearing Cars, etc.

Steel Foundations.
Ask for Cat. 200

The National Dry Kiln Co., Indianapolis, Ind.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

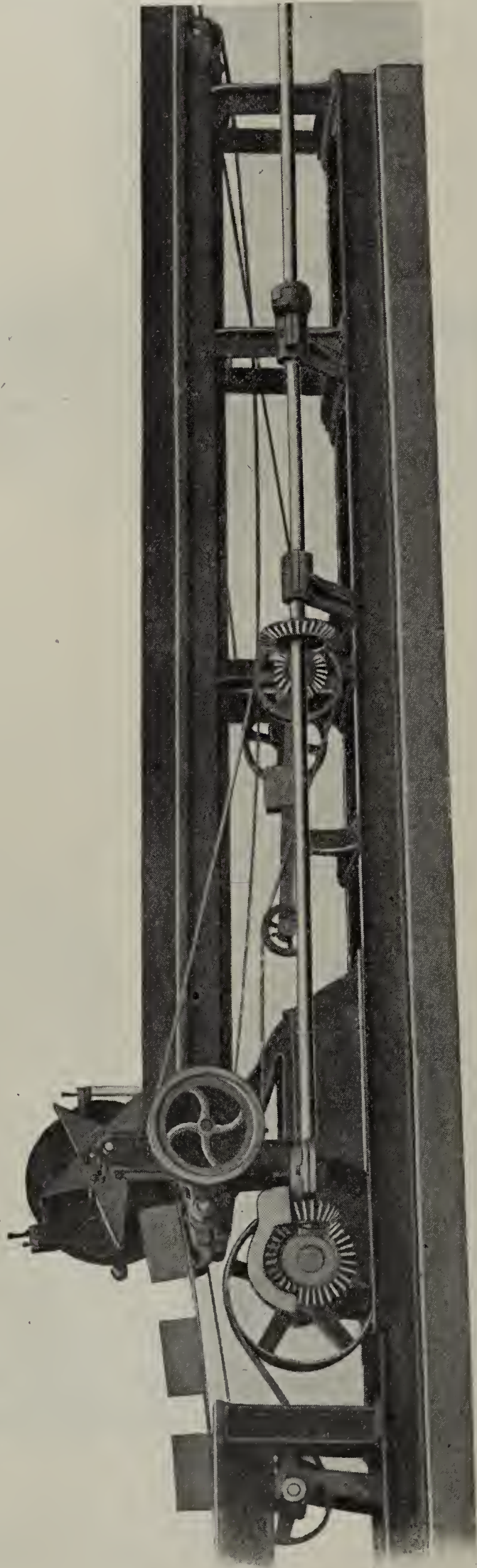
Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for; write us.

Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.

The Steele Automatic Cutter.



Lavonia, Ga., Dec. 9, 1907.

Messrs. J. C. Steele & Sons, Statesville, N. C.:

Gentlemen—It is pleasant and delightful work when operating your No. 3 machine with a 20 h.p. engine and making 3500 bricks per hour. Your rotary automatic cutter can't be beat; it cuts square and smooth. Messrs. Bowers Bros. of the Canon Brick Yard, came to my plant at Royston, Ga. to see my machine work and of course were so pleased they ordered one of your machines. I have run two machines of other manufacture and they were both more complicated and expensive to keep repaired. I recommend your machines to anyone entering the business.

Very respectfully,
W. E. STEVENSON.

(Signed)

We build a complete line of clayworking machinery.

Write for further information.

J. C. STEELE & SONS,

STATESVILLE, N. C.

Success Brick Machinery Co., Memphis, Tenn.,
Western Agents.

Mention The Clay-Worker.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO

Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET
KIT and THE CLAY-WORKER
for One Year to any address in
the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

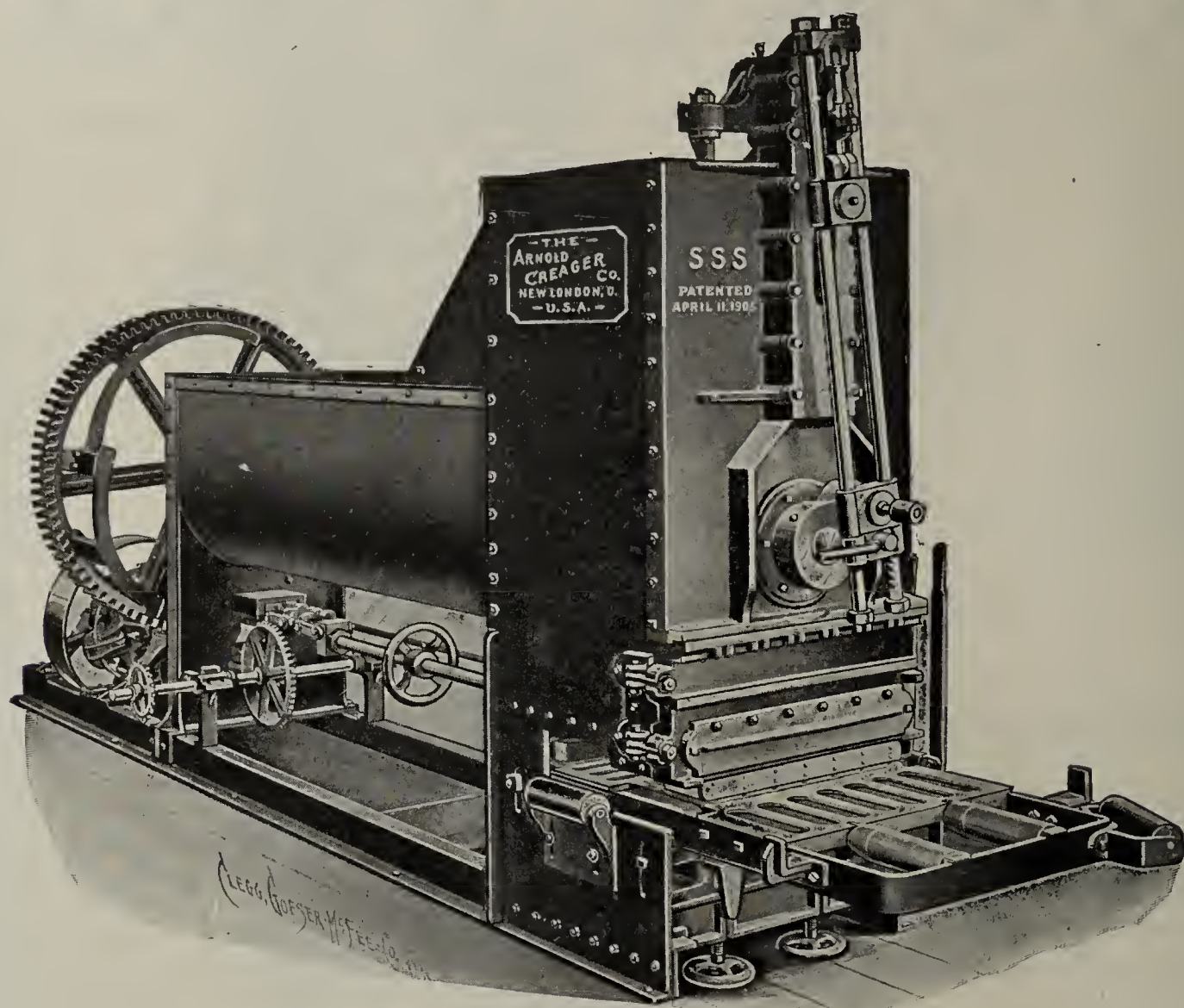
Name

Postoffice

Street and Number

County State

HONESTY IS THE BEST POLICY.



S-S-S.

Every Brickmaker should insure himself against loss through poor machinery by taking out a policy NOW with the Arnold-Creager Company, and adopting one of their S-S-S all-iron-and-steel Brick machines. A perfect combination of Simplicity and Strength. Few parts, and all Automatic. Inside Press, exerting tremendous pressure, easily regulated. Twelve feet of tempering capacity, and can easily run 16 moulds per minute. Solid construction enables the working of very stiff clay, making the ideal brick. Front of Press fitted with stone doors when desired. A strictly first-class machine at a small price.

For complete catalog giving details of this, and other high grade machinery and the "1908—Grand-Automatic" address

The Arnold-Creager Company, Inc.,

NEW LONDON, OHIO.

CINCINNATI, OHIO.

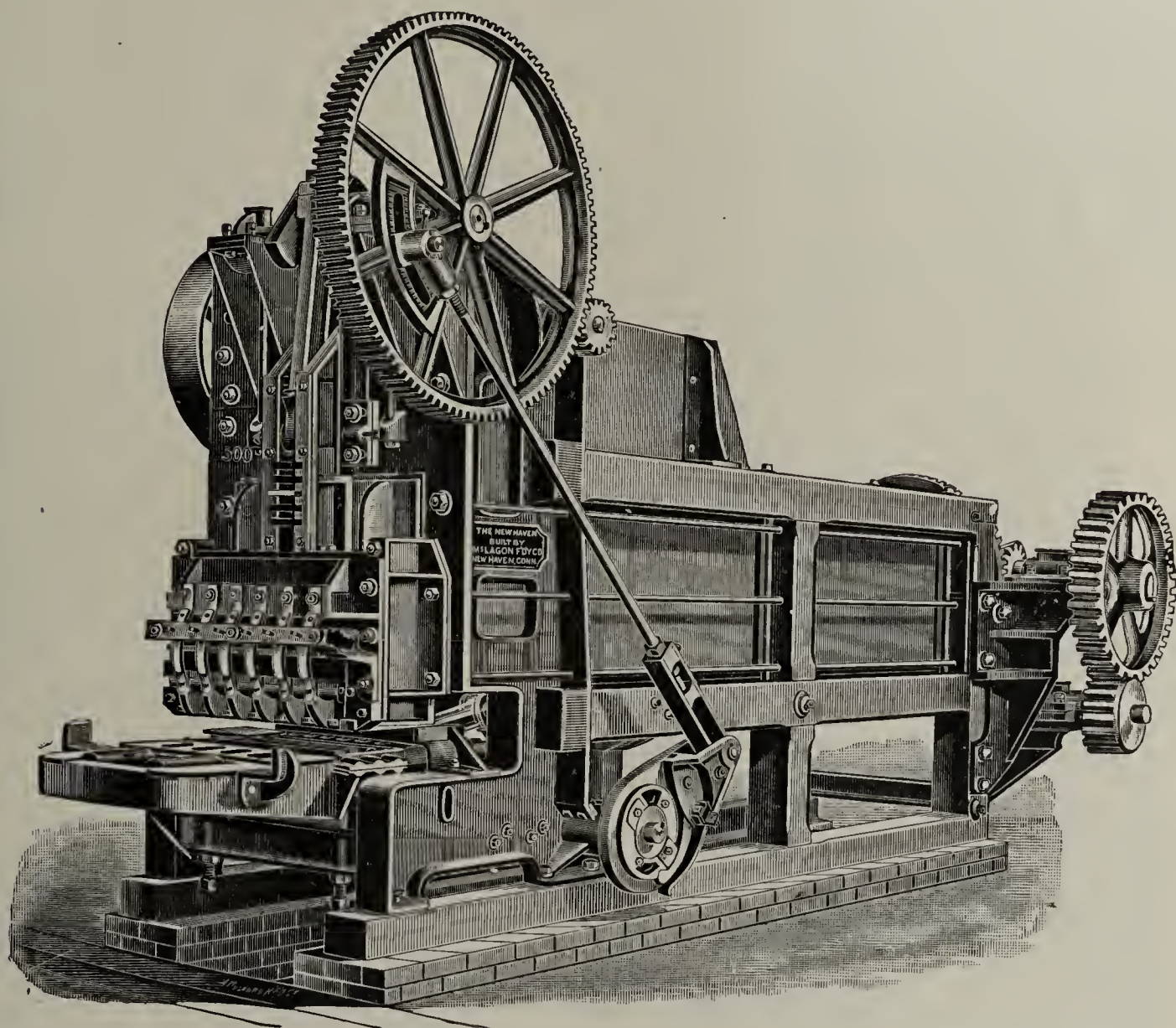
CABLE "AUTOMATIC".

Mention The Clay-Worker.

SOFT MUD BRICK MACHINES

Are the only kind we build and we build them well. We build them with the greatest strength placed where it is the most required. We build them with stout shafts, long bearings, large oil holes, strong gears, steel liners, and all other details in proportion. We build them so they

DO NOT BREAK DOWN EVERY DAY.



"New Haven" Horizontal Brick Machine.

.NEW HAVEN BRICK MACHINES

are popular at home because of their superior qualities. More than three-fourths of the brick made in New England are the product of **New Haven** machines. For hard service they are sure to satisfy where others fail. That is the reason why each New Haven machine is a standing advertisement, and why all users recommend them.

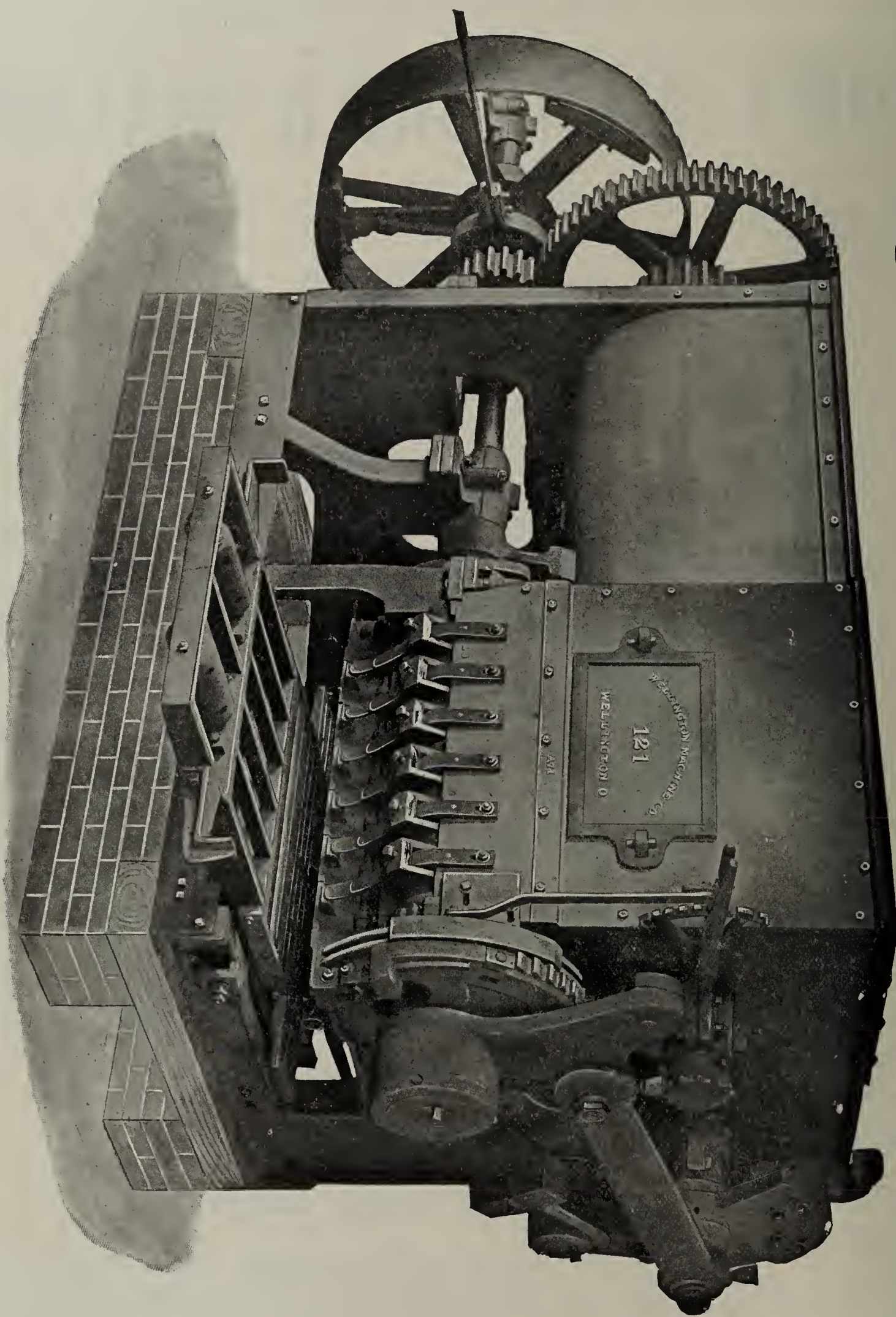
The EASTERN MACHINERY CO.,

NEW HAVEN, CONN.

OVER
235
"Monarch"
Brick
Machines
in use

OVER
565
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators.
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The "Big No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our
**ROLLER-BEARING
BARROWS.**

The Wellington Machine Co.,

WELLINGTON,

OHIO.

Send for Catalogue.

Mention the Clay-Worker.

We manufacture a complete line of BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BEARERS.

The best built, Price \$6.50 each.

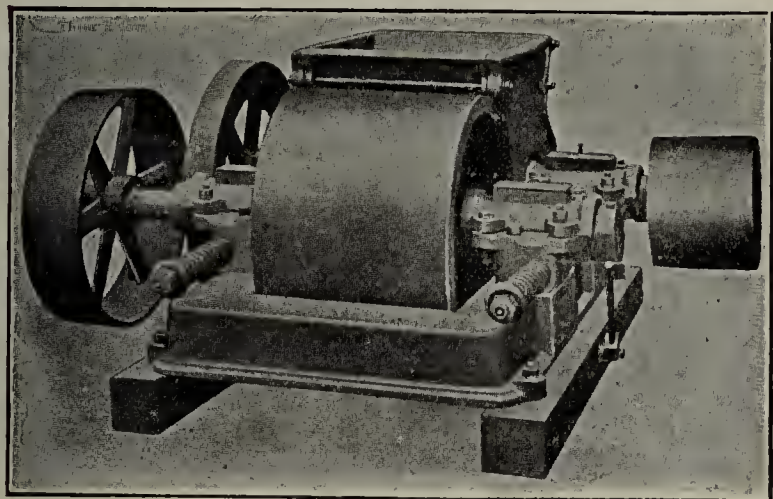
Stock size wheel, 20 inches diameter.
(If wanted 18 inches.)



There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.

Our Heavy Clay Disintegrator.

Note the springs and what is said about them below.



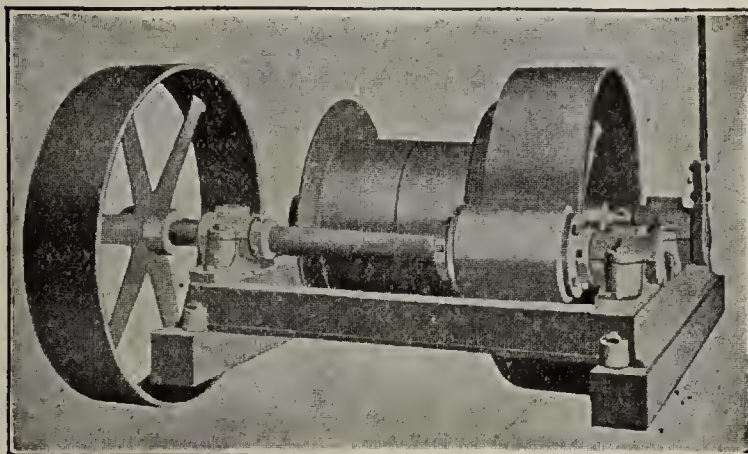
This particular disintegrator we believe to be much the best one that is built, as we intend it for large capacity, and to stand up to severe work for years. Both rolls are chilled. The journals are 10 inches in length. The small roll has a heavy balance wheel. Note its massive construction. There is a weighted scraper so hung that it automatically cleans the large roll.

RELIEF SPRINGS: After considerable experimenting we have learned just how to put relief springs on the large roll, and do it successfully. Occasionally a bolt or something else gets into a disintegrator that cannot be crushed, and it always means a smash-up. We have experimented long before adopting these, but can now guarantee them a success.

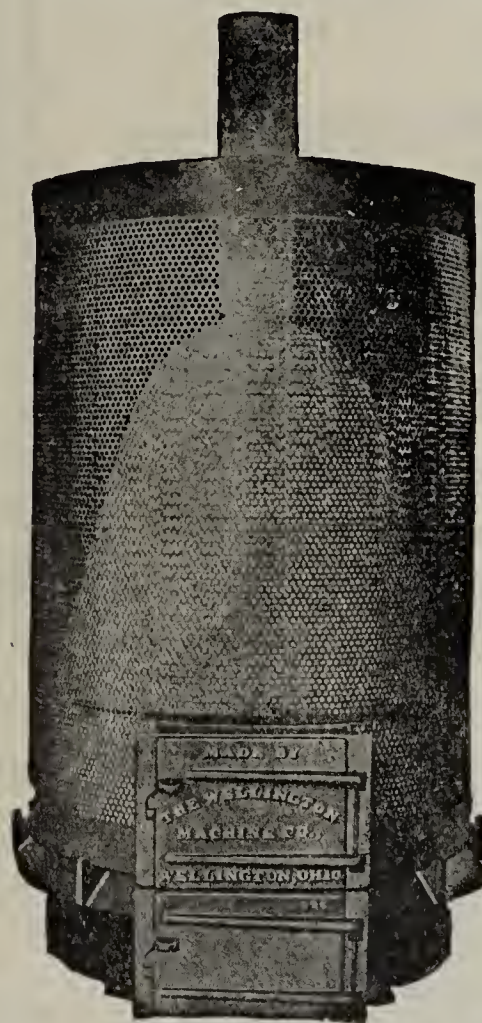
CAPACITY, 25,000 to 50,000 per day according to speed at which it is run. Pulleys fast roll 14 dia. x 10-in. speed, 700 to 800. Slow roll, 24 dia. x 6-in.; speed, 50 to 75.

1908 CATALOGUE MAILED FREE
ON APPLICATION.

Winding Drum.



Our Direct Driven Self-Contained Winding Drum is a Labor-Saver.



Sand Dryer.

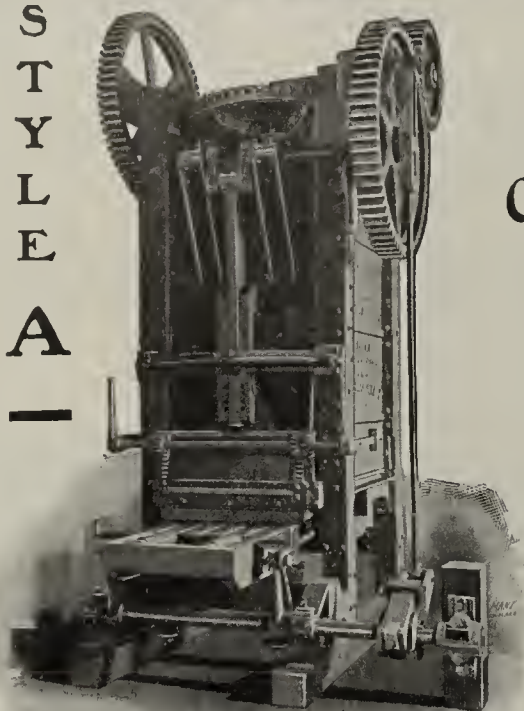
Weight, 1,100 lbs. Every brick works needs one. Diameter over all, 3 ft. 1 in. Height, 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

JAMES W. HENSLEY,

Successor to S. K. Fletcher.

Indianapolis, Ind.

Mention The Clay-Worker.

S
T
Y
L
E
A
—

STEAM POWER BRICK MACHINE

YES "MARTIN"
CLAY WORKING MACHINERY
HAS BEEN
FULLY TESTED
AND PRACTICAL

IN EVERY DETAIL

LET US FURNISH YOU WITH
COMPLETE WORKING DRAWINGS?

MOULDS

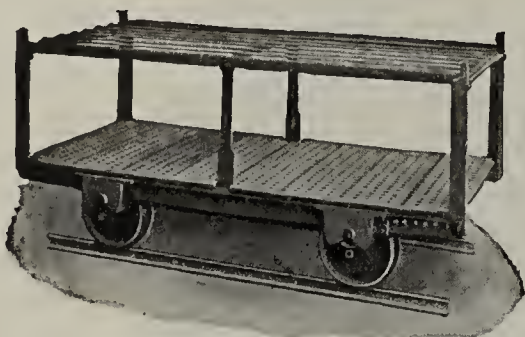


TRUCKS

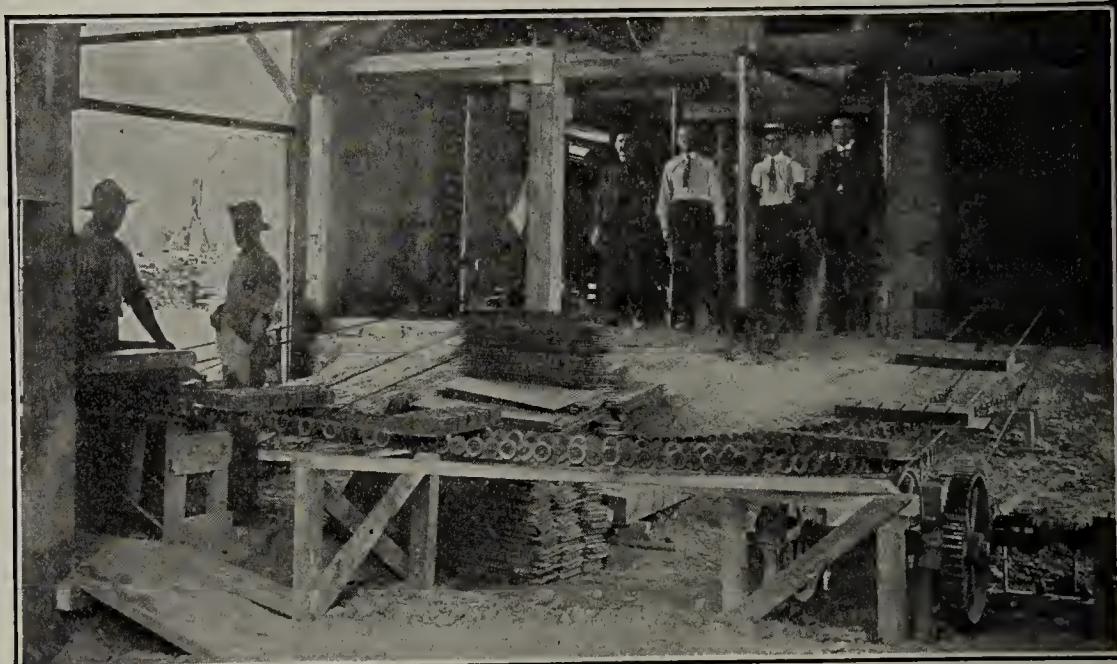


BARROWS

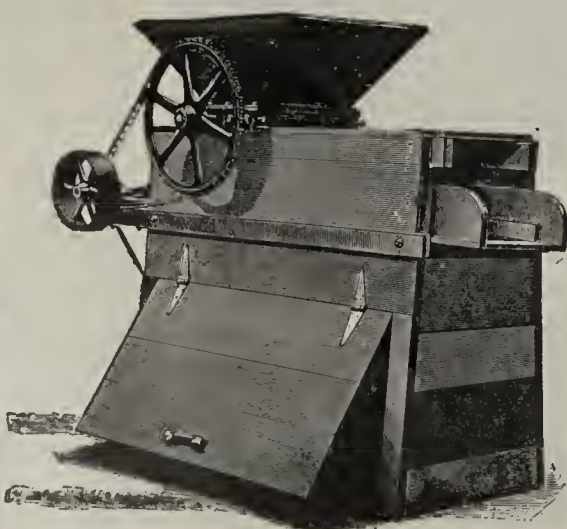
Handling Brick
From Machine to the
"Martin" Patent Dryer



DRYER CARS--ALL STYLES



The "Martin" Cable
Delivery System is the Most Labor-Saving
System Yet Devised--For Handling Brick From
the Machine to the Dryers, Open Yard or Kilns,
as it Does Away With the
Wheeler or Car Pusher



SAND GRINDER & SIEVER

"We Furnish Everything
the Brick Maker Needs"

THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.



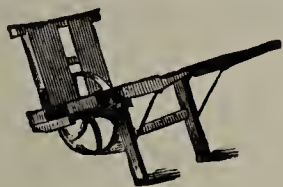
SINGLE DECK BARROW



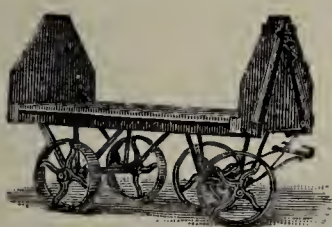
BOTTOM DUMP CAR



BRICKYARD



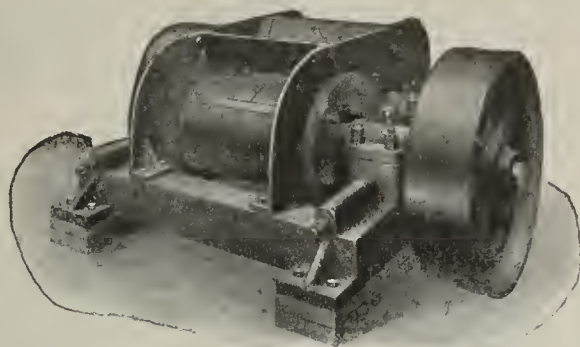
SUPPLIES



ALL KINDS

YES "MARTIN" BRICK DRYERS ADAPTED FOR EITHER SOFT OR STIFF-MUD BUILDING BRICK

FULLY COVERED BY PATENTS
PATENTED Feb. 22, 1898=599509
Oct. 10, 1905= 95520
Nov. 14, 1905=804489
UNITED STATES & CANADA



HIGH-SPEED DISINTEGRATOR

The "Martin" System of Handling and Drying Brick is Superior in Every Respect to Any Other System==Quick to Install and Low in Price==Write Us.



Exterior View of a "Martin" Patent Dryer



DOUBLE DECK TRUCK

We Build All Kinds of Brickyard Appliances Use the Best Selected Materials, Guarantee Workmanship Throughout



MARTIN'S SAND DRYER

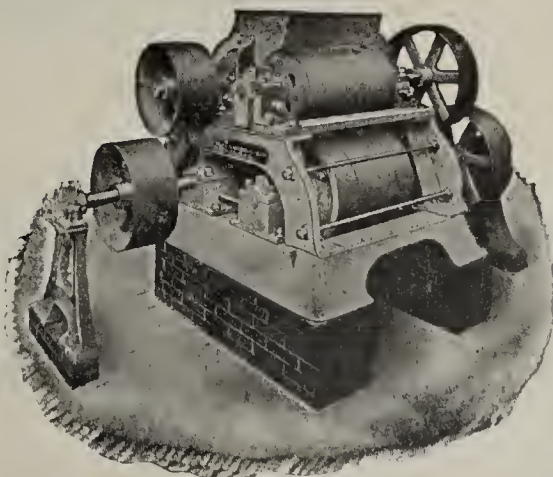
THE "MARTIN" COMPANY
AT LANCASTER, PA.

Own and Control These Important Dryer Patents and Have Authorized

— NO ONE —

To Manufacture or Sell This Type of Brick Dryer

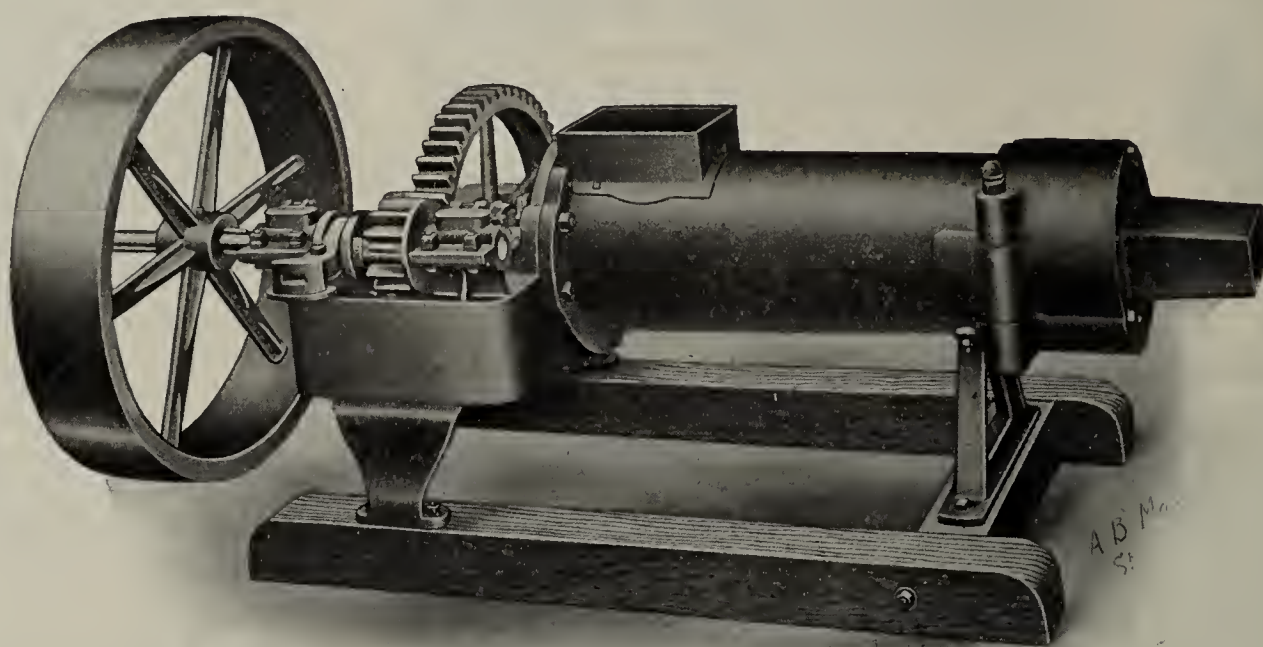
ALL CONTRACTS MADE BY
**THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.**



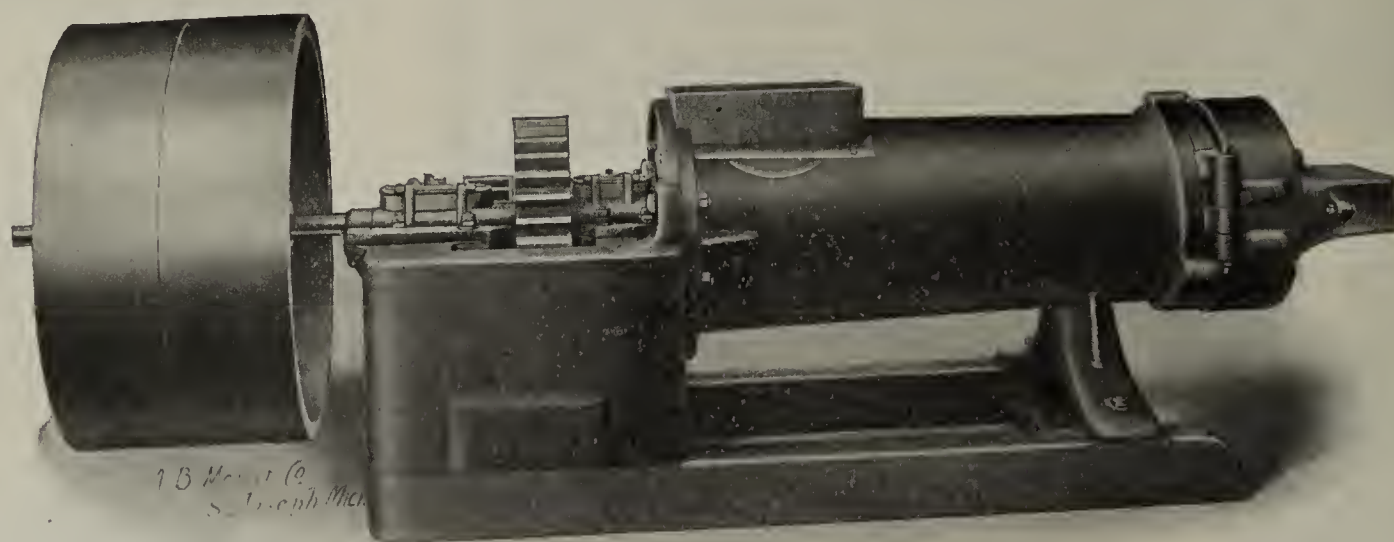
4-ROLL DISINTEGRATOR

TO MONEY SAVERS:

Here are two money-saving machines, both of moderate price.
Run light and are guaranteed against breakage.
Write us for full details.



No. 1A Brick and Tile Machine, With Square Hopper.
Capacity 15,000 brick or 5,000 to 8,000 4-inch tile or over, daily. Horse power required, 20.



No. 2 Brick and Tile Machine, With Square Hopper.
Capacity 12,000 brick or 5,000 to 8,000 3-inch tile or over daily. Horse power required, 10 to 12.

Michigan Brick and Tile Machine Company,
[ESTABLISHED 1856]
Morenci, Mich., U. S. A.

Mention The Clay-Worker.

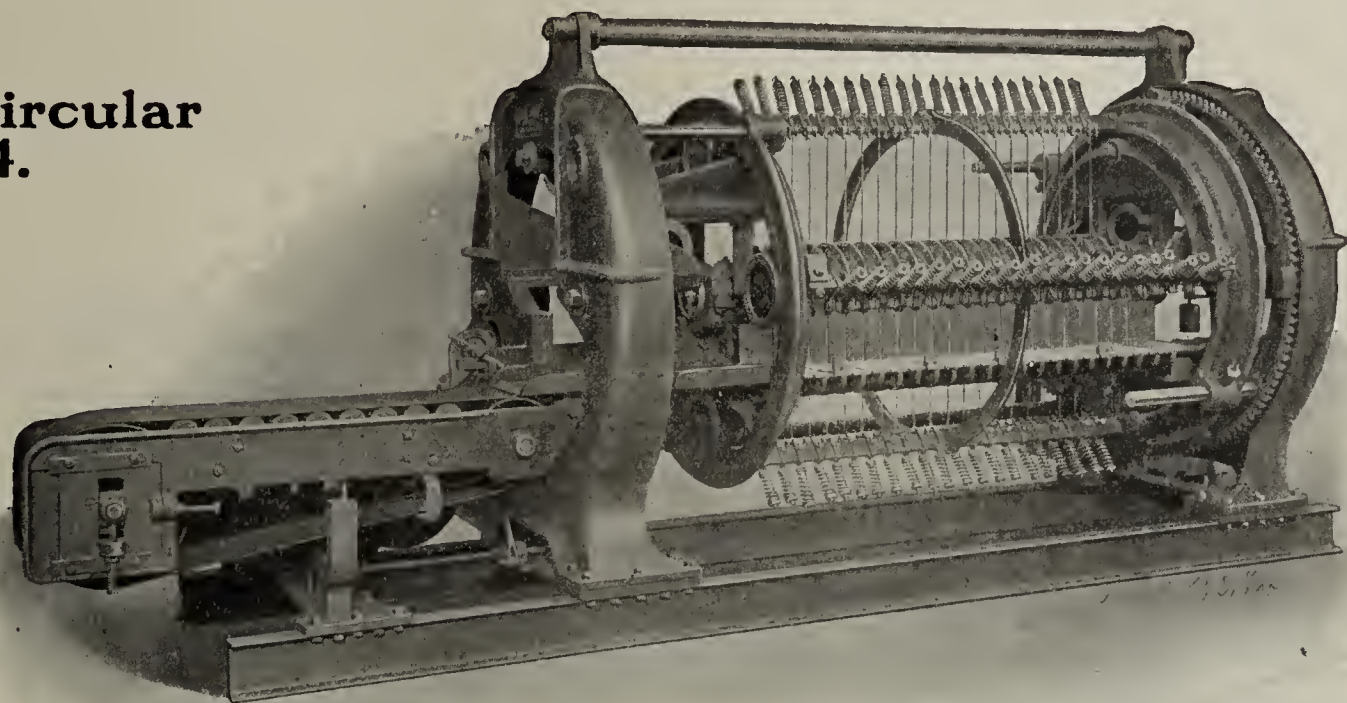
Modern Clayworking Machinery.

COMPLETE STIFF-MUD EQUIPMENT.

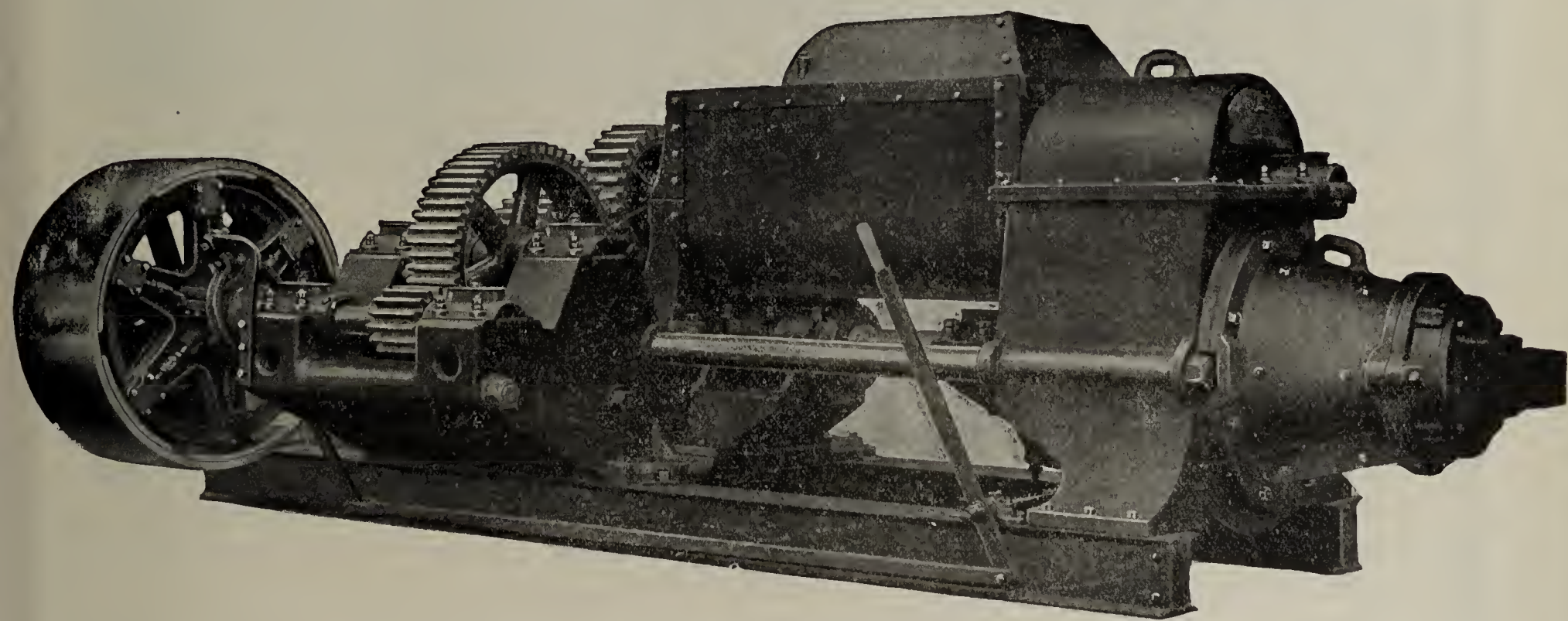
AUGER MACHINES WITH OR WITHOUT COMBINED PUG-MILL.

**Write for Circular
No. 14.**

Self-Contained.
Accessible.
Simple Cutting
Mechanism.
All wearing
parts above clay-
column and out
of dirt.
Capacity 100,000
Brick in 10 hours.
Cuts Brick with-
in 30 inches of
Brick Machine
Die.



ROTARY AUTOMATIC CUTTING TABLE.



"CANTON SPECIAL" BRICK MACHINE.

Thrust Bearing Rebabbited Without Dismantling Machine.

Cut Steel Gears.

Heavy Shafting.

Self Contained.

Accessible.

Capacity, 150,000 brick per day.

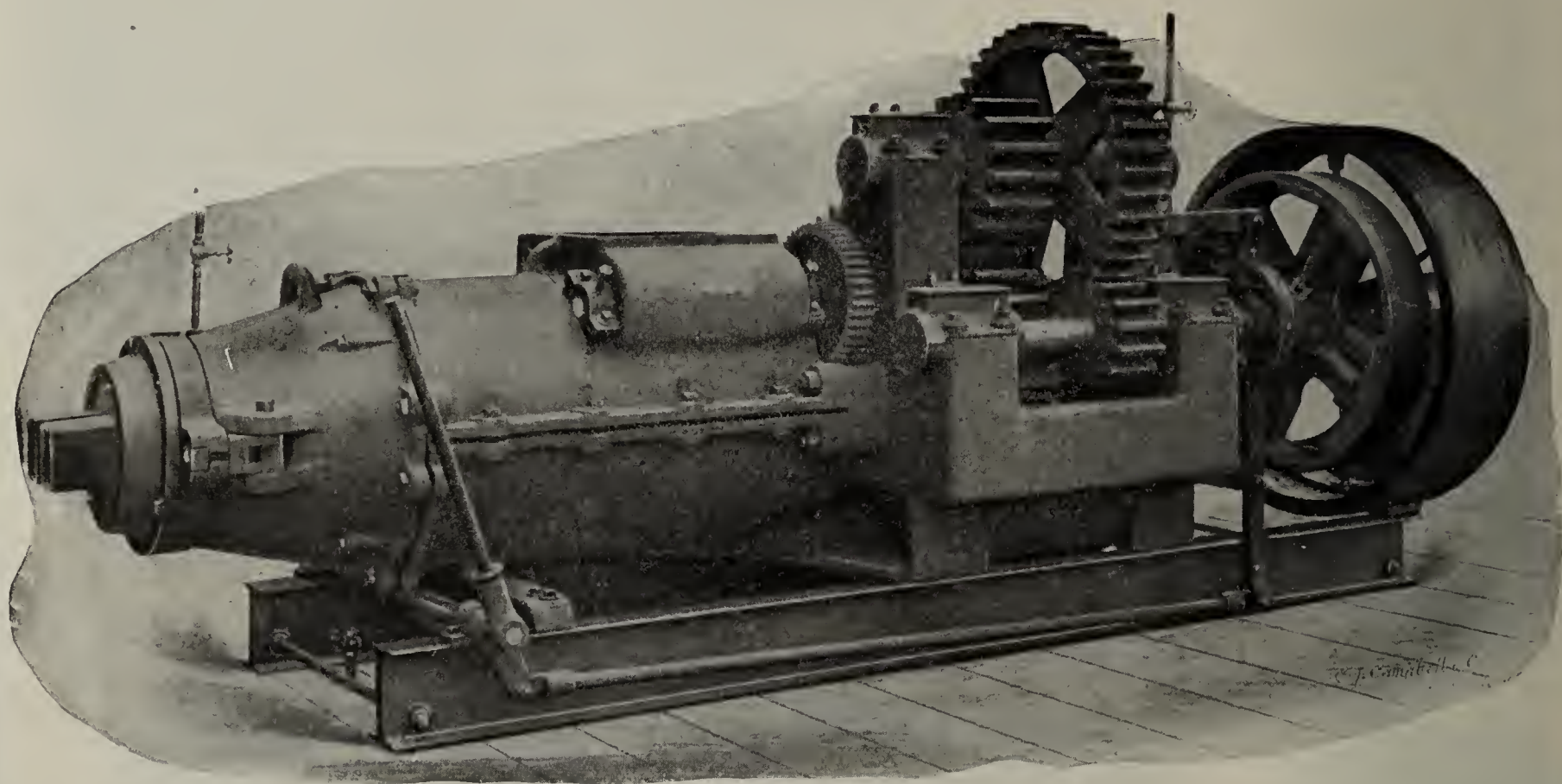
Our Piano Wire Screens are doing excellent work.

THE BONNOT COMPANY, Canton, Ohio.

WESTERN OFFICE, 305 NEW YORK LIFE BLDG, KANSAS CITY, MO.

BRICK MACHINES.

The Brewer Patterns are new enough to be thoroughly modern but old enough to be free from experimental features. They are strong, heavy and dependable, and plenty of good material, properly placed, enters into their construction. Fifty years in the business insures the reliability of the makers.



A LINE OF 3 SIZES

Ranging in capacity from 5,000 bricks per hour down to 2,000, with liberal allowance for unfavorable circumstances. Weights from 14,000 pounds down to 5,000 pounds, respectively. Gear-frames cast in one piece. Knives forged from hard high-carbon steel. Expressing screws and casings of white-iron. Journals self-oiling. Back-thrust bearings self-oiling, self-aligning and adjustable to take up wear of screw. Feed rolls keep hoppers clear and do not choke.

Full descriptions and specifications upon request.

If Marked



It's Good.

H. BREWER & CO.,

Tecumseh, Michigan.

If Marked



It's Good.

BOOKS FOR CLAYWORKERS.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryer, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors now in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Price \$1.00.

A review of present practice in the manufacture, testing and uses of Vitrified Paving Brick.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Burning Brick in Down Draft Kilns, by W. D. Richardson. Price \$1.00.

A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.00.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvements.

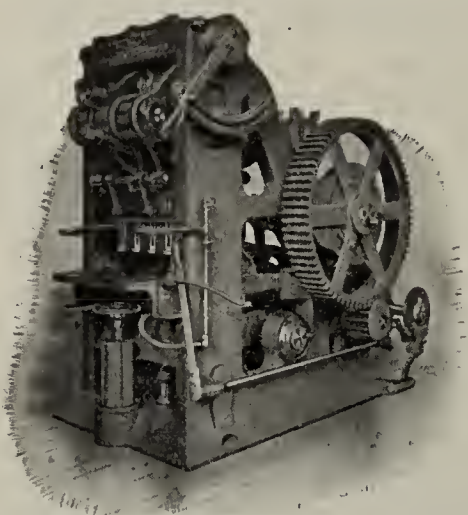
These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

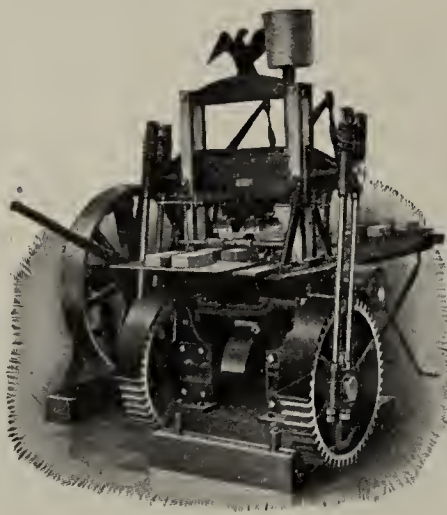
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

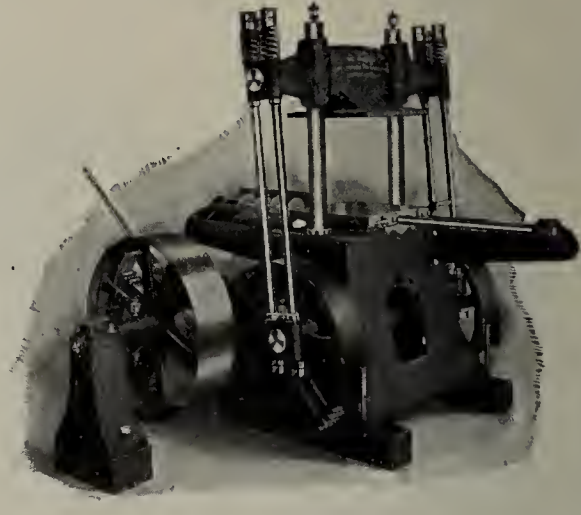
BUILT RIGHT RUN RIGHT



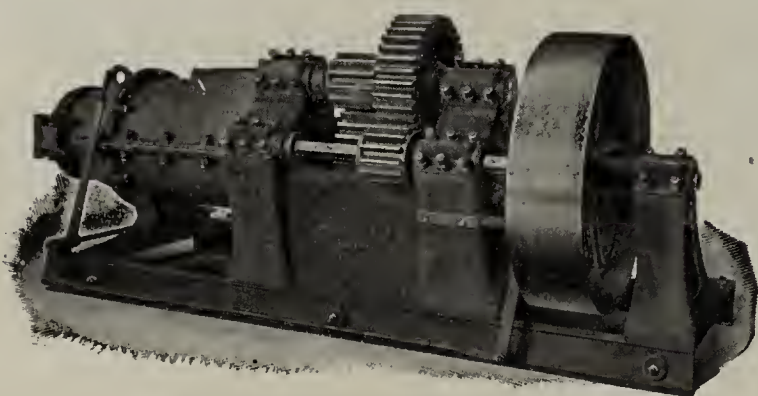
D-3 Dry Press



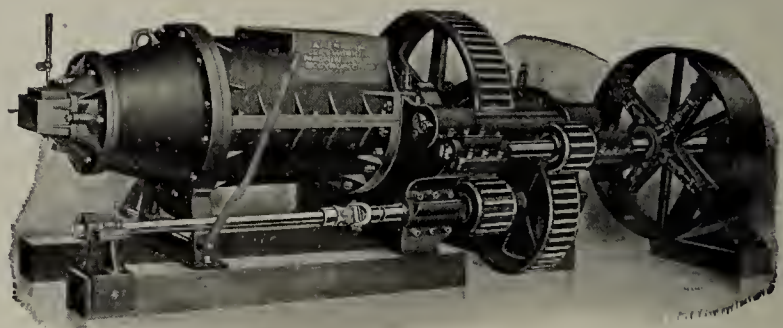
Eagle Reprass



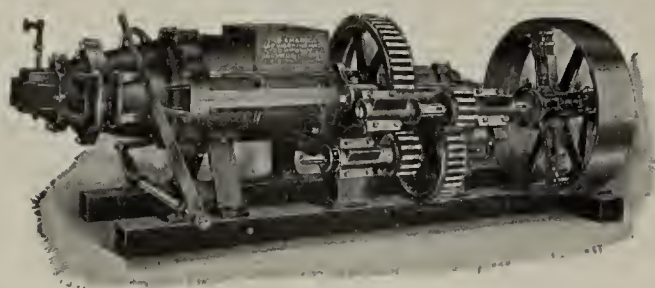
Roofing Tile Press



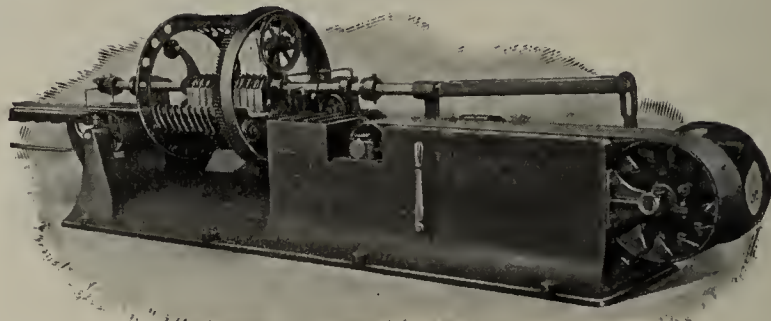
No. 65 Auger Brick Machine



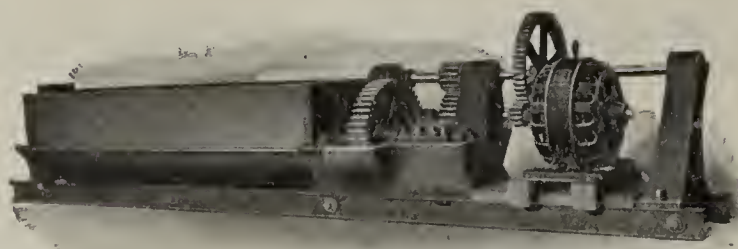
Special Giant Brick Machine



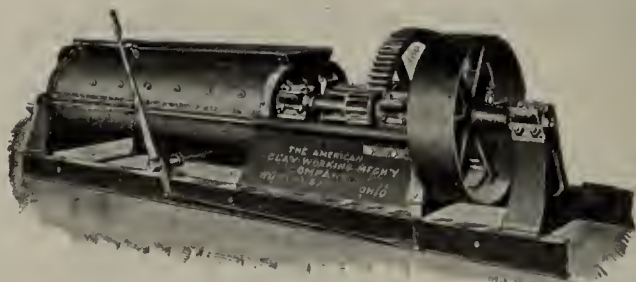
No. 2 Giant Brick Machine



No. 83 Automatic Cutter



No. 51 Electrical Driven Pug Mill



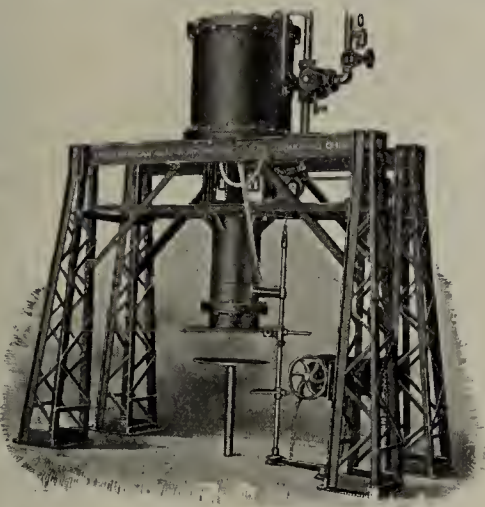
No. 38 Double Shaft Pug Mill

We Build Every Machine and Every Appliance Needed for the Manufacture of Every Class of Clay Products by Every Process.

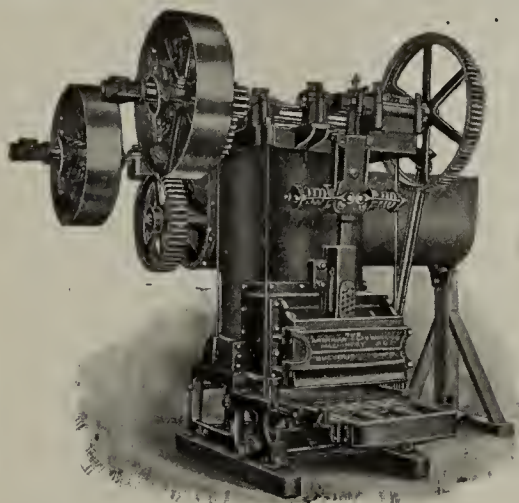
THE AMERICAN CLAY & MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

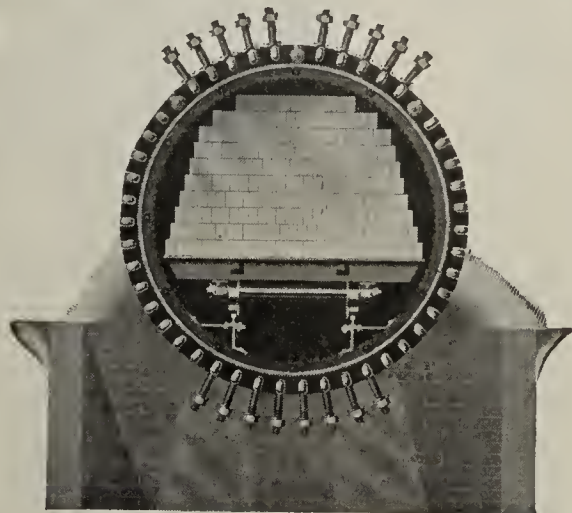
BUILT RIGHT RUN RIGHT



Sewer Pipe Machinery



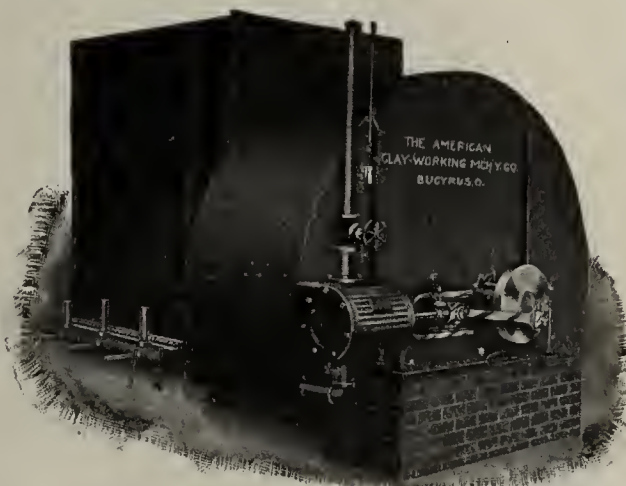
Upright Stock Brick Machine



Sand-Lime Brick Machinery



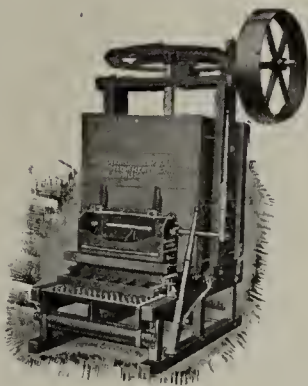
No. 64—9 Foot Wet Pan



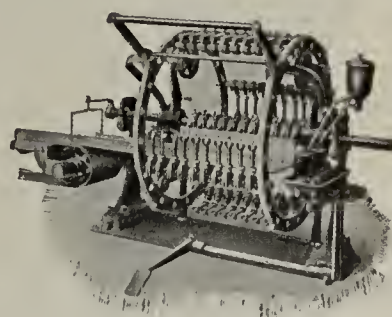
Blower Dryer Apparatus



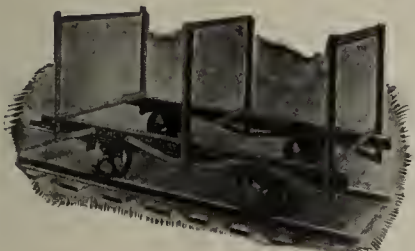
Mold Sander



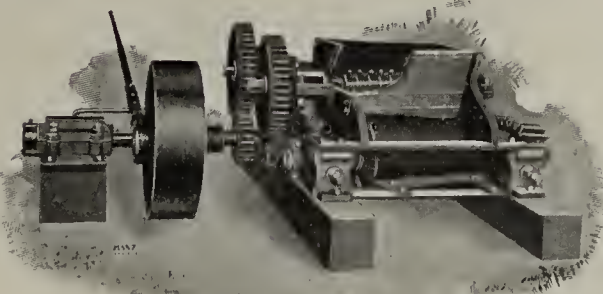
H. P. Brick Machine



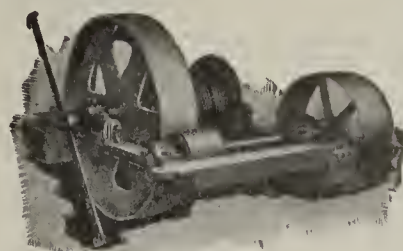
No. 62 Hand Power Cutter



Dry Cars



No. 25 Smooth Roll Crusher

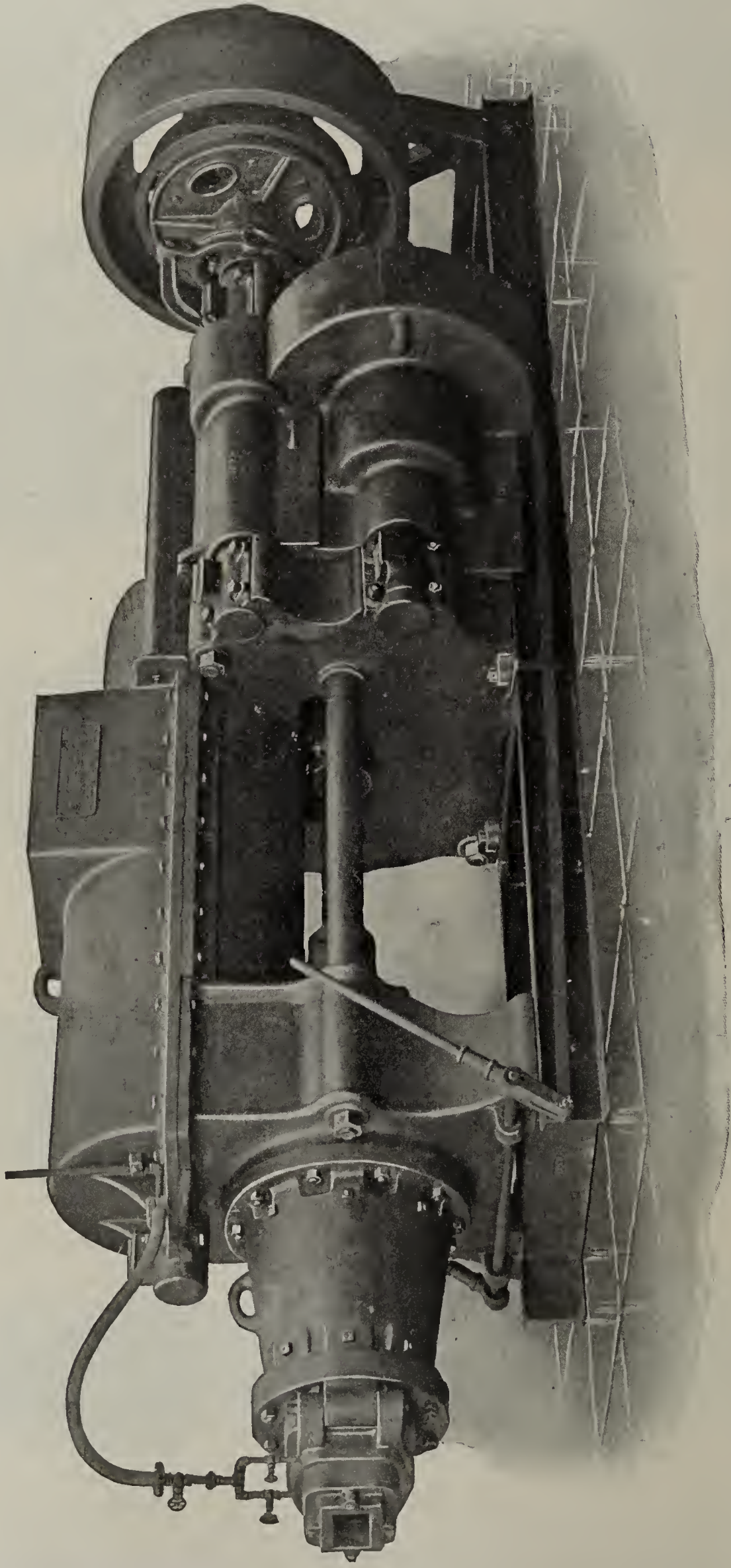


Winding Drums

We Are Much the Largest and Much the Most Extensive Manufacturers of Much the Best Clay-working Machinery in the World.

Mention The Clay-Worker.

Another Brick Machine.



This is a Brick Machine of massive proportions and of modern construction throughout, designed for large capacity and severe service. The gearing, shafting and other parts are very heavy. The gearing is protected by a removable dust and accident proof covering, hinged for convenient access to the interior. The feeding chamber is of ample diameter and length, and this result is obtained without excessive overhang of auger shaft. The auger shaft is supported by three journal bearings of sufficient distance apart to give it a substantial support. The part of the auger shaft in the clay chamber is about 4 feet in length, while the part outside is more than 9 feet long.

The machine is mounted on steel "I" beam sills between which are placed heavy cast iron spreaders with flanges, affording a substantial method of attaching the machine to its foundation. The outer end of the pulley shaft is supported by a rigid stand having an adjustable journal box.

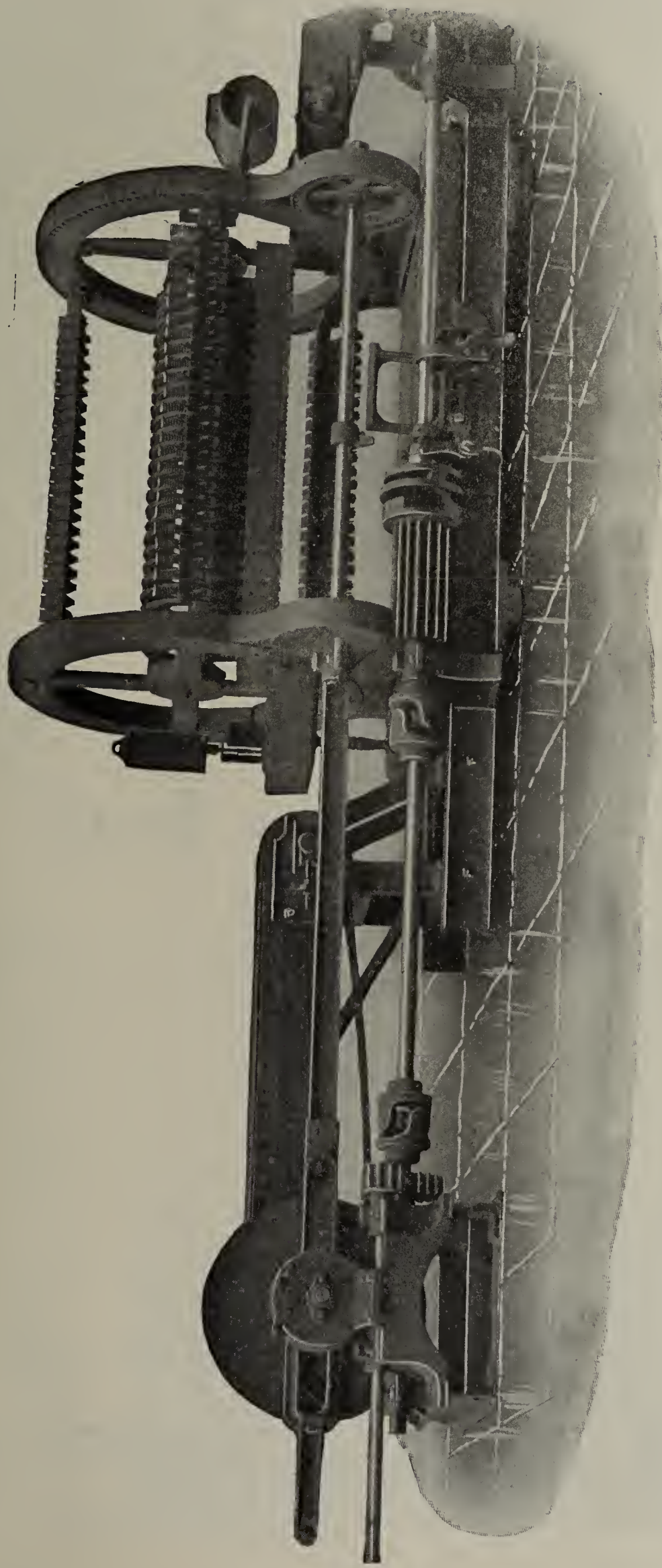
Height from floor to top of hopper, 5 ft. 8 in.

Length of machine over all, 19 ft.
Size of hopper, 26-in. x 26-in.
Weight of machine about 26,000 pounds.

E. M. FREESE & CO., Galion, Ohio.

(Mention The Clay-Worker.)

An Improved Rotating Automatic Cutter.



Our Rotating Automatic Cutters are the result of many years' constant hammering at a single type of Cutter. One of the three sizes we are building will suit your Stiff Mud Brick Machine. We ship on trial—YOU say whether our guarantee of "satisfactory operation" is fulfilled. If desired a man will be sent to arrange details of installation. These Cutters will give you satisfaction when all others have failed.

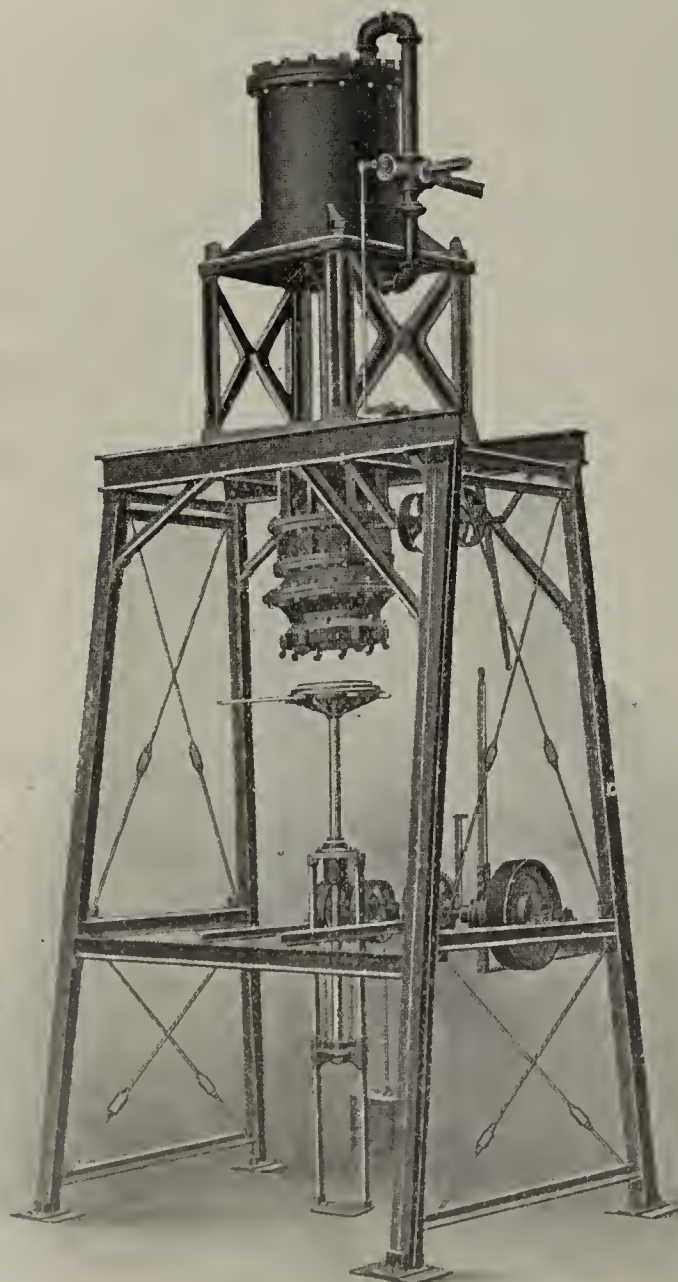
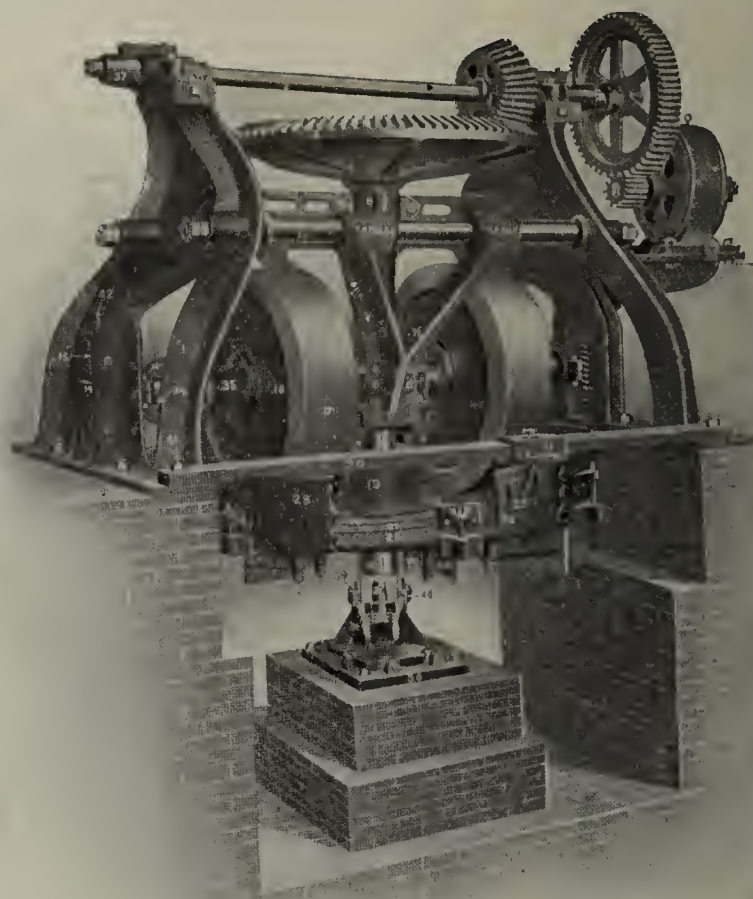
(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

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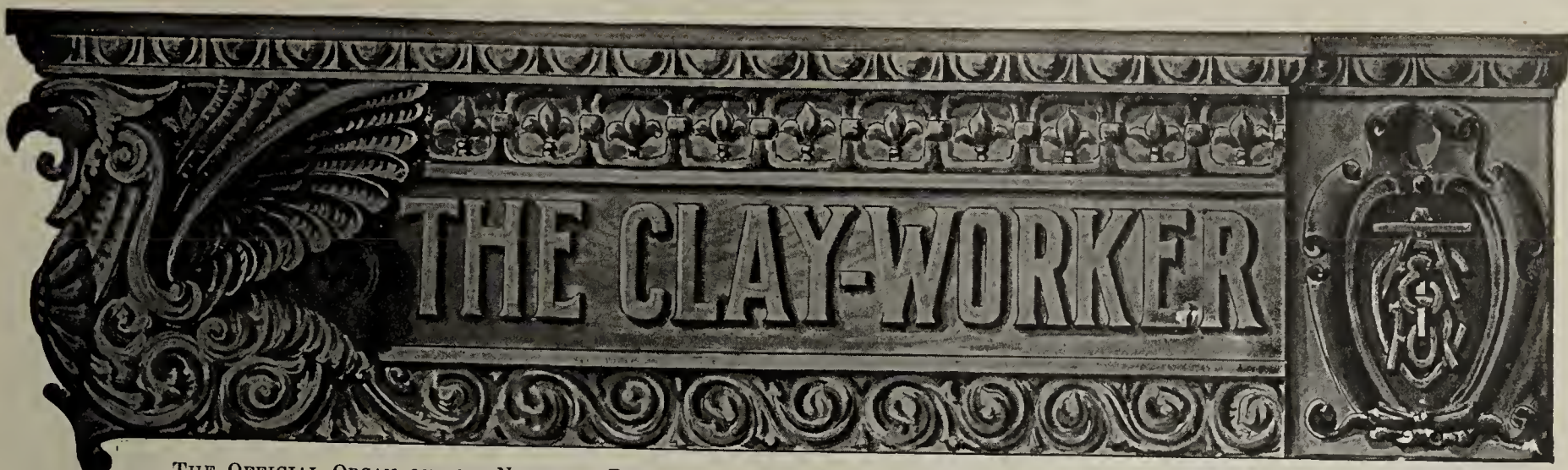
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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. L.

INDIANAPOLIS, IND., JULY, 1908.

No. 1.

Written for THE CLAY-WORKER.

ARTISTIC BRICK BUILDINGS IN GERMANY

K. DUEMLER, BERLIN.

SINCE THE MIDDLE of the last century more Government and other public buildings have been erected of genuine building materials than ever before in comparison to previous times when such buildings and also private buildings were finished with common mortar finish. The machine made building brick have done a great deal to increase the use of this kind of building material, while the lower cost and the durability have been in every respect very satisfactory. Quite often building brick have been used for the plain surfaces, while cornices, pilasters, and other large projective members have been built of stone. All stone buildings have only been built then when the material was an easy workable sandstone and could be furnished at low cost, as, for example, the sandstone found in Saxony. At the same time, however, beautiful brick buildings have been erected by prominent architects.

Many large churches have been erected according to designs from Adler, Otzenm Oryh, Hase and others. We can also count the many post offices, schools and railroad stations which have been built by the Imperial and State Governments. The post office building located on Oranienburger street, and the Anhalter railway station, both situated in Berlin, are good examples of special design and artistic application of architecture. The first mentioned building is erected with the use of different colored terra cotta for the pilasters and friezes, while the station is built with brick and terra cotta in two colors. The appli-

cation of different colored burnt clay material, and also the use of glazed terra cotta have worked hand in hand to produce a rich colored architecture for face building purposes. The richest application of such combinations of terra cotta and brick can be found in the facade of the Pringsheimer palace on Wilhelm street, and the court entrances of the former Thiele-Winkler palace, which is used at present as the Spanish ambassador's residence on Regent street, both also located in Berlin. Both these buildings were built and erected according to the plans of the architect firm of Ebe & Benda.

As nothing is permanent in the world, but everything subject to change, so the



Odd Ornamental Design in Front of the Mayor's Residence, Obtained by Using Different Colored Brick.

architects have to follow suit and change their ideas according to the prevailing style. They have abandoned the use of machine made brick to a great extent and again taken up the use of mortar finish for front finish. We can trace this application to a great extent to the easiness of its use, and that it can be put on buildings afterwards so giving the same its architectural feature. Every possible change can be made by its application, while by the use of brick and terra cotta the architect should know exactly before he gets started how such building will look from an architectural standpoint. All such materials should be ordered beforehand, in order to erect the building without delays. The use of mortar finish as architectural finish can be greatly assisted by the fact that the architecture of the Italian and German renaissance have been changed to the Barock style, of which we find at present in Germany many old beautiful buildings, and especially in Bavaria and the southern states, which have been very successfully copied

made by the slop mold process in preference to machine brick, which are now made in this period of steam and electricity. Such hand mold brick should bear distinct marks of all roughness and waving which goes hand in hand with the poor preparation of the clay. We can, however, be thankful that these architects have not so far demanded that these brick should be burned with wood in open clamp kilns, in place of being burned with coal in continuous kilns.

In many of the newly erected brick buildings such hand made brick which are very rough and of large size are used. These buildings do not produce a satisfactory effect, as we can observe on the addition to the old and fine post office in King street. It is a frightful example of driving such building craze too far. The new addition, which is only five years old, looks already so old, black and dirty, that we could easily state that it has been erected centuries ago.

Regardless of this somewhat unsatisfactory state of the building situation in Germany, there is of late quite a few new



City High School Building, Beuthen, Silesia.

of late. Building stone which can be used for pilasters, columns, cornices and gables and copings is only found in very limited quantity in Germany. The cost of transporting this material to the large cities in the northern states is very expensive. We are building rather cheap, and consequently we give the mortar finish the preference over all plain and ornamental finish. The manufacturing of such building materials from terra cotta, as has been practiced to a very large extent in the United States of America, has not met with much success here in Germany.

This is the main point, while the beautiful buildings which were erected from 1860 to the close of the last century are not copied any more. There is, however, still another cause for neglect. We find many architects, and among them are very prominent Government officials, who have a great desire to use brick such as were made centuries ago. These architects specify that they will only use such brick as were

brick buildings going up in which the architecture has reached a high level. In most of these new buildings burnt building materials have again found a large application, either in large pieces which are manufactured from "gres," (stone-ware bodies), and others in which the architect has endeavored to obtain a rich and ornamented surface in different colors. Under the first class we can place a large amount of business blocks which have been erected by the firm of Freytag & Wurzbach, architects, in Hamburg. In the second class we find the buildings erected according to the plans of City Architect Brugger, in Beuthen, in Silesia. In the photographs shown herewith, we find three of this style of building. One is the residence of the mayor, and the two other ones are city school buildings.

The treating of the surfaces in ornamentation is clearly shown. The most original one certainly is the residence of the mayor, in which on the front view is an oak tree with its

branches. In the middle under the top windows we find the coat of arms of the city of Beuthen, while over these windows is the burgher crown. In order to obtain this effect different colored brick were used, of which the face size is $4\frac{1}{4} \times 2\frac{1}{4}$ inches, and the mosaic style is used by the architect.

In the same way is the inscription treated in the residence and on the school buildings. The residence does not show any horizontal nor vertical architectural members, except for the main cornice; the school buildings, however, show many of these features. All projecting members are in a different color, so that they are more pronounced in effect than could ever be obtained by regular light effect. Herr Stadtbaurat Brugger, of Beuthen, is the architect for these new brick buildings, and the glazed brick for these buildings were furnished by the Siegerdorf Clayworks, formerly Fried. Hoffman, in Siegerdorf, in Silesia.

RAILWAYS OPPOSE WATERWAY MOVEMENT.

It was but natural to assume that the railways would not show any favor and might develop active opposition to the

taking up the question of spending large sums of money to improve and create water transportation facilities as a means of regulating and keeping down exorbitant railway freight rates, entirely aside from the idea of carrying freight itself, President Smith suggested that the same money might better be expended in the building of railroads. It is difficult to believe that President Smith or any other railroad manager is desirous of having the Government build railroad lines competing with any part of their own. It doesn't require any reading between the lines, however, to see that they are strongly opposed to the Government spending money to extend the inland waterways. In fact, the railroad people, like business men of any kind, don't take kindly to competition, no matter what shape it comes in. If a man wants to build a new brick plant near some other man already operating a brick plant, to the first man it naturally looks like he will have to suffer, and he would, of course, if he could see his way clear, take steps to discourage such an undertaking, notwithstanding the possibility that the country at large might need more brick than he is able to furnish. It is the same thing with the railroads, and it is the same thing with human nature in all walks of life. Competition is unwell-

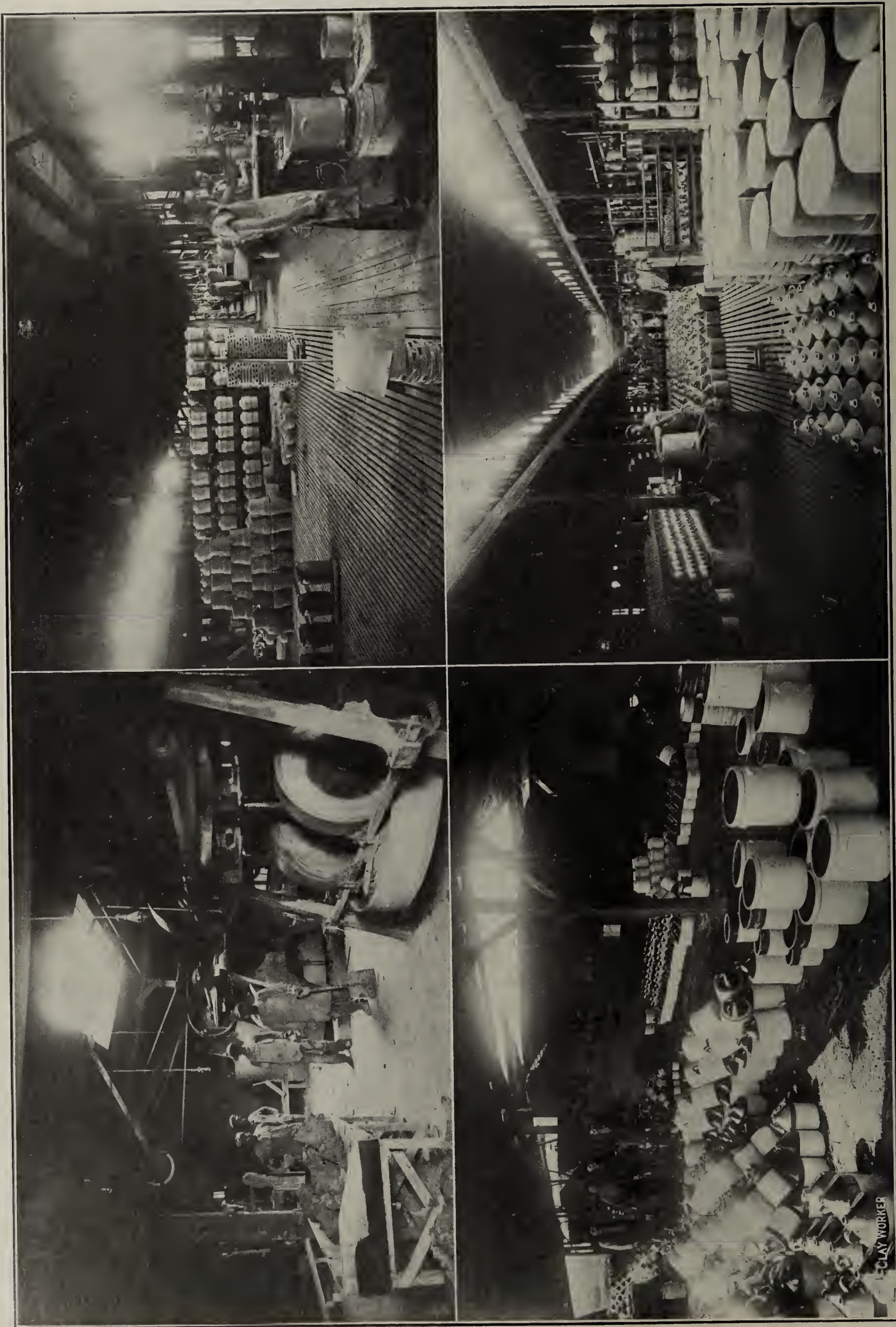


Group of Municipal Buildings, Including City Hall, High School and Mayor's Residence, Beuthen, Silesia, Prussia.

development of our inland waterways, because it naturally means quite a lot of freight going by waterway that would otherwise go by rail. It seems to be only recently, however, that railway managers are coming out openly against this movement. Probably the most pretentious public utterance in opposition thereto has emulated from President Milton Smith, of the L. & N. Railway. President Smith, on May 4th, gave out quite an elaborate statement for publication to the daily newspapers, in which he takes issue with President Roosevelt for statements made relative to the inland waterways. President Smith goes on to show, which is easy enough right now, that the railroads are not only able to handle all the traffic offered, but actually have idle rolling stock. The present time is not one of normal conditions, however, and it is too easy to recall troubles of the past which have occurred year after year, notwithstanding many promises of the railroads. In this somewhat lengthy interview, attention is called to the difficulty in controlling the waters of streams which are subject to floods during the rainy season, out of which much in the way of discouragement arose to the proposed inland waterway extension. Then,

come and it is fought against. When we get and keep this point thoroughly in mind it is easy to understand so well the motive behind these public utterances of discouragement that it should rob them of all their weight, except the enlightenment that they may furnish in regard to the difficulty which it is necessary to meet and overcome. Probably no right-thinking man desires to do actual injury to any railroad, and surely no one desires to put them out of business, because they are one of the most useful necessities of the age.

Also, they are entitled to fair earnings on their investment for their time and brains expended in operating. But railroads, like people operating brick plants, sawmills, or anything else, must naturally expect development and steady increase in what might be termed competition. Probably if they had had more competition in the past, so it would have kept them so busy that they would have had less time to water their stock, they would be in better shape today and paying fairly good dividends, even at reduced freight rates. Anyway, it is plain on its face that their opposition to the inland waterways improvement is selfishness, pure and simple, and is not given out with a public spirit of regard for the welfare of the country at large.



VIEWS OF THE FACTORY AND STOCK ROOMS OF THE LOUISVILLE POTTERY.

Written for THE CLAY-WORKER.

THE MODERN PLANT OF THE LOUISVILLE POTTERY COMPANY.



ONE OF THE PIONEER plants in the south for the manufacture of all kinds of pottery goods is located in the city of Louisville, Ky. The foundation of this operation dates back as far as 1875 when John Bauer erected a small plant on Preston street road, and began in a limited way the manufacture of jugs, earthenware, and similar pottery specialties. In those days there was little machinery for a plant of this kind except patterns that were rude, and which were operated by hand or foot power. The magnitude of the industry had not assumed the proportions that it has reached today, and the output was consumed to a great extent in the immediate locality in which the plant was located.

But that day has passed forever, and now the potters' art

pace with the demands of the potter. In 1898 John Bauer died, leaving his wife to continue the operation of the plant, but this did not prove entirely satisfactory, and after several years the old plant was closed down, to be sold to other and younger men, who had in view the true merits of the industry.

It was in the year 1906 that several young men purchased the old Bauer plant, and after a careful reconstruction of the same began business under the name of the Louisville Pottery Company. The company was incorporated with a capital stock of \$50,000, and operations were begun in a manner that were to insure success in the undertaking. After a short time it was decided to seek new and more modern quarters, and a desirable location was secured on a railroad, where switching facilities could be had, and a new and



Setting Jugs in a Center Draft Kiln, Louisville Pottery.

has assumed such magnitude that there is real cause for the most modern equipment in the plant and the most careful workmanship in the manner of turning out the commodities. There is an enormous demand from various sources for all the special lines manufactured from potters' clay, and the modern manufacturer is one that has a very wide and useful field of operations. He must be in touch with the needs of his customers, and he must also be able to place on the market a much higher quality of ware than were essential thirty years ago.

The Bauer pottery was operated in a limited way with an increase now and then, and the business gradually assumed a more far-reaching territory. Few improvements were made in the old plant, however, and the Bauer people were content to let the business run along in the old way. The changed conditions naturally demanded new methods, and as these did not materialize here, the growth of the business, did not keep

modern plant erected thereon. This ground comprises two and one-half acres, and there is located on the same a building 80 x 325 feet, one room of which covers 80 x 200 feet, where are employed a force of nearly fifty hands.

The equipment of the plant consists of the latest improved machinery and methods, and in addition they have a 150 h. p. automatic Detroit stoker, a 150 h. p. Allis-Chalmers Corliss engine. Everything is operated on the most approved methods, and their output is one and one-half million gallons per year. This includes jugs, fruit jars, earthenware, churns, flower pots, and stoneware specials. The plant is equipped with four center stack, down-draft kilns 28 feet inside.

The potter's clay is mined about seventy-five miles distant in the state, and is shipped in on cars right to the plant. It is of the highest quality and has given the most satisfactory results. After being received, the clay is carefully washed and the manufacture of the commodities done by the best

workmen obtainable. The business of this concern extends to many sections of the country, and they enjoy a reputation that is not surpassed by any other plant. Aside from this it is one of the largest plants of its kind in the south. Mr. S. O. Snyder is president of the company.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



THE BUILDING OPERATIONS of Kansas City were pretty badly crippled during the month of June by the continued floods, which prevented the arrival of Kansas gas-burned brick to fill contracts, and caused a cessation of work on a good many buildings. Then when the railroads were able to deliver brick they came in by the train load, and the building material people were almost buried under the deluge and could not possibly unload the cars fast enough to keep from paying demurrage. This trouble seems to all be over at the present time, however, as building

in fact, some of them have already done so, and they are beginning to take leases on buildings in the "north end," where they are handy to the railroad tracks and still are away above flood damage. This is a fine section for them to locate in except that there will not be room for nearly all those in the flooded district. The other most favored location is in the Blue Valley, in the extreme eastern part of the city, where the railroad facilities are fine and the ground is high enough to be out of flood danger.

The city and the railroads have again begun negotiating for the new union depot, and it is possible that it may still be built while those now on earth may stand a show of enjoying its conveniences. It seems railroad bonds are now finding a ready market, and that has probably been one of the greatest drawbacks to progress in the past eight or nine months. The settling of the depot question for good would open up a vast amount of work, which would require the use of millions of brick, and the Kansas brick people would find an outlet here for their common brick which still seem to be a drug on the market, judging from the concessions a good many of the plants are making to get rid of them.

In spite of the floods the building permits issued for the



General View of Plant of Louisville Pottery Co., Louisville, Ky.

operations are again normal and the railroads are furnishing reasonably prompt delivery.

The flood was highest in the Kaw and Missouri Rivers just before the middle of the month, and while it receded after a couple of days the water did not go down very rapidly, and every little rain further up the river caused a corresponding raise, so the people here have remained on the anxious seat for a good while.

Fortunately for the builders, most of the building operations have been on high ground and there was little loss on account of the floods, and the Kansas vitrified brick are warranted to be too heavy to float out of the cars, even if they happened to get caught by the high waters.

One of the results of the flood this year will surely be to cause some active steps to be taken to either build dykes along the rivers to keep them in their channels, or take some other means of controlling the immense bodies of water, for it is very evident that the low-lying districts of the city are likely to be flooded at any time.

If action is not quickly taken there is every indication that wholesalers and manufacturers located in the flooded districts will pack up their goods and move to higher ground;

month of June show up greater than for the corresponding month of last year, the total being \$819,437, as compared with \$772,020, or a gain of \$47,417. Of this amount, \$245,200 was for brick buildings, of which there were forty-one, as against thirty-six the corresponding month of last year. The building statistics for Kansas City, Kans., are not at hand for the month of June, but in May their permits amounted to \$123,889, or about a third more than for the corresponding month of the previous year. In this city so far this year there has only been one month which showed a decrease in value of permits, and that was the month of May, and the increases of other months have been very material ones. This steady growth is very pleasing to the material men, but is probably largely chargeable to the fact that building material, in general, is considerably lower than a year ago, and then it is said that contractors are making very low bids for the work, especially on the small jobs.

Owing to the fact that some very inferior brick paving was laid in this city some years ago the City Engineer has been apparently prejudiced against brick as a paving material, and it seems that he is just awakening to the fact that brick can be taken through tests which will show its quality and lasting powers, which will compare favorably with anything in the paving material line. In the past three

months there has been quite a little brick paving let, although no big contracts, and most of these are said to be of Buffalo brick, which were very severely tested, three tests having been made, lasting sixty minutes each and at 1,800 revolutions, and the loss shown in the three tests was 13½ per cent., 15 per cent., and 18 per cent., thus coming well within the limit, which was 18 per cent.; and City Engineer Harper states that if the rest of the delivery comes up to the test it will make as good, if not a better, pavement than any that has ever been laid in Kansas City.

A new paving brick plant is to be established in Caney, Kans., and the machinery for same has already been ordered.

Flanagan Brothers have been absolutely unable to supply the demands made upon them this year and have decided to start another yard, which will increase their output to 80,000 brick per day. Their old plant at Second and Lydia will

Written for THE CLAY-WORKER.

ATTRACTIVE BRICK DISPLAYS PROVE A PAYING INVESTMENT.



R. BRICK DEALER, have you a brick display in your salesroom?

This little article is not intended primarily as a boost for brick displays. It is simply presented in an effort to bring to the dealer's realization something that may not have appealed very forcibly to him before. It tells the story of two of the most successful brick selling offices in one of our large industrial cities where brick is in keen competition with half a dozen other materials. It may cost a little money to



A Corner in the Main Office of William H. Hunt, Cleveland, Ohio.

be continued in full operation, and the new one will be located at Second and Michigan, where they have a fine strata of blue shale, from which a great deal of the shale has been coming to supply the old plant.

The Lyle Brick Company, with its two plants in the city, is still crowded with orders, and they are to put in a third plant as soon as arrangements can be made. The new plant will be located near Twenty-third street and Grand avenue.

Charles Hammond, of the Pittsburg Brick Company, sits in his office nowadays lamenting that he has no more paving brick to sell, and says that it would be much easier to sell three times as many as they can produce than it is to turn down the orders offered him. The reputation of Mr. Hammond as a salesman is in keeping with the quality of the brick he has been selling for paving purposes. K. A. W.

install an attractive display of brick, but from all accounts it seems to be money exceedingly well spent.

Cleveland, Ohio, is a city where brick has come into its own. It has arisen above the sordid stage of one commodity in a building supply yard, where samples are kept in barrels and the salesman throws a few acrobatic fits before producing two shades. Ever since the day ten or twelve years ago, when William H. Hunt fitted out a neat suite of offices in a big Cleveland office building and announced to his credulous friends that he was still in the brick business, has the realm of brick been lifted into an atmosphere of decency and the dealer been regarded as more than a mere tradesman. Mr. Hunt has had installed in his offices, which he has added to and enlarged, one of the finest collections of brick to be found anywhere.

Robert L. Queisser, sales manager for the Cleveland Hy-

draulic Press Brick Company, is an equally firm believer in the efficacy of a brick display as a sales producer. Mr. Queisser has made a study of colors and effects and talks interestingly on the subject.

"The value of a brick exhibit to properly display the various sizes and grades of brick to the architect and prospective builder," said Mr. Queisser to THE CLAY-WORKER representative, "can not be overestimated, especially if such exhibits are put in panel form and laid up with genuine mortar joints. If laid up in this latter manner the prospective builder (though he be a novice in building), can readily perceive just how the wall will look when the building is completed. It really takes the most experienced eye of the expert architect and builder to frame in his mind the picture of a building when completed if he has only the single or loose sample on which to base his idea.

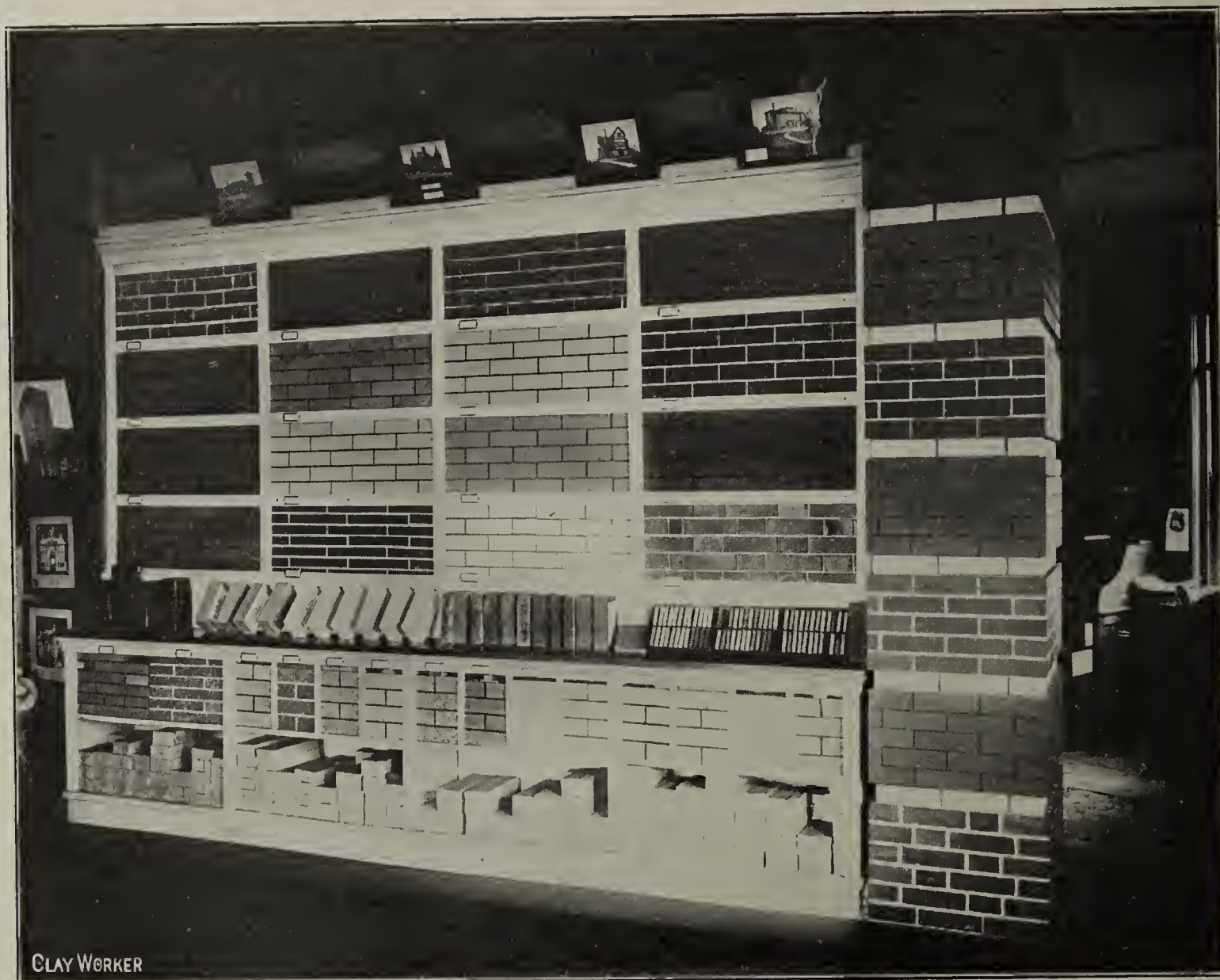
"Yet there are a great many brick, especially in the

through the medium of panel exhibit, as they can more clearly make them understand the approximate color and tone of the brick wall of the finished building.

"Naturally an exhibit must always be kept up-to-date with new and clean bricks. Special attention must be paid to the manner of laying them. This takes into consideration the joint to be used, the bond of laying, whether standard, English, Flemish, or otherwise. Some brick show to better advantage by reason of a different mode of treatment.

"Some objections can always be offered to any scheme of submitting samples to prospective builders, and particularly against that of panels, the main one being that when the prospective builder has not clearly made up his mind about what he wants he is more and more confused as he views the different varieties of brick, and it is, therefore, difficult for him to make up his mind just what to choose.

"In exhibiting samples in panels there are a number of



Attractive Displays of Ornamental and Pressed Brick in the

lighter colors and flashed or mottled materials, that do not show up particularly well, even in panels. This is because of the variation that while particularly noticeable as between the light and dark tones of the same shade in the smaller panel exhibit, yet does not show when in the wall and laid with the proper mortar joint, the latter blending together the various shades, giving the wall a richer tone and a greater character.

"Even for such brick, however, a panel exhibit is best, for many builders, and even architects, would utterly reject and not even consider a line of brick offered if they were shown only two samples, one giving the lighter and the other darker tones of the same shade of a given pile of brick, yet if these same brick were exhibited with others in a panel with proper color mortar joints they would be passed as eminently satisfactory.

"Many architects also prefer to show their clients brick

ways of arranging and separating them. An inartistic effect will surely be produced by shelving them with wood divisions and possible effects would be ruined.

"An artistic arrangement of photographs of finished buildings of all kinds, including residences, schools, terraces, churches, etc., form a necessary part of a proper exhibit of bricks. Terra cotta pieces, such as caps, columns, blocks and cornices add much to interest the prospective buyer.

"In short, any exhibit that assists a salesman in the disposition of his company's products will certainly be money well spent."

Another Cleveland concern which rates its brick display as an entirely necessary adjunct to business is the Cleveland Builders' Supply Company, which acts as agent in the bustling Lake Erie City for a number of important brick manufacturing factories. The brick department is in charge of Robert C.

Mitchell, who has insisted on having an attractive display of the products he is called upon to dispose of. Mr. Mitchell has a number of good ideas on the use of a brick display and the subject of salesmanship generally.

"I find," said Mr. Mitchell, "that it always pays a salesman to work hand in hand with the architect. It is a good idea to get his opinion as to the general color scheme to be followed and the style to be adopted. Then if the architect is not disposed to settle the question, go to the owner and endeavor to sell him brick in harmony with the plan as unfolded by his architect.

"I believe that the best impressions are created upon a prospective builder when he sees a building laid up with the brick he proposes to use. He gets the effect en masse. Failing that the use of the office exhibit is invaluable. It gives him an idea about how the brick will look when in his finished building.

"To anyone contemplating the installation of an exhibit,

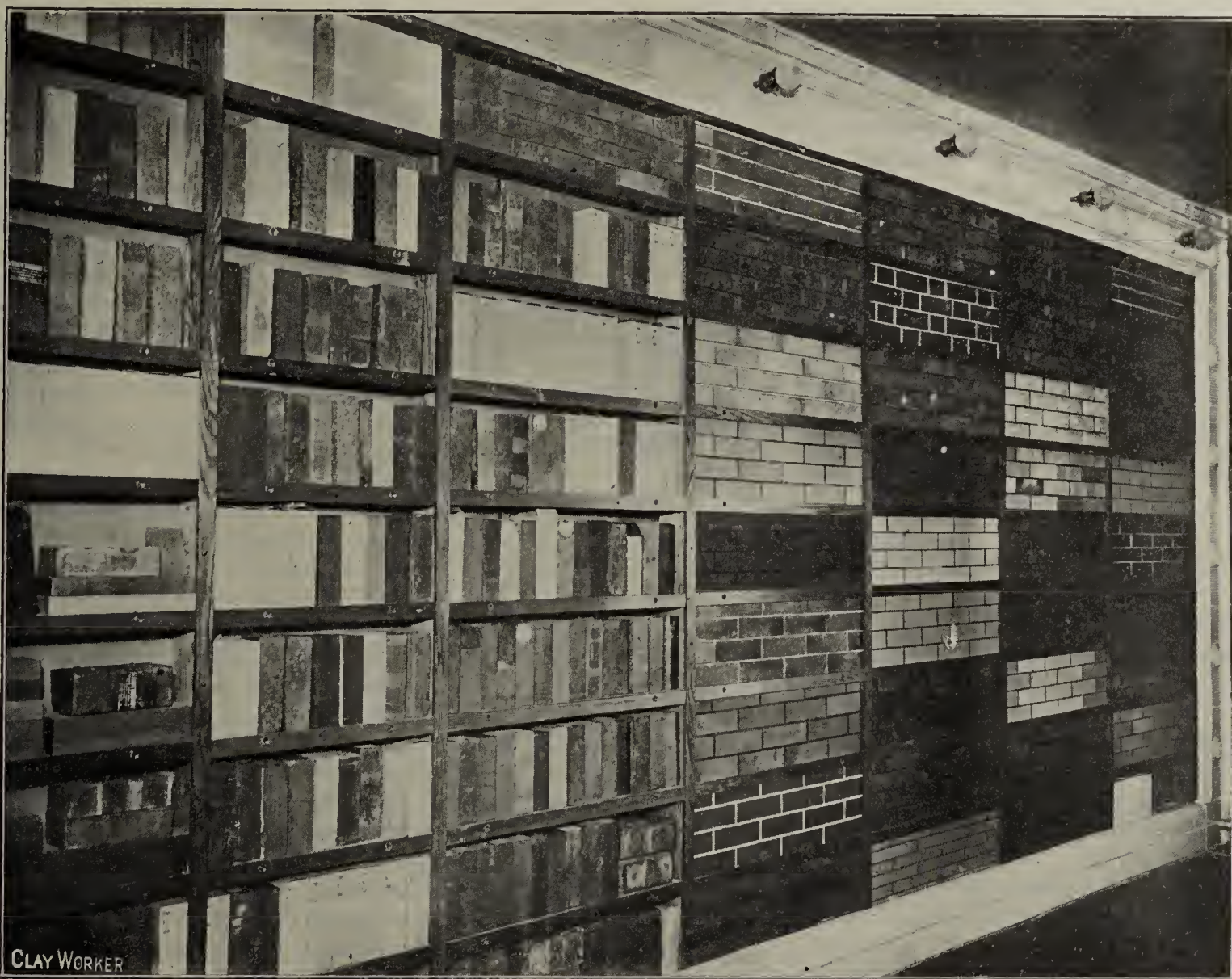
Don't present too much flowery talk. Stick to facts and don't attempt to confuse a buyer into purchasing something he can't afford or with which he will subsequently feel dissatisfied. When seeing an architect don't waste his time.

"Above all things don't knock. There is a difference between fair criticism of a rival's product and deliberate knocking. Don't let the other fellow bluff you out, but convince the customer in a fair and honest way that what you offer is what he wants."

BUCKEYE.

A SALUTARY LESSON.

The effect of the coroner's jury holding the city's building inspector to the grand jury for manslaughter, on account of the recent collapse of a reinforced concrete apartment house in Washington, D. C., is already having a most salutary effect upon the officials of other cities. For instance, in a



Cleveland Office of the Hydraulic Press Brick Company.

I would not advise the stocking up of a number of expensive brick. It is all right to have a few samples on hand, but place in the exhibit the brick which you expect to sell in your business. The customer will almost invariably observe that the \$45 brick look very nice, but he guesses he wants something about \$15 or \$18.

"Submitting single samples I have found to be very unsatisfactory. The buyer invariably expects to get every brick like the sample. In showing an exhibit it is easy enough to guarantee as good a wall as it, but to furnish all brick alike is a difficult proposition.

"A salesman should be careful in preparing to take orders to be assured that the factory can furnish sufficient brick to meet all demands. It seldom pays to substitute brick and never without the consent of both architect and builder.

"It pays to be perfectly frank with a customer. Offer him something he can afford to buy and which you can sell.

city a few miles from Washington, there was projected some time ago the heightening of an existing reinforced concrete building, and the parties concerned were assured that a permit would be issued therefor. But now the building inspector has insisted upon the plans being revised, a skilled engineer employed to lay out the work and at a much increased factor of safety, and that another skilled superintendent be employed to stay right on the work. The building inspector's theory being "that that sort of thing was a pretty dangerous proposition and that there was enough of one building inspector in jail without his taking chances on going there, too." So for the immediate present, at least, reinforced concrete construction is not going to be the attractively cheap thing it used to be to shyster builders who could use mud or ashes under the guise of cinders and employ the cheapest of cheap labor to carry out the work.

Burned Clay Versus Concrete Construction.

Merits and Demerits of Structural Materials That Should Be Considered By Architects and Builders.

BRICK THE BEST FIRE RESISTANT.

The last number of the "Concrete Age" calls attention to the fact that the insurance authorities "are writing a much lower rate of insurance upon concrete buildings in which the reinforced concrete is used in connection with other fireproofing material." This means certain systems of floor construction in which the reinforced concrete beams are protected by dividing blocks of burnt clay fireproofing tile, a construction in which the reinforced concrete affords the stability, but is protected from fire and is lightened in weight by the clay tile.

Further in the same journal are found some general rules for the prevention of the all too-frequent failures and collapses of reinforced concrete structures. In the same number also is given a very interesting description of a fire that recently occurred in a hollow concrete block skating rink at Murfreesboro, Tenn. This report shows that there was no uniformity of manufacture in the blocks, and that while the temperature of the fire was very moderate the blocks offered but scant resistance. They were all very porous and the combined effect of heat and water completely destroyed all mechanical strength and those that were subjected to the greatest heat disintegrated badly, and "the fire demonstrated the unreliability of this class of construction. The blocks and mortar joints may be good or bad—though usually bad—and in order to obtain correct information on specific cases a fire is necessary, and the information obtained—expensive."

In fine, the reader is led to the conclusion that if he desires a really reliable and fireproof building he must stick, in spite of the claims of the concrete advocates, to what is known as the old standard construction of brick and steel and tile, or if he does use concrete it must be as thoroughly protected from fire by brick and tile as is the standard steel frame protected by those materials.

NEW DANGERS IN CONCRETE CONSTRUCTION.

Like in all novelties there is danger that the excessive zeal of its advocates who wish to use concrete everywhere will get it into such disrepute that it will not even be used there where it is best adapted. With the appalling number of fatal collapses of concrete buildings occurring while the latter are under construction, and the not groundless fear that those that are completed may give way later when occupied, people are growing skeptical as to the use of reinforced concrete in buildings, and turn back instinctively to the ever-reliable brick and steel and fireproofing tile of "standard construction." And now it has been found that several sewers, septic tanks, and such municipal works made of concrete are disintegrating, giving way and being injured by gases and the chemical action of sewage, etc. The situation is so grave that the "Municipal Journal," the foremost publication of its class in the country, editorially issues this note of warning after reviewing a number of instances of such concrete failures and disintegrations. ". . . If this crude explanation is in general correct there would seem to be urgent need of thorough investigation of the effect of sewage and gases arising therefrom upon concrete. The use of concrete for large sewers has become quite general in the last ten years and small sewers of the same material

are coming into use in place of vitrified clay pipe. If there exists a real danger that these will be short-lived, it should be known at once before any more of the money of our municipalities is invested in structures which should have a life of from fifty to 100 years, and a failure of which would bring about such disastrous consequences. . . ."

THE REAL FIRE DANGER.

The New York Board of Trade has taken a reasonable view of the fire situation in that city, and is at work upon the authorities to compel that all new buildings be made fireproof. The Board of Trade takes issue with the Board of Fire Underwriters in the latter's alarm anent the danger of fire originating in the tall buildings. The Board of Trade's experts realize that the real danger lies in the great mass of shoddy and old buildings all about the city and urge that these be eliminated as fast as possible. The skyscraper, with its outer walls of brick and terra cotta, its steel frame thoroughly encased in fireproofing tile and its elevators and stairs enclosed and windows protected with wire glass, is absolutely immune as far as the structure itself is concerned, and if the Board of Trade's recommendations are carried out and adequate provision is made internally in these tall buildings, their contents will be equally immune and there will never exist the slightest possibility of dangerous fires originating in or spreading from these tall buildings.

ANOTHER COLLAPSED BUILDING.

In spite of the assertions of the various engineers employed by the reinforced concrete construction companies, that reinforced concrete has gotten beyond the experimental stage and is now an easily handled and perfect mode of construction, the roll of fatal collapses of concrete buildings keeps steadily lengthening. The very latest one, a bad one, occurred at the Nation's capital on June 9th. There was nothing particularly new about the manner of collapse. It has not yet been determined by the official investigators whether the concrete was too weak, the floors overloaded, or the centering removed too soon, but it must have been due to one of the inherent faults of the mode of construction. All the other collapses, at Minneola, L. I., at Rochester, N. Y., at Long Beach, Cal., at Elyria, Ohio., etc., etc., are attributable to one or all of those same causes, and all the collapses that will occur hereafter can as unerringly be traced to similar ones. Suffice it to know that in this one two lives were crushed out and four workmen were seriously injured.

Washington has been rather looked up to by the other cities as having a particularly good system of government, adequate building laws and skilled officers to enforce them. But this collapse would tend to put that city in another light. It apparently is no saner than any of the others. In fact, upon investigation we find that many cities, particularly those in the west, have far more stringent building regulations in regard to reinforced concrete and other experimental modes of construction than has Washington. In some cities a special inspector directly responsible to the city is placed upon each such building in course of erection. Everywhere it seems to be tacitly, if not expressly acknowledged, that

reinforced concrete construction is the most hazardous mode of building and especially needful of most rigid inspection by the authorities. As things are now, no building can be erected without a city's consent and approval; its approval of a concrete construction must make it liable as an accessory for any damage that may accrue to a citizen by reason of the inadequacy or faultiness of such construction. It would surely behoove every city in the land, therefore, to redouble its efforts in the direction of safe buildings, even to the drastic limit of absolutely prohibiting a mode of construction that has been the cause of so much loss of human life as has some of the systems of reinforced concrete that are now in vogue.

SURVIVAL OF THE FITTEST.

To believe the various and enthusiastic concrete reports one sees in the concrete journals one would be convinced that all the building being done was of some form of concrete block or other species of cement construction. That the wish is father to the thought in this case is evidenced by the fact that in the year for which the reports are just now completed there have been used 10,027,000,000 common brick in the country, not to mention the millions of face brick and press brick and fire brick, etc., etc. There are yet 5,507 factories manufacturing clay products, and with a capital of \$240,000,000, and making in brick and terra cotta, pottery, etc., products to the value of \$150,000,000. The entire cost of building construction in 1907 was a little over \$500,000,000, which, of course, included steel and stone and marble and wood, glass, etc., etc., so that it will be seen that the clay products still cut a very considerable, if indeed they are not the major, figure in the building world. Of fireproofing tile, for floor and partition construction alone, there are used 2,500,000 tons per year.

Much is written about the vast amount of concrete work that is being done in the rebuilding of San Francisco, yet the respective permits in a given period issued for buildings in that city show seven for concrete, equalling \$210,380 in value, and fifty-eight permits for brick, equalling \$285,550.

Late tests show that gravel concrete construction is of little value after a fire, and that in a heat of 1,500 degrees limestone concrete loses 50 per cent. of its value, trap rock 55 per cent., and the ordinary run of cinder concrete 60 per cent., whereas a good brick is the same after a fire as before. Indeed in the process of manufacture it passes through a higher degree of heat than it can ever be called upon to pass through again in any conflagration.

OUR IMMENSE FIRE LOSS.

MR. F. W. FITZPATRICK, consulting architect of the International Society of Building Commissioners, contributes an interesting article to the Outlook in which he makes the astonishing statement that the fire loss in the United States every year is \$100,000,000 greater than the amount spent on new construction. Mr. Fitzpatrick reaches his figures by placing the value of buildings destroyed annually at \$200,000,000, counting the cost of fire fighting at \$300,000,000 and the expenditure for insurance protection \$190,000,000. He also offers some figures showing that the per capita annual loss from fire in America, disregarding insurance and fire fighting charges, is \$2.30 as against thirty-three cents in Europe. A further comparison is \$3.61 in Boston, representing a per capita loss per annum, as against 24 cents in Dublin. Mr. Fitzpatrick is not at all enthusiastic about concrete construction. He says that "the frequent and fatal collapses of those buildings, even while under way, should make us careful as to the quality of materials and labor employed upon that theoretically fascinating but extremely hazardous mode of construction." His conclusion is that this material should be as carefully protected from direct attack by fire as the metal work of steel-frame buildings and he declares that well

burned brick and terra cotta have been demonstrated to suffer the least in fire and for that reason should be most generally used externally. His conclusion is that the steel-frame type of construction is the best yet discovered in its resisting qualities against fire, earthquake or storm and that it is not safe to depart from this standard until something better is discovered.—The Insurance Field.

CONCRETE AIR SHIPS.

The latest news bulletin pipe dream about concrete that has been going the rounds of the press has to do with the use of concrete in ship building, for armor purposes, and various other things of the same kind. About the next thing we shall know, will be the building of air ships out of concrete. Anyway, there has been, on the part of enthusiastic concrete and machinery people, probably enough hot air or gas originated to inflate air ships if it could be corralled and made use of.

INADEQUATE BUILDING LAWS.

Concrete construction has been in vogue for several years. There is a building in this city composed wholly of concrete, and reinforced concrete is locally used in many ways as supplementary to the ordinary masonry work. Failures of concrete construction have been reported from other cities in a manner to direct attention pointedly to the fact that this mode of construction must be subjected to a rigid inspection. The Washington regulations should long ago have been made sufficiently stringent on this subject to insure at least reasonably safe concrete construction. If it is true that the local regulations in force at this time do not specifically cover concrete construction, the building inspection service has been decidedly negligent in keeping progress with the constantly developing art of building.

(From the Washington Star.)

QUESTIONABLE BUILDING METHODS.

The only plausible reason ever advanced for the use of reinforced concrete in lieu of standard construction of brick, terra cotta, steel and fireproofing tile is that the former is cheaper. To make it cheaper it has to be produced with cheap materials. Cinders are about the cheapest material which can be used in concrete, and they are used almost exclusively. This is what a special committee, reporting to the Structural Association of San Francisco, says of this form of concrete: "The cinder concrete is somewhat porous, with occasional voids, and also contains coal from dust up to lumps three-quarters of an inch in diameter. . . . The corrosion is irregular in amount. In some cases the expanded metal is only rusted and in places it is entirely destroyed. . . . The extent of the corrosion is great enough to seriously endanger the safety of the floors, and it is not probable that the floors would have supported their loads more than from one to three years longer. The committee recommends that the association try to have the building laws amended so as to exclude the use of cinder concrete for floor slabs or for fireproofing."

"Building Management" says of this same material: "The immediate effect (of moisture) is to destroy the bond between the steel and the concrete, the heat and expanding gas from decomposition (which is progressive), pressing the cement away from the steel, and there then no longer exists in fact steel reinforced concrete, but the very opposite, and a menace to life and property which may eventually end in a collapse. . . ." It adds that steel reinforced concrete is yet but an experiment, and that any moisture percolating through cinder concrete will form what is commonly termed lye, which will soon eat through any steel wire, rod or girder, yet because of its lightness, but without regard to its chemical fitness, cinder concrete is extensively used for floors—the very part of a structure most apt to collapse.

The Brick Paved Highways Have Solved the Problem of Road Construction.

BY WILL P. BLAIR.

"Of all inventions, the alphabet and printing press alone excepted, those inventions which abridge distance have done most for the civilization of our species."—Lord McCaulay, in his History of England.

THE GOOD ROAD, the public highway, has always been a barometer of civilization. No matter what of progress and advancement in science, art and commercialism, the interest in good roads invariably marks the outpost. And now more than ever before the public highway is demanding its full share of consideration. The present demand is not merely that we shall have good roads, but roads in keeping with the demands of the times. Roads that mean satisfaction and comfort to the user, economy to the tax

The demands of traffic have never been satisfactorily met by gravel or macadam roadways in a degree commensurate with the enormous amount of money expended in their construction and maintenance. The method of road building invented by Macadam a century past is proving, when subjected to modern demands, to be wholly lacking in stability, permanence, and economy. Although macadam or gravel is an improvement upon a dirt road, it is not a pavement, and under no condition should be considered as a permanent



Brecksville Road, Cuyahoga County, Ohio—Brick Pavement on Broken Stone Base, Cement Filler. Stone curb. 6.4 miles long, 14 feet wide. Completed 1904. Photographed 1908.

payer and so constructed that the question of durability, permanency and freedom from repairs is without concern.

The question of building the country roads to suit the traffic is the one great problem relating to modern highway construction. The ever-increasing volume of traffic, weight of loads, and especially the advent of the swiftly running vehicle, is bringing about a transitional state in our traffic conditions similar to that experienced 100 to 150 years ago, when wheeled vehicles superseded the pack horse, and, in view of present developments, it is apparent that the preponderating elements of traffic in time to come will be the mechanically driven vehicle. These conditions are introducing new elements of destruction, in addition to those characteristic of the improved roadways of today, whether of gravel or macadam, so that it has now become an accepted fact that however permanent, economical, and satisfactory such methods may have been in the past, they are today obsolete, extravagant, and wasteful.

construction. It is an accepted fact that it will wear away from the single or combined effects of traffic, wind, rain, frost, or other climatic influences from one-fourth of an inch to an inch or more every year, so that its maintenance means a constant care and a continual and ever increasing expense or a complete loss of the improvement.

The use of oil, asphaltum, or tar applications, tar macadam, or so-called bitulithic, whether correct or not in theory, has proved a failure in practice and no success so far attained with this character of construction will justify its classification as a permanent pavement. Whether incorporated in the mass or on the surface, such constructions are but crude and expensive make-shifts for permanency, have no inherent quality of durability not possessed by ordinary macadam, susceptible to all traffic and climatic conditions in addition to the natural tendency to deteriorate. The surface becomes uneven and unattractive, disintegration becomes more and more rapid and unless maintained by con-

stant repairs, its condition soon becomes such that economical repairing is an impossibility and an entire renewal the only remedy.

The foregoing presents the conditions that confront the road builder today. The solution of the problem is the brick paved highway. Already there are in use throughout various sections of the country hundreds of miles of brick paved country roadway. It has been thoroughly demonstrated that such a roadway properly constructed meets all the demands ordinary and extraordinary to which the modern highway is subjected; it possesses to the greatest possible extent, each of the three fundamental elements of the ideal pavement, economy in construction and maintenance, durability, comfort and satisfaction to the user.

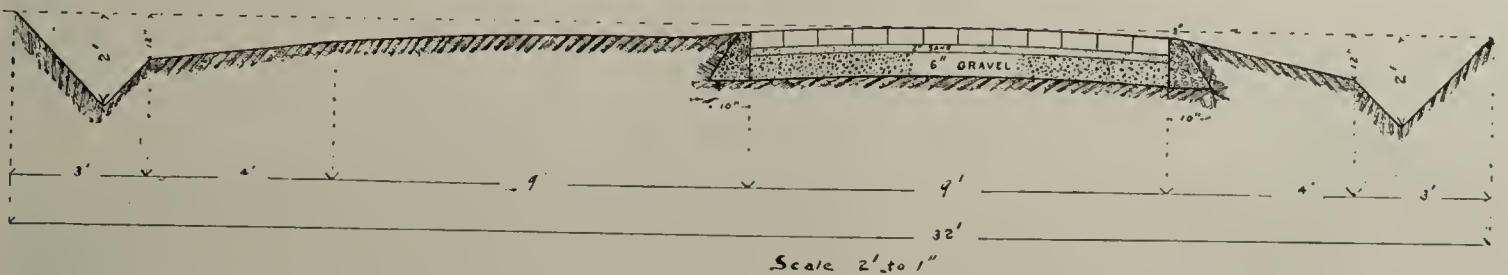
Brick paved roads can be and have been constructed at a cost per mile equal and in many instances less than has been expended for macadam, and when we take into consideration the permanency, the proven durability of properly built brick pavement, its freedom from repairs, its freedom from decay or disintegration or climatic influences, which limit the life of other roadway surfaces, the question of

wheelway except steel, and would mean an enormous saving in expenses of transportation.

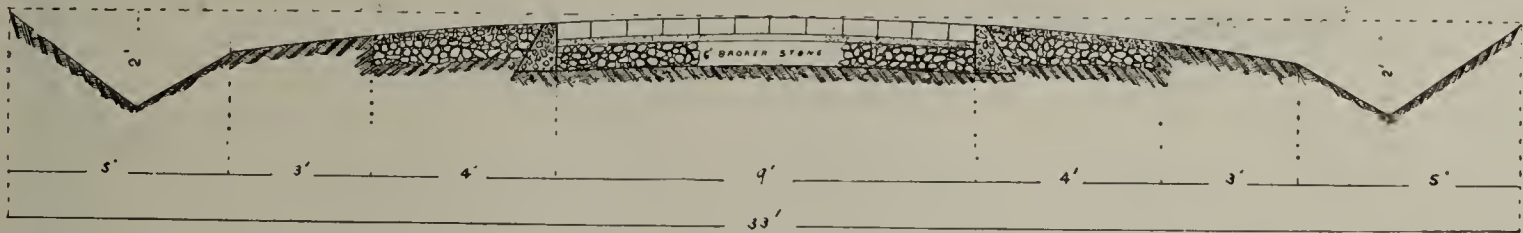
As to the manner of construction, the essential and fundamental principles of properly constructed vitrified brick pavements are thoroughly discussed and emphasized in the No. 1 Specifications of the National Paving Brick Manufacturers' Association, and should be strictly adhered to. They may be applied to the building of the three types of brick roadway illustrated and described in this article and designated as Types No. 1, No. 2 and No. 3 respectively.

Vitrified Brick paved roadways properly constructed are permanent, practical, possible, and economical. Hundreds of miles are now in use.

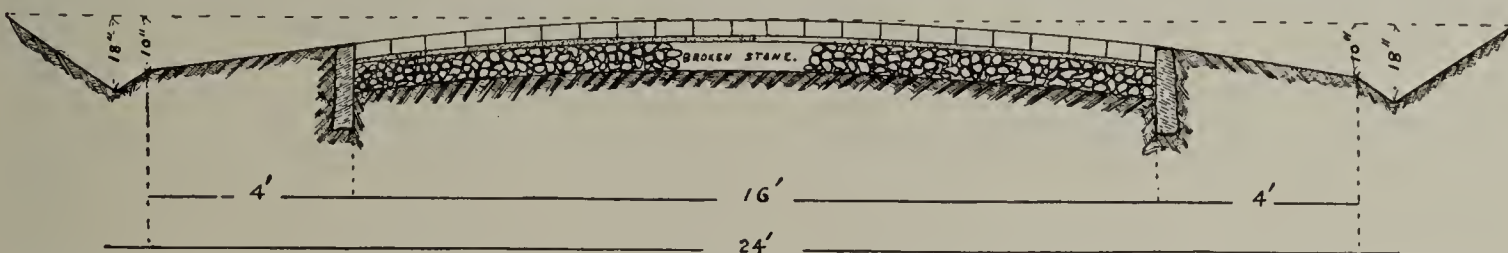
The possibilities of vitrified brick roadway are little understood by the general public when it is remembered that they have been in use for twenty-five years. In many cases a quality of brick has been used for roadways unsuitable for such purpose. In a very large number of cases, for some one reason or another, improper construction was permitted, convincing the public mind erroneously as to the great merit attainable in brick streets. It would be unprofitable to assign



TYPE NO. 1.—Eight to ten foot brick roadway, 2 inch sand cushion, 4 to 6 inch concrete, or 6-inch gravel or broken stone foundation. Concrete, stone or vitrified clay curb, with a parallel 8 to 10-foot dirt roadway.



TYPE NO. 2.—Eight to ten foot vitrified brick roadway, 2-inch sand cushion, 4 to 6-inch concrete, or 6-inch gravel or broken stone foundation. Concrete, stone or vitrified clay curb, with a strip 4 feet in width of compacted gravel or stone adjacent to each curb.



TYPE NO. 3.—Fourteen to eighteen foot vitrified brick roadway, 2-inch sand cushion, 4 to 6-inch concrete or 6-inch gravel or broken stone foundation. Stone or concrete curb.

first cost from the standpoint of true economy is not to be considered, even if it be double, treble, or quadruple that of other characters of construction.

A brick roadway is not built for particular kinds of traffic. It is eminently fitted for present conditions and all that the future promises. The horseman, the family carriage, the load on the way to market, the automobile with business dispatch or load of care-free pleasure riders, or the motor train that is now the promised factor in solving the transportation problems of the country districts, to all and each it presents the same smooth, comfortable, and satisfactory surface and withal the permanent, enduring, and practically indestructible roadway. To the user and to the people residing adjacent thereto, it affords a sanitary, healthful highway, one that does not originate dust. It affords an ease of traction surpassed only by the steel wheelway and therein it presents another economical feature worthy of consideration. With an equal expenditure of force and with less wear and tear upon equipment, a greater load can be drawn over a brick paved surface than upon any other

why bad brick are ever used or improper construction was ever permitted. Suffice it to say that there never was any good reason for either, any more than there is a good reason why people should continue to use a roadway that is neither adapted to the place or conditions of travel, or to use one that is out of repair half of the time, or one that costs its worth to maintain.

Suffice it again to say that proof is unquestionable, that the permanent roadway is possible by the use of vitrified brick, and that the price therefor is reasonable and that it is the most economical of any.

It is so easy to properly construct that there need be no longer any hazard or risk in choosing it. It can be made to meet any demand of the user and every class of traffic. Its merits, enumerated, read:

It is impervious.

It is the most sanitary.

It is smooth, but not slippery.

It is equally adapted to heavy and light traffic.

It does not have to be legislated against.

It is nowise affected by climatic influences.
 It originates no dust.
 It is economical in use, as well as maintenance.
 Its traction resistance is without objection.
 It is equally satisfactory at all seasons.

It can be built in any form, in any manner, to suit the conditions of use and traffic, over the hills, upon the level plain, or through the swamp. It can be left in its own dirt and filth without injuring it, or it can be swept as clean as a parlor floor.

Written for THE CLAY-WORKER.

SOUTHWESTERN NEWS LETTER.

BUILDING LINES in Memphis and other southwestern points are picking up the last few weeks. The brick concerns are in general operating to their full capacity and getting good prices, though some lines of building are sluggish. Considerable brick paving jobs are on in the

plant to different location in that town and erected several new sheds.

The Buckshot Brick Company, of Greenville, Miss., contemplates building several new kilns this summer.

The Hot Springs Clay and Products Company, of Hot Springs, Ark., has been recently incorporated with a capital stock of \$1,000,000, of which \$800,000 has been subscribed. The incorporators are: C. L. Shattuck, Ed. H. Johnson, and J. P. Henderson. It is intended to establish a pottery and manufacturing plant to utilize the clay found on about 300 acres of land owned by the Onachita Pottery Company. The clay is said to be very fine.

The contract for street paving at Gulfport, Miss., has been let to the Graves-Matthews Shale Brick Company, of Birmingham, Ala., for \$122,536.45.

J. G. Johns, of Mena, Ark., is preparing to develop kaolin deposits and establish a pottery.

A. C. Free has established a brick plant at Okmulgee, Okla., that is meeting with a good trade.

Arrangements have been made for the resumption of work by the El Reno Vitriified Brick Company, of El Reno, Okla.



Schaaf Road, Cuyahoga County, Ohio—Brick Pavement on Broken Stone Foundation, Cement Filler. Stone Curb. 3.16 miles long, 14 feet wide. Completed 1907. Photographed 1908.

southern territory now for municipalities, as well as construction work on buildings.

The South Memphis Brick Company, of Memphis, Tenn., has increased its capital stock from \$100,000.00 to \$150,000.00.

H. W. Brennan, of Memphis, Tenn., has been awarded the contract for \$25,000 worth of paving work here.

A new brick company has been organized at Brownwood, Texas, The Brownwood Brick and Tile Company, J. S. Fay will be manager. The company is capitalized at \$25,000.

The plant of the Texas Pressed Brick Company, at Wortham, Texas, has been sold by J. Wattinger to C. A. Lanins, of Abilene, Texas, for \$25,000.

The Southern Tile and Brick Company, of Jackson, Tenn., has been making some improvements in its plant and is operating steadily. The company has a capacity of 40,000 brick per day. It also handles considerable fire clay.

Thos. Simpson, of Columbia, Tenn., has removed his brick

The plant has a capacity of 40,000 brick per day. W. S. Roberts has leased the plant.

Z. W. Cox has bought the interest of J. F. Dolte in the brick making plant at Alva, Okla.

Cooper & Boneas, who recently acquired the brick plant at Guthrie, Okla., have just burned their first kiln. Much of their product will be used for paving work at Guthrie.

The Rich Hill Sewer Pipe Company, of Rich Hill, Mo., will be organized to manufacture wire cut face building brick, vitrified paving brick, sewer pipe, etc.

J. F. Ganther has established a new brick plant at Fayette, Mo., moving the plant from Pilot Grove, Mo.

Emmett Fay has leased from his father, J. D. Fay, the brick plant at Columbia, Mo., and will operate the same this summer. His father goes to Brownwood, Tex., to make brick on an extensive scale.

The York Brick and Tile Company, of Lincoln, Neb., have made some extensive improvements in their plant. A new kiln, 40x140 feet, containing fourteen chambers is among them.

M. E. M.

Written for THE CLAY-WORKER.

THE CHICAGO BUILDERS' CLUB TAKES A DELIGHTFUL DAY'S OUTING.



ON THURSDAY, JUNE 26th, the Builders' Club, of Chicago, accepted the invitation of one of its former presidents, Wm. Grace, to spend a day with him at his immense stock farm of 720 acres in the township of Barrington, thirty-eight miles north of Chicago. Sixty-six members of the club enjoyed the day as only a splendid lot of business men can when they actually throw aside all cares and trials and forget for a time that work is a necessity. The trip was made in fifteen automobiles, all owned by club members, and with the exception of a couple of punctured tires no accident, or mishap, occurred from start to finish. There was no racing and as the fourteen magnificent machines (the fifteenth belonged to our old friend and former president of the club, Wm. D. Gates, who

Company. The provisions were abundant, delicious and satisfying. At its close the president remarked that speeches were not in order and that he would only call for one, Mr. C. W. Gindele. Mr. Gindele, in a few graceful touching words, reviewed the hospitality of Mr. Grace and moved a rising vote of thanks to him, which were given unanimously. Mr. Grace then responded briefly, but in a way that convinced us that the enjoyment was not all on the side of the guests. He closed by an invitation to go with him over the farm. The walk over this beautiful farm, with its hills, valleys and lakes on one of the rarest of June days, the return to the mansion, the farewell visit to the laundry, the good-byes to the Grace family, the start and the finish at Vogle-sangs, where we were served with a club supper, such as he only can serve, the good nights, the return to our homes, the night's rest and sweet dreams of a heavenly day, these all, and more, are recorded indelibly in our memories.

To the older members of this party as they looked back over from twenty-five to forty years of active life in connection with the building industries of Chicago, this day had indeed been a revelation. In those old days it would have been impossible to have gathered together in the same number of men so much intelligence. This is no reflection on



Beautiful Country Home of William Grace, Builder, Chicago.

rode over from Terra Cotta with his two youngest stalwart sons), each decorated with the club pennant, bowled along at a twenty-mile clip they made a charming sight.

At Mr. Grace's beautiful residence they were received with that genuine hospitality for which he and his family are so justly celebrated. The house is beautiful architecturally, of red shale brick, and on the top of a hill overlooking a beautiful lake covering some sixty acres, and the magnificent barn and farm buildings. After our arrival and cleansing from the dust, we were shown the most interesting part of the house, viz., the laundry. It is a large room in the cool basement. In the center was a long table on which were a variety of glasses of different sizes. In the soapstone tubs were full bottles and two large cans of Jersey milk and quantities of ice. It needed no explanation from the host why we were there. After reasonable refreshing we adjourned to the lawn, where, under the shade of magnificent trees, on a carpet of white clover, we communed with nature, our host, and each other for an hour, when we were invited to lunch. At each plate was a beautiful souvenir watch fob, with the compliments of the Kohler Electrical

the pioneers of the building industry, but simply an evidence of the evolution from a country village to a metropolitan city.

Very many of the men now prominent in building lines are the sons and grandsons of the men who off-bore brick, carried the hod, shoved lumber, or wielded the jack plane or trowel. Many of them are college and university graduates, who saw greater opportunities for usefulness and profit in the material building up of a great city than in preaching the gospel or practicing law or medicine. The gospel they have preached has been that of progress, industry and a higher and better civilization. They have honored labor, brought honor upon themselves and the community in which they have lived, by the intelligence, zeal and earnestness with which they have performed what they have undertaken.

Among the guests of Mr. Grace were several of large wealth and influence, and it is more than probable that the seed was sown on this beautiful farm which shall eventually result in the growth from a city lot of a magnificent structure to be the business home of all who are affiliated with the building interests of Chicago. Stranger things have happened. I am glad to subscribe myself as a member of the Builders' Club of Chicago.

D. V. PURINGTON.

MAKING FRONT BRICK WITHOUT REPRESSING.*



NE OF THE two methods of making impervious brick is the well known stiff mud, wire cut, repress method. Plants making this kind of brick have been laboriously educating the trade up to the belief that the repressed brick direct from the cutter is a stronger brick than the one not introduced to the press box.

The fact is that the strength of a brick is more often injured than benefited by direct repressing. The discovery of this fact, coupled with the consideration of the cost of repressing, has been the means of abolishing repressing in a few plants.

Variation in tempering or pugging and variation in composition or mixture, cause variations in the size of the column issuing from the die. In order to make allowance for this variation, the die is made small enough so that the brick, when cut, will drop into the press box without "sticking" or binding. In this case the brick does not fill the press box neatly. Therefore, when the pressure is applied, the clay is forced out until it meets the sides and ends of the box, producing a rearrangement of structure which influences the final strength of the brick for better or for worse.

A lamination within the brick is seldom healed in the press box. The space between the walls of the lamination can not be a vacuum; it contains air, vapor or other gas. The walls of the lamination can not be united under pressure unless the enclosed gas is forced out, which must either come to the surface of the brick or be assimilated by the clay. The former case rarely, if ever, occurs, while the probability is that the latter does not occur at all unless the clay exerts an absorbing action for gases, similar to that of charcoal. The fact is that when the enclosed gas is subjected to pressure, it causes the lamination to spread rather than to diminish.

It is difficult to see how it is possible for the repress to produce permanent condensation in a brick direct from the cutting table, if the clay has been thoroughly tempered. Liquids suffer but little condensation under pressure, owing to which fact the success of the hydraulic press, used for various purposes, is made possible. The fractional part of condensation which does take place causes the liquid to expand to its normal volume when the pressure is released.

Clay in the plastic condition exhibits the properties of liquids to some extent, although it is slower in its action, due to high viscosity. There is a small condensation of the brick, while under pressure, due to elasticity, which causes the clay to expand when the pressure is relieved; therefore, there is little gained by elastic condensation. Permanent condensation can not take place unless something is eliminated from the brick, or the enclosed gases are compressed and held in the compressed form in which they tend to exert expanding action until released.

The repress requires more oil than is used to lubricate all the rest of the machinery in the plant, although oil of a cheaper grade is employed. Oil enters the surface indentations and corner cracks, preventing them from healing under pressure. The slicking, action due to the ejection of the brick from the press box, partially smooths over the flaws, so that it is impossible to detect them in some cases, only under close inspection. These flaws pass through the kiln and remain weak points, unless the brick have been highly vitrified, even to the danger of settling out of shape.

Defects in molding are magnified in the dryer and show up still more in the kiln, due to stresses and strains produced by shrinkage. Flaws that can not be detected in the

molding show up in the dryer and cracks which can not be detected in the dryer appear in the burning; hence it is possible for the clayworker to lay the blame of defects to the burning, which are due to something else. The burning problem has an abundance of difficulties of its own without standing for faults due to other causes.

Often the burning is changed to decrease the loss and the clayworker wonders why the loss does not decrease. Sometimes the loss is decreased by nursing the defects through the kiln, which later may show up in shipping, or, in the case of paving brick, go to pieces in the rattler.

The method employed by some to make front brick is to force a column of clay out of a die, cut it into more or less regular blocks, and feed them to the repress, depending upon the repress to form the brick. Corner cracks and other defects are not seriously considered, which is a great mistake.

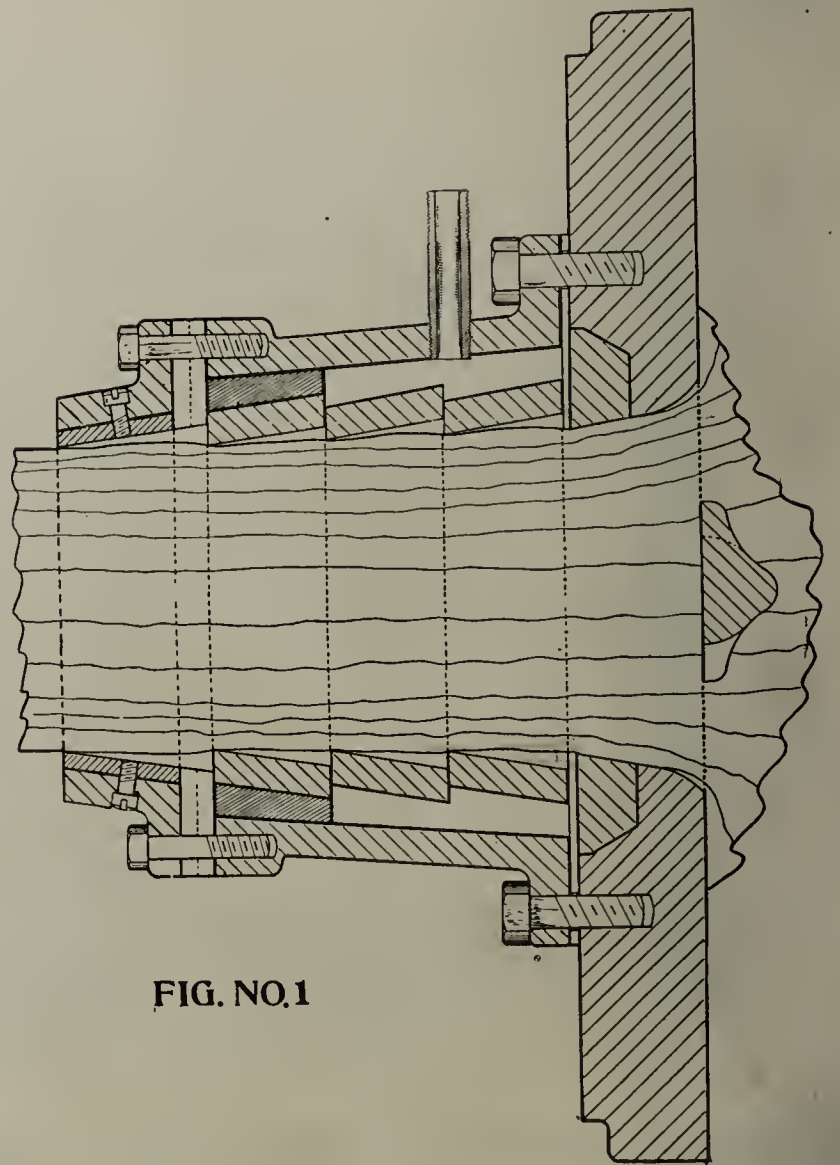


FIG. NO.1

The nearer perfect a brick is before it goes into the press box, the more perfect a brick can be taken from it. The best feature of the repress is the fact that it does help to corner up and square an otherwise irregular block of clay. If it is possible to make a first class stiff mud front brick without the repress, then why go to the unnecessary expense?

Many plants in Germany are making stiff mud enamel brick without the aid of the repress. The brick are wire cut, dipped and burned in a single fire. In one case, a wide awake and progressive brickmaker in America is successfully making a high grade enamel brick today by a patent veneering process and wire cutting. The brick in this unique plant have not seen a repress in over four years.

If the stiff mud wire cut process is good enough to make a high grade enamel brick worth \$50 per thousand, then why is it not good enough to make a high grade front brick? The writer has produced practically in an experimental way, stiff mud, wire cut brick from No. 2 fire clay, which were

*Paper by R. T. Stull, read before the Illinois Clayworkers' Association, Peoria, Ill., January 14-16, 1908.

burned so hard that they were bluestoned, and which had just as smooth faces, straight edges and sharp corners as can be produced by repressing.

It is true that the wire cut sides are not so smooth or pleasing to the eye as the sides of the one which has been subjected to the repress, but when vitrified, this is a strong point in favor of the non-repressed brick, since it will not slide out of position so readily when laid in the wall by the mason, as a smooth repressed brick will often do.

For the manufacture of a wire cut front brick, the clay should be thoroughly and carefully prepared. Both clay and grog should be passed through a screen not coarser than ten mesh, in order to produce a dense body and induce a smoother cut at the table. Constant and uniform composition of clay and grog should be maintained for the benefit of constant shrinkage.

Thorough and careful tempering should be done for the purpose of obtaining uniform working qualities and uniform

increases friction, decreases speed, cuts down lubrication, and, if allowed to run long enough, produces laminations close to, and parallel with the surface, which are in the nature of cleavage ruptures. If the clay is of a dense nature, steam may collect in these laminations in drying, or gases in burning, producing blisters on the face of the brick.

Therefore, it is important to keep the die frequently renewed, the increase in expense of which will be more than paid for by increase in quantity and quality.

Most auger machines for brick are provided with a cham-

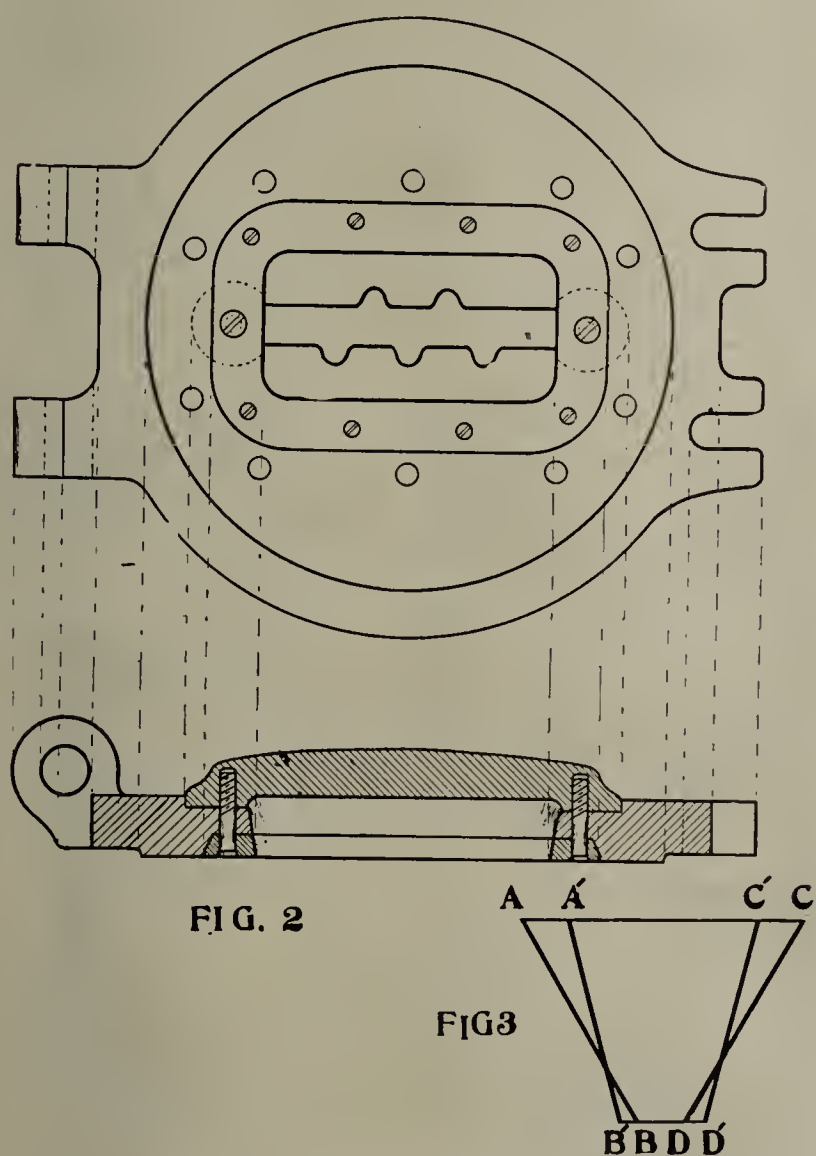


FIG. 2

FIG. 3

shrinkage. Uniform results can not be had from variable degrees of temper or loosely tempered clay. Water should be worked into the clay until it is uniformly tempered throughout to the proper degree. The ordinary open pug mill does not do this, but the tempering of the clay in an open pug can be improved by increasing its length, which, through this, increases power consumption. The most thorough and accurate tempering device is the wet pan. Even here the variation of temper from pan to pan will be such as to be often detected by the working of the die, even when a careful manipulator is in charge of the wet pan.

The two most important devices to consider in making stiff mud front brick without the repress are the die and the cutting table. In the first place the clay should be tempered very stiff, so stiff in fact that the majority of the dies on the market would refuse to work it. If we wish to produce a perfect column of clay we must have a perfect working die.

Wearing away of the die increases the size of the column,

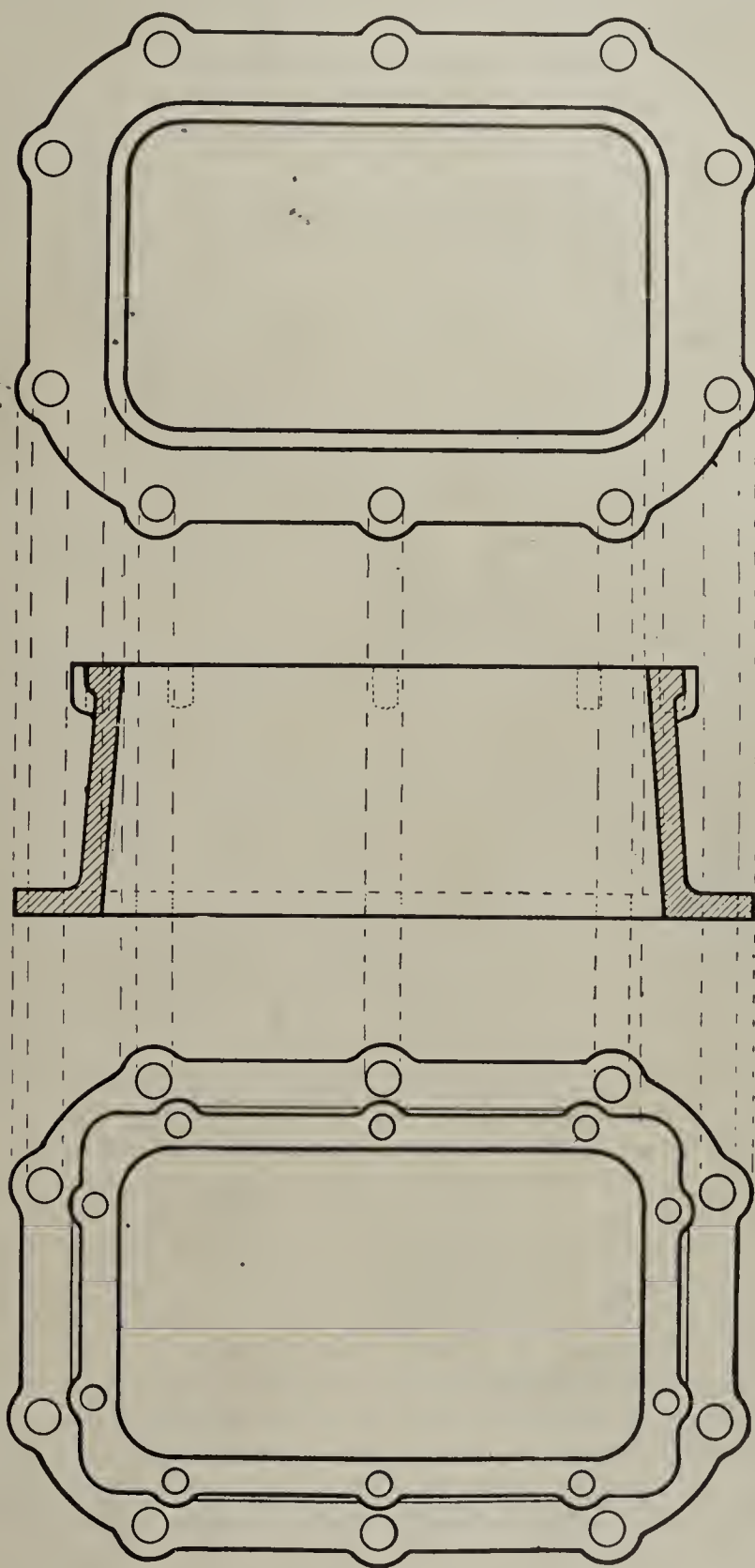


FIG. 4

ber placed between the barrel and the die, whose function it is to gradually taper down the clay from the circular to the rectangular form. With a properly constructed die for running very stiff clay, this reducing chamber is an unnecessary adjunct. By placing the die next to the barrel, as close to the auger as possible, the capacity of the machine can be increased from ten to fifty per cent.

Fig. 1; plate I represents a vertical cross section of an assembled die used next to the barrel of the machine, dispensing with the reducing chamber. It is constructed in

sections provided with removable liners, which can be replaced without the necessity of throwing away a heavy casting. At the extreme right of Fig. 1 is the hinge plate designed to fit the barrel of the machine. It is provided with a removable face plate on the front and a lamination bar on the back, which reduces laminations by breaking up the circular laminating tendency due to the motion of the auger. For hollow brick, the lamination bar can be modified to support the cores.

A scale box is bolted to the hinge plate with a water-tight gasket between. Inside the scale box are three removable scales. The third one from the hinge plate is fastened in place by pouring molten lead between it and the scale box. The other two scales are held in place by wooden wedges. At the top of the scale box is a nipple for lubrication purposes.

In this die water is used for lubrication. The water which enters the scale box can circulate around the first two scales and pass through between them in order to moisten the column of clay. The only outlet which the water has is to pass through between the clay and the scales, which it will do if the water pressure is strong enough.

Bolted to the scale box is the die plate with a drain plate between. Water which passes through with the clay column is "slicked" off by the die plate and runs out at the drain plate. The drain plate is made solid on the back with lugs on the front. In case the lead packing of the third scale should leak, a rubber gasket can be placed between it and the drain plate.

The die plate is lined with four steel pieces, a top and bottom piece and two end pieces, which are held in place by filster screws.

Fig. 2, plate 2, shows the detail construction of the hinge plate with lamination bar and liner in position. Fig. 4, plate 4, shows the construction of the scale box. The scales are shown in Figs. 5, 6 and 7, and the drain plate and die plate by Figs. 8 and 9 on plate 4.

No definite measurements can be laid down for the construction of the die, since the size of the individual openings for each part will depend upon the total shrinkage, the back pressure, and the taper of the die. In the die of this type there are two kinds of taper, called individual taper and die taper. The depth of the three scales and the die plate as represented in the foregoing cuts are each one and three-fourths inches. The individual taper here for all parts is the same and is one and one-half inches, i. e., the back opening of each part is one-fourth inch larger all around than the front opening, which makes the larger opening one-half inch larger in length or width than the smaller opening. The die taper is the amount of linear reduction which the column undergoes in passing from the smaller hinge plate opening to the smaller die plate opening. In this instance, the taper is one-fourth inch, i. e., the smaller hinge plate opening is one-eighth inch larger all around than the smaller die plate opening, with the exception that the hinge plate opening has a fillet in each corner of seventh-eighths inch radius, while the die plate opening has sharp corners.

Thoroughly tempered stiff mud clay can not be permanently condensed beyond a very small limit; therefore, with a die having a larger taper, the clay travels with different velocities at different points along its path through the die. There is, however, a temporary condensation due to, and depending upon, the elasticity of the clay with its enclosed gases, which causes the column of clay to expand again on issuing from the die.

The greater taper a die has the more power is required to operate it, the less is the speed of the column, greater pressure is required to lubricate it, the faster is the wear and the greater is the re-expansion of the column. Decreasing die taper decreases power for operation, increases speed,

decreases pressure for lubrication, decreases wear and decreases the elastic expansion of the column.

Total expansion of the clay column is not entirely due to die taper, but part is due to "back pressure," or resistance offered to the column of clay in its travel from the die to the cutting table. In cases where the motion of the column furnishes the power to operate the cutter, the back pressure swells the column of clay appreciably.

Excessive expansion of the clay column is one cause of superficial weakness in the brick. Brick which were made by the writer with a die of large taper, gave trouble in cracking across the face in the kiln. When the die taper was reduced down to the almost a parallel die, cracking across the face disappeared.

Whether expansion is due to excessive die taper or to back pressure, it can be reduced by decreasing the taper of

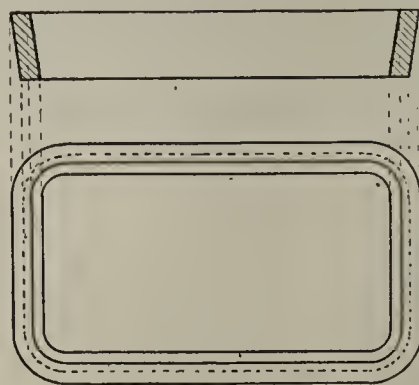


FIG. 5

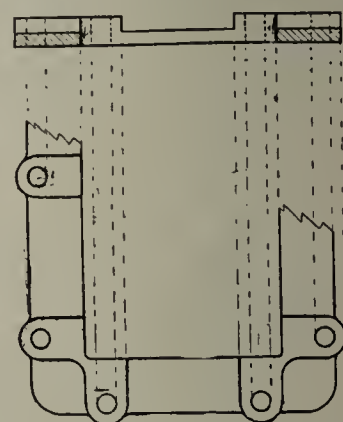


FIG. 8

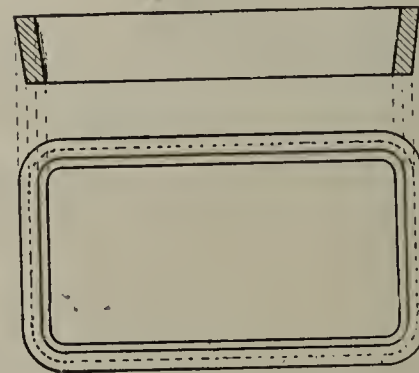


FIG. 6

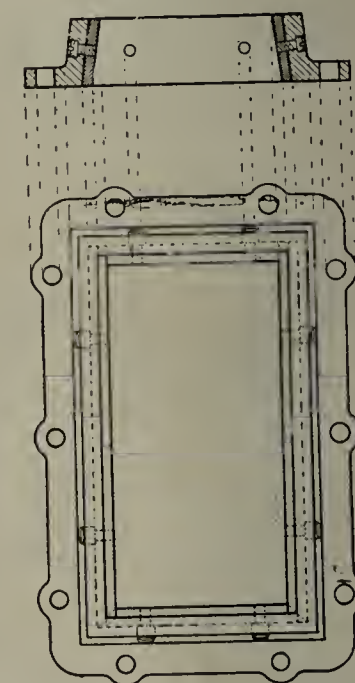


FIG. 9

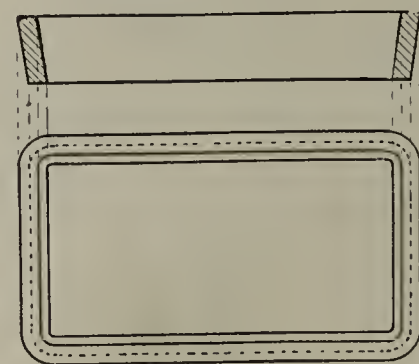


FIG. 7

the die. In reducing the die taper it was found necessary to increase the die plate opening slightly, in order to maintain a standard sized brick. Thus in Fig. 3, plate 2, let A C represent the face of the hinge plate and B D be the face of the die. Let A B and C D be the taper lines of a die. If reducing the taper reduces expansion (which is true), then when the taper is reduced so that A moves to some point as A' and C to C', B must move to B' and D to D' in order to maintain a standard sized brick.

In other words, when the taper of a die is reduced, the taper line must swing about a point upon itself near the die opening in order to produce the same sized brick as before, the other things remaining constant. The position of this point will depend upon the elasticity of the clay and the back pressure. In one instance, the writer found that it was necessary to increase the size of the die plate opening one-sixteenth inch when the die taper was reduced three-eighths inch.

It is important to keep the die frequently renewed and

maintained standard for the benefit of quantity, quality and standard sized brick. The brick should be carefully watched as they come from the kiln. Most of the defects in shape can be remedied by slight changes in the die plate. If the brick are hollow faced as represented by Fig. 10, plate 5, a corresponding opposite curvature should be put in the die plate, producing a die opening as represented by Fig. 11 in form. If the brick come from the kiln longer on the back than on the face, as represented by Fig. 12, then the die plate liners should be closed in at the bottom, making the form of die opening similar to that represented by Fig. 13.

Softening the temper of the clay magnifies hollow faced brick and causes the column of clay to spread at the bottom, which produces brick longer on the back than on the face, hence the importance of keeping a uniform temper of clay, since the die plate can not be constantly changed for alternate changes in temper of the clay.

Perfect lubrication is necessary for a perfect working die. Water gives better results than steam when rightly operated for running very stiff mud out of a properly con-

with the die. Between the tank and the die a pressure regulator is placed in the line at a convenient place where it can be operated at will. Between the pressure regulator and the die a pressure gauge is placed. By sliding the weight back and forth on the regulator arm, any pressure can be had at the die from 0 pounds to boiler pressure. With a newly equipped die having one-eighth inch taper, the pressure gauge registered twenty-five pounds for perfect lubrication at the die. As the die began to wear, the pressure had to be increased and after six days wear on the die, it was found necessary to have forty pounds water pressure for perfect lubrication of the die.

The advantage of the pressure regulator is that the pressure can be reduced at will and at the same time have plenty of water for lubrication with the valve at the die wide open. When the valve at the die is depended upon to throttle down the pressure to the proper point for lubrication, the supply of water is often cut down too low for proper lubrication.

The greatest drawback to the manufacturer of high grade wire cut stiff mud front brick at present is the cutting table problem. Most of the cutting tables on the market are comparatively crude in their construction and operation. A coarse wire is used to decrease breakage and the motion given to it is usually that of a rotary drag or straight chop, which produces a rough burred edge, either on the top or end of the column, or on both.

In order to produce a smooth cut on the edges of the brick a fine wire should be used. Its motion should be a combination of a backward and downward sliding and sawing motion, similar to that which a carpenter gives to a single stroke of the saw. Such a motion would reduce wire breakage wonderfully, and allow the use of a finer wire. Wires seldom wear out, they usually break.

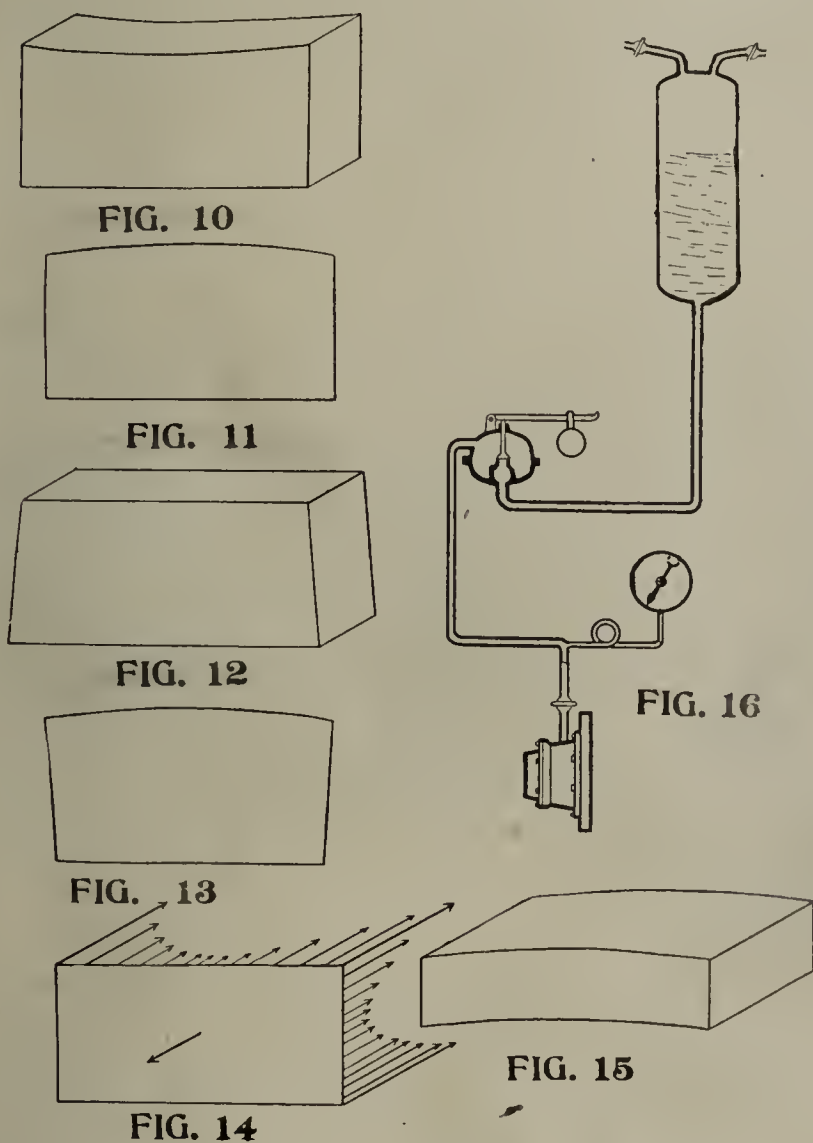
In order to make a perfectly straight and uniform cut, it is necessary to have a very carefully constructed cutting table, one constructed with as much care as a high grade turning lathe. The cutting table should be carefully machined and assembled and provided with bushings and liners for all wearing parts, so that the slightest wear or play can be taken up at will.

Such a table is not on the market today. It would be considered too expensive, but when the brickmaker sees the advantages and possibilities in such a cutting table, then the machine companies will bring it forward, provided the brickmaker is willing to pay the price.

The clay manufacturer is far behind his brother manufacturers who are engaged in other lines of industry. The molding of a brick is a simple operation when compared to the complicated weaving or delicate fabrics or the making of a shoe.

The reasons for this slow development in clayworking machinery are: First, the clayworker has not been willing to pay the price; second, the majority of the men who are designing and building clayworking machinery are not thoroughly practical clayworkers; i. e., men who have had broad practical experience in clayworking operations.

Clayworking machinery has not had the attention of that highest scientific and mechanical intelligence that has been put into such machinery as is required to operate modern machine tools and similar machinery. It is not designed and assembled with that care and attention which has been applied to the dynamo or the Corliss engine. To some it may seem ridiculous to make such statements about machinery for shaping crude clay into brick, but the time is coming when we will see some radical changes in the construction of machinery for shaping our clay into wares. First class vitrified front brick will be produced at very nearly the same figure as it is now costing to produce common stiff mud builders. When that time comes, the brickmaker need have no fear of the concrete and cement block men.



structed die. If the lubrication is cut off or reduced, the friction is increased far greater at the corners than at the middle, as represented by the length of the arrows in Fig. 14. Brick, when cut perfectly square from such a column, will dry and burn with a side warp, as illustrated by Fig. 15.

The remedy for this would be perfect lubrication, if perfect lubrication were possible. Perfect lubrication can be very closely approached by a properly installed lubricating device. Increased stiffness in temper of the clay requires increased pressure for lubrication. Also gradual wear of the die requires gradual increase in lubricating pressure.

These points have been observed in a water lubricating device represented by Fig. 16. This lubricating system consists of a sheet iron tank which holds enough water for the day's run. Two pipes lead into the top, each provided with a valve. One pipe is used to fill the tank from the water supply; the other pipe at the top leads to the boiler. After the tank is filled the valve in the water pipe is closed and the valve in the steam pipe opened. This places the water in the tank under boiler pressure.

A pipe leading from the bottom of the tank is connected

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



IDSUMMER IS ON US, and the building season has proved to be a busy one, with no apparent reason to expect any letup until snowfall. While it is true enough, of course, the so-called "boom" conditions do not exist, there is plenty of work actually in progress, being figured, yes, and being talked about seriously.

Most of the brick and material dealers report the situation as extremely satisfactory and wholesome, the more so in view of the dark outlook which obtained in the latter months of 1907 and the first days of 1908. It is true that there are not so many big jobs on the boards of the architects, nor under process of construction as there has been in the past year or so at the same season. Nevertheless, the records of sales and the numbers of permits taken out in the office of the Building Commissioner show up much better than they have in some more spectacular years.

The month of June in number of permits issued is the best building month the city has known, with the exception of two years, since the World's Fair building boom, and the sales and delivery records in most of the material dealers bear the same testimony. More brick were sold and delivered and more brick was involved in the jobs figured than for any other month this year, and it was one of the best Junes on record.

The secret of this lies in the fact that while there is no great amount of big building, there is an unusual amount of small building—as was predicted there would be at the opening of the season. More small apartments, small office buildings, industrial buildings, factories, warehouses and residences are going up, or about to go up, than is customary by a very wide margin. Times are not good enough to warrant any big ventures, and they are not bad enough by a long shot to stop building, especially with material prices and labor conditions so extremely favorable. As a result, the small investor finds a conservative and natural outlet for his money in putting up good buildings, either for speculation or to secure him a moderate income. It looks like, and is, a better thing than the stock market just at present, and is as safe as, or safer than, buying bonds.

There is every indication, too, that confidence is about to be renewed, and this will bring along many large enterprises which have been held back. A change of administration or the prospect or possibility thereof always produces unrest industrially and financially. Recent events at Denver, together with other differences which the Democratic nominee for president has had with other leaders, and the strained relations which have existed between him and them for some time, do not speak loudly of harmony nor promise much in the way of party success for the head of the ticket. The chances for Mr. Bryan's election would seem to be marred still further by the fact that the Independence Party, with the Hearst newspapers behind it, will put into the field a third national ticket, which can not fail to draw whatever strength it may attain from the ranks of Democracy. If there ever was a time when a continuance of an administration presumably along wisely conservative lines was assured, it would seem safe to most of the material men here to gamble on that prospect now. This condition in itself is expected to bring on better business conditions than usually obtain in the months prior to a presidential election. It is true that times may not be quite so prosperous as they were for a few years prior to last fall until after the tariff schedule has been readjusted, but there will be far less of a panicky feeling abroad in the land, it is believed, if that revision goes on under Republican auspices than if it were

threatened with the rude jar which the Democratic platform seems to promise.

The paving brick market, too, is unusually good. Many deliveries are being made and an unusually large number of sales are being made for this early in the season. In fact, the month of June showed up as well as latter July and August generally do. A number of explanations are offered for this state of affairs, which is, of course, not in the least displeasing to the paving brick man. There is a constant increase in the use of brick as a paving material, although in Chicago progress along this line is still slower than it should be. The stringency would have little effect as yet upon expenditures by municipalities. And last, but perhaps of not least importance, paving men are learning a lesson in starting their work earlier than they have been wont to do. Many of the deliveries being made now are on sales made last autumn, on which work had to be suspended through the cold weather, and which has been delayed this year by the late spring to some extent. With greater foresight the city street departments are beginning their work earlier, and this probably accounts for the increase in early sales to a considerable extent. Still there is a hopeful tone about the whole situation.

Construction work on the mammoth new downtown hotel—the LaSalle—is at last under way, to the extent of sinking the caissons. The contract for the exterior brick went to the S. S. Kimbell Company, which will furnish at least 300,000 Purington purple continentals. It is understood that the interior brick will be furnished by the Hydraulic Pressed Brick Company. This will be the most stupenduous undertaking in this line in Chicago. It will tower above the other skyscrapers, and will have as many sub-basements as the Field retail stores. It is being erected at the northwest corner of LaSalle and Madison street.

There are, moreover, some big enterprises in prospect in and about Chicago. The new city hall will soon be under way. Wrecking of the present old and crumbling pile will be started within a month now, and will probably be completed by next spring. The Steger Piano Company is to erect an eighteen-story building at the corner of Wabash avenue and Jackson boulevard, work on which will be started by the first of May next year. It will be fireproof in every particular and will probably prove a field for lively competition among the material dealers. It will cover an area of 50x110 feet.

Cook County is to go ahead with some new buildings in the next few months, the total cost of which will run in the neighborhood of \$2,000,000. A new fireproof poor house and infirmary is to be erected at Oak Forest, Ill., within the boundary of the county. It will have a capacity for more than 2,000, with provisions for future additions to increase the capacity to more than 3,000. A site has been purchased of 285 acres. The building will be E shaped. All the county buildings of this character are of brick, and this will be no variant from established custom, as shown at the Dunning Institutions and in the county hospital group on the West Side. The shape of the infirmary building will be for the purpose of giving the wards as much sunlight and air as possible, and by giving a greater exterior surface will, naturally, call for some more front brick than would be used in the structure of common type.

A new county hospital for consumptives is to be put up on the West Side as an addition to the present county group bounded by West Harrison, West Polk, Lincoln and Wood streets, and composed of the county hospital, the insane detention hospital and the county morgue. The county's ownership of this square block of ground has been completed by the purchase of a 16-foot strip at the northeast corner of Polk and Lincoln streets. This purchase makes the erection of the new hospital for consumptives a possibility. Like

the other buildings of this group, it will be of fireproof construction with brick exterior, and the use of brick, fireproofing and tile will be general throughout. It is to cost between \$150,000 and \$200,000.

The state is also going ahead with plans for new and improved buildings for the care of its unfortunate wards. The S. S. Kimbell Company has received an order for 40,000 Purington Continentals, to be used in the new school building for the deaf to be erected at Jacksonville, Ill., as an addition to the state charitable group there.

Bonner, Marshall & Co. are furnishing the brick for a general wholesale and retail market warehouse, which is to cover about half a block at the corner of West Harrison and South Laffin streets. This is one of the most interesting structures now under construction, and this, in spite of the fact that it is to be only one story in height. It is being erected by the Shank Company for a stock company. It is to be fireproof throughout. The brick being furnished are the Bonner, Marshall & Co's. No. 13 repressed paving blocks, and the job will take 100,000 of them. In order to get the greatest amount of light and the least amount of the heat, the saw-tooth type of roof has been adopted. This means that the roof is made up of a series of ridges, the slant

Written for THE CLAY-WORKER.

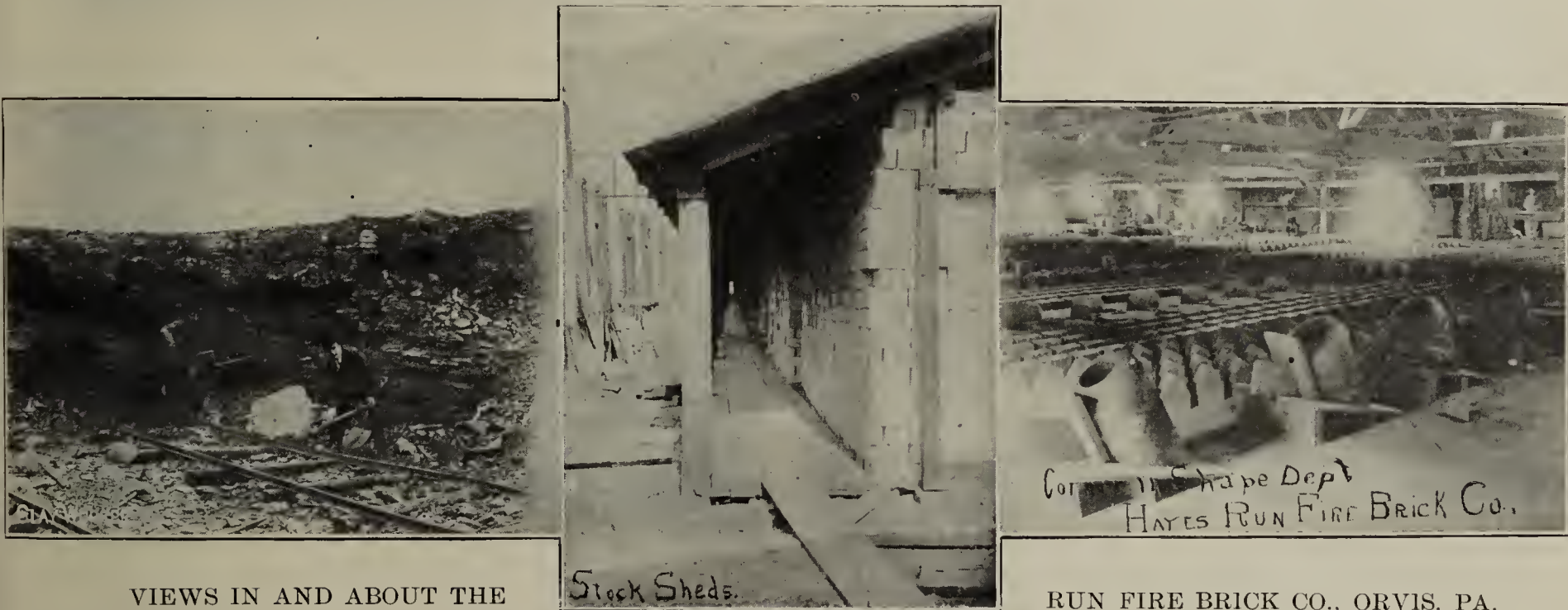
CENTRAL PENNSYLVANIA'S BRICK METROPOLIS.



THE TOWN OF ORVIS, PA., did not grow in a night nor a year, but it is a remarkable fact that a thriving village now stands on the very ground that five years ago was the abode of wild cats and rattlesnakes.

The Hayes Run Fire Brick Company and the Center Brick and Clay Company's plants are situated in the Beech Creek Valley in Center County. This valley runs directly through the great coal and clay lands of Pennsylvania, the heart of which is Center, Clinton and Clearfield Counties.

A number of years ago the lumbering business was prominent in this section, and the Susquehanna and the Beech Creek valleys abounded in the finest timber of various kinds. Those who at that time had control of the timber land, cut the best and released their claims. Later, when lumber became scarce and the prices advanced, Mr. W. I. Harvey,



VIEWS IN AND ABOUT THE

FACTORY OF THE HAYES

RUN FIRE BRICK CO., ORVIS, PA.

surface being closed and of construction to defy heat and light, and the vertical section of window glass opening to the north to receive the strongest of light without ever getting the hot rays of the sun. No brick are to be used on the interior, however, as plaster will be used and covered with enameled paint. The total cost of the market which will be used for meat, fish and garden produce will be about \$150,000. More markets are expected to follow, as the prices exacted by the retail grocers in Chicago now is creating a demand for the market, especially in the less "exclusive" residence districts.

The same brick company is also furnishing 200,000 water-proof brick for the Siegel & Cooper warehouse at Sixteenth and State streets, and 100,000 Nationals for the Independent Packing Company, out on South Halsted street and the river.

An addition is being put up to the Washburne School, at West Fourteenth and Jefferson streets, for which the S. S. Kimbell Company is furnishing 100,000 Athens pavers.

SCRIP.

Just as the slang words of today are regularly accepted in the vocabulary of tomorrow, do luxuries of the present become necessities of the future, and then we go out after more luxuries.

a prominent citizen of Lock Haven, obtained control of the land in the Beech Creek Valley, on the eastern border of Center County, and followed the lumber business for several years.

In the meantime the fire brick business was fast taking the place of lumbering. Being an experienced geologist, Mr. Harvey was by no means the last to perceive this, and even before he finished lumbering he started prospecting. The first of this work was done in 1897. After six years of hard work, getting specimens and having them analyzed and tested, he submitted the results, showing that this land contained an unlimited amount of the finest fire clay.

This seam of clay begins at the very edge of the mountain overlooking the valley and has an exceptionally large area. In certain sections of the land there is no mining required. Authorities on the production of the raw material for fire brick claim that dirt twice as thick as the seam of clay can be removed and the clay loaded for less expense than it would cost to mine that particular seam, and we believe this to be true. But the remarkable fact regarding this seam is, that it not only equals the covering, but, more striking still, for a covering of an average of 5 feet there is a seam of clay from 9 to 11 feet. Business men have

wondered at this almost phenomenal deposit of clay and some at first as to the quality of the product, but analysis, and better still, tests by leading steel works, proved that this clay equalled, if not excelled, any in the world.

Aside from the fact of having easy access to their clay land, there is a 4-foot vein of coal located at the very center of their property. An immense amount of coal is used in the manufacture of fire brick, and every pound used by the Hayes Run Company is mined from their own coal bed. At first an inclined plane was used to fetch the clay to the works, a narrow gauge road extending from the top of the hill to the clay beds. But the demand for raw material became so great that switch backs were put in use so the demand could be met.

Mr. Harvey's next move, after being fully convinced that he had the proper material, was to interest prominent business men. This he did, and in the year 1903 the Hayes Run Fire Brick Company was organized.

The place the company selected for their plant is a level portion of the Beech Creek Valley at the foot of the mountain containing the clay and along the railroad, giving them easy access to their clay and good shipping advantages.

During the above named year, work was begun on the plant and a building 213 feet long and 70 feet wide was constructed. The works were equipped with the latest machinery, which consisted of one wet and one dry pan, also one Boyd dry press. This equipped the works to make about 45,000 brick per day. At this time there were ten kilns, and the plant equalled any ordinary brick works in this section.

Almost as soon as the brick were put on the market their sale was only limited by the capacity of the plant. The product spoke for itself wherever it went, and the company found it necessary to add 75 feet to their main building. This increased their capacity to 55,000 per day. After this increase in capacity the machinery was kept running night and day, yet the demand could not be met, so in 1907 a special meeting of the stockholders was held and it was decided to extend the main building 213 feet, erect ten more kilns and install sufficient machinery to make 100,000 brick per day. This puts the Hayes Run Works on an equal with any independent works in the United States, and it is safe to suppose that in a short time it will exceed any of its kind in this country.

In addition to the great demand for fire brick came as great, if not a greater, demand for high class face brick. The company at first manufactured a few of the latter, but the plant was intended for the manufacture of fire brick and they were unable to supply their customers with these, so the manufacture of face brick was discontinued, but the demand increased. The demand could be met in no other way, so in 1907 another company was organized, under the same management and under the name of the Center Brick and Clay Company, for the manufacture of fancy face brick.

This plant is situated about three-quarters of a mile above the fire brick plant, and the clay will be reached over the Hayes Run Railroad. Work was begun late in the summer and carried on with vigor through the entire winter of 1907-1908. The company expected to make brick by the first of June, but owing to the severe winter and the excessive wet weather, it will probably be the first of July before the works are in operation.

The Center Brick and Clay Company states that the capacity of their plant when finished will be 125,000 brick per day, but judging from the machinery that is set, it will be much larger. The Freese stiff mud machine and cutter are the largest and latest improved of their kind on the market. The actual capacity of this machine, as stated by the manufacturers, is 12,000 brick per hour, or 120,000 brick per day.

Two Boyd dry presses have been installed for the manufacture of standard Pompeian and ornamental brick. In addition

to the 120,000 stiff mud brick, these machines have a capacity of 35,000, giving the plant a real output of 155,000 brick per day.

The clay will be ground in three Stevenson's 9-foot dry pans, then carried to the second floor of the building and put through screens. From here it is carried to the above mentioned machines and pressed into brick.

In connection with the wire-cut machine, there are two represses used to put special finish on special work. The



A Glimpse of the Factory.



Picturesque Hayes Run.



The Clay Field.

brick are carried from the machines on a belt and are loaded on cars, 224 of which will be used, holding 450 brick each, and taken to the dryer. There are fourteen tunnels 116 feet long. Facing these tunnels will be ten large side-draft kilns, which will hold 125,000 brick each. Between the kilns and the tunnels is a large heater containing 7,500 feet of pipe. This heater will use the exhaust steam. Back of the heater is a 200-inch fan, which will drive the hot air from the

heater, and also the waste heat from the kilns through the tunnels.

It would require about 200 h. p. to run this heavy machinery, but a 450 h. p. engine and 450 h. p. boilers have been set. In fact, all the building has been arranged so that the capacity can be increased at any time, and it is expected that in a short time these works will have an output of 200,000 per day.

Travelers through this section are often heard expressing



A Portion of the Clay Bank.



Approach to Company's Siding.



In the Drying Room.

their admiration for the town of Orvis. It is so unlike the towns that are usually seen in brick or mining sections, that it is not surprising that it calls forth favorable comment.

The natural location of the place is beautiful. The mountains are high and steep, and are cut to pieces by numerous valleys. Although the timber was cut away, sufficient time has elapsed since this was done to allow the young timber

to grow large enough to take away the appearance of barrenness.

Adding to the beauty of a natural location is a well planned town. The plants are situated at the extreme ends of the village. The houses, which are of brick, of from six to ten rooms, are arranged in perfect rows, leaving broad streets and giving each family a large lawn and garden.

The company plans to have places for their men to live that can fairly be termed homes. This insures a better class of men and in a large measure solves the question of the relation of the employer and the employe, for the word "strike," is a foreign one to Orvis.

We stated at the beginning that this section five years ago was a wilderness. The only mark of civilization was a couple of dilapidated lumber camps and a railroad through the wilderness.

In this short time a thriving and growing village has taken the place of the wilderness. Works have been erected that employ 300 men and in a short time will employ 600. Five years ago no one thought of visiting here except hunters and fishermen. During the last summer hundreds of visitors came to visit the works and to take a ride on the company's narrow gauge road, known as the "Mountain View Railroad," to see the wonderful clay banks and fine mountain scenery. Five years ago the local freight train went through at the rate of thirty miles an hour. Today she stops and increases her train by one half. When both plants are running two trainloads of brick will leave this place in a single day.

With all the natural advantages that could be desired and with an unlimited amount of the very finest raw material, there is every reason to suppose that for years to come Orvis will be on the greatest centers of the manufacture of brick.

FIND ABANDONED KILN FULL OF GREEN BRICK.

Mystery, romance and tragedy blend in tales which have been set afloat through a remarkable discovery made by workmen leveling the mound which has become a landmark at Poplar avenue and Garland place, Memphis, Tenn. When the workmen had uncovered a part of the mound it was discovered it was in reality an old brick kiln. The strangest part of all was that it was filled with brick which had never been burned.

Row upon row of "green" brick filled the kiln, as perfect as the day they were placed there. All that was needed to transform them into commercial brick would have been the hours of burning.

Years ago a romantic story was current in the neighborhood about the kiln. It was in active operation before the war. At that time the kiln was located in what was called the "country," the city not having spread anywhere near the spot. The owner, a young man, was in love with the pretty daughter of a farmer east of Memphis.

They quarreled one day. The young brickmaker was hot-headed, and the next morning rode away to cast his fortunes with the army of the south, war between the states having been declared but a few days before. The kiln full of unburned brick awaited his return.

In the victory at Bull Run, the young Memphis recruit was shot dead.

Turbulent happenings of the next decade almost erased recollection of the young man, and the neglected kiln, covered with dirt, took on the appearance of an Indian mound. Trees of considerable size had even found root foothold and flourished from the sides and top of the mound.

Even the oldest inhabitants of the neighborhood had about forgotten the story, and it was regarded as a myth until the uncovering of the mound recently seems to prove its truth.—Ex.



The Determination of Alumina in Chemical Analysis.—The Royal Material Testing Station of the Technical University, at Berlin, has found that by analysis of fireclay and fireclay products and its determination of alumina, the amount of alumina found is always lower when the sample has been treated with hydro fluoric acid and sulphuric acid than when the sample has been melted with sodium-potassium carbonate. In tracing the cause of this deficiency, it was found that the precipitation of aluminum hydroxides was retarded and even sometimes prevented by the presence of hydrofluoric acid.—*Baukeramik*, No. 15, 1908.

A Pottery Body Imitating Marble.—In order to make a pottery body look like marble the body should be carefully compounded, be as near as possible free of flint, and be burnt between cone 8 and 10. The composition of feldspar, forty-five parts; kaolin, four parts, and marble, one part, will give a good mixture. In order, however, to overcome the appearance of the seams of the molds, it is necessary to calcine a part of the body first. Thirty parts of the burnt body should be carefully ground, and mixed with seventy parts of the raw body. This body will give excellent results. If this body is not plastic enough to be handled with success the following body might give better results: Feldspar, fifty-five parts; kaolin, twenty-eight parts; white burning clay, fifteen parts; and flint, eight parts.—*Sprechsaal*, No. 10, 1908.

A Fire Resisting, Silica Free Body.—Dr. Heinecke, the director of the Royal Porcelain Manufactory, in Berlin, has conducted experiments in order to arrive at a body which would resist fire, and at the same time be nearly free of quartz. The bodies, as used so far, were not vitrified, and while they could stand high temperatures, they did not give any results in cases where a vitrified body should be used. Experiments have shown that a combination of pure alumina and pure magnesia would give a body which has the nature of porcelain. The magnesia should first be calcined to very high heat, and the binding material for such body can be of organic substances. The process, or rather the transformation of the combination, is a chemical result, in which the particles are so closely knitted, that complete vitrification takes place. Small crucibles, retorts and tubing was made from such a body, and burned in electric furnaces, at cone 32. The body, which looks like porcelain, is fully vitrified, and transparent. The melting point of this body is over cone 37, also above the melting point of platinum. Experiments have also shown that this body will resist the action of alkalis to a far greater degree than the vitrified silicate bodies.—*Sprechsaal*, No. 12, 1908.

Fire Clay Crucibles.—The foundries and iron works in the southern part of Yorkshire, England, use four different clays for the manufacturing of their crucibles. According to *L'Industria* these clays have the following composition:

	Eng. China Clay	Clay of Stourbridge	Derby Clay	Stannington Clay
Silica	46.3	63.3	52.0	47.6
Alumina	39.9	23.3	36.0	25.4
Iron oxide	0.3	1.8	1.8	3.5
Lime	0.4	0.5	0.8	1.0
Magnesia	0.4		0.5	1.1
Combined water	12.7	11.1	8.9	21.4

The mixing proportion of the clays for the crucibles is governed by the quality of the steel to be produced, and the larger or smaller amount of silica and carbonic acid present.

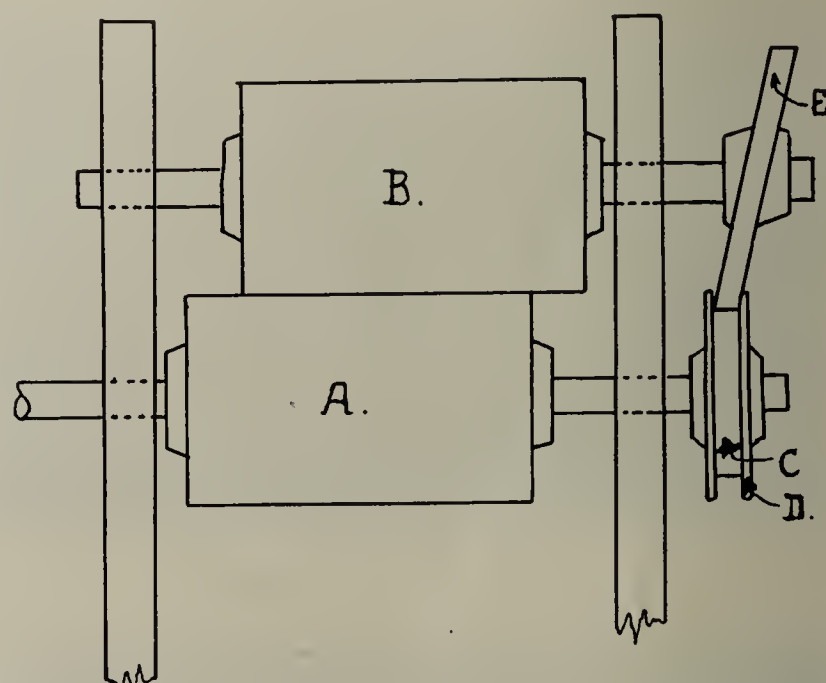
According to the information obtained from a manufacturer the following mixtures are used for crucibles for steel casting:

	Pure steel	Crucible size No. 1	Crucible size No. 2	Very large crucible
Eng. China Clay.....	10	20	20	14
Clay of Stourbridge...	45	40	19	33
Derby Clay	21	17	14	24
Stannington Clay	21	17	20	24
Coke or Graphite.....	3	6	7	5

The different clays are ground fine, and mixed afterwards. They are then soaked with water, and worked with the feet three hours in order to obtain an even mixture.

The steel foundries are very persistent in demanding that all clays should be worked by hand, as so far no machine has given the same degree of plasticity as handwork. Some machines will even reduce the plasticity. The moulds are wood, and have an outside and an inside part. The drying of the crucibles must go very slow, and while they dry slow, they should dry even. The loss in weight is one-sixth of the weight of the crucible. A crucible weighing 11.25 kilograms takes 15 kilograms of clay. The smallest foundries employ two employees regularly for the manufacturing of crucibles.—*Tonid. Z.*, No. 43, 1908.

Sliding Rolls for Clay Grinding.—In the crushing of clay, the rolls have been very largely used which move in opposite direction. When the rolls are movable a rubbing of the material takes place also. The moving of the rolls on the



shaft can be done in different ways, but on account of the great resistance, this machine arrangement must be strong and positive. The cut as shown herewith is a decided improvement over old styles, and have proven quite successful. The moving of the shaft of one of the rolls is so arranged that the machine remains stationary. The roll a is positive, while the roll b is movable. The spur gear c has two flanges, and the gear works on the oblong gear e of the movable roll. When the roll turns the movable roll will not only turn, but be moved back and forward at the same time. It will increase the capacity of the rolls considerable, and give fine material. Nils Frederikson of Svedala, Sweden, was granted German Patent No. 195,955 on this invention.—*Deut. Topf. & Z. Z.* No. 29, 1908.

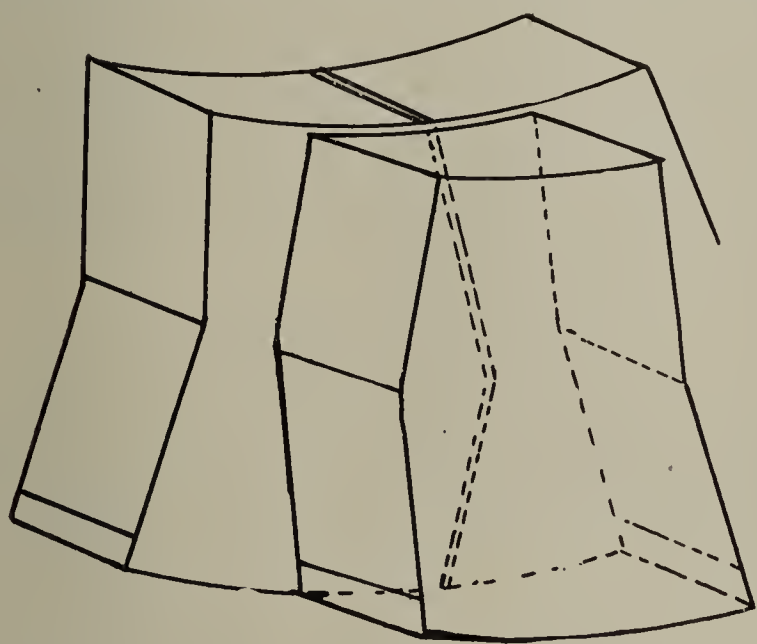
Mr. N. Frederikson visited the St. Louis World's Fair and is director of the technical school in Svedala.—*Editor F. S.*

Sand In Porcelain Bodies.—Sand plays a more important part in the composition of porcelain bodies than has been supposed. The large sand quarries of Bavaria and Thuringia furnish the greater part of this material. The sand usually contains quantities of feldspar, and in many cases this runs as high as 28 per cent. The sand is therefore a cheaper material than either pure flint or feldspar. For the better class of porcelain the sand is first washed. The sand from Kahla, Uhlstadt and Nuehaus does not need any washing,

and are used direct in the porcelain bodies. The sand from Hohenbocka and Roisdorf are among the purest, carrying 99.6 per cent. pure silica. In many potteries the sand is first calcined, as it makes the grinding easier, and therefore increases the capacity of the mills. The average temperature at which porcelain containing sand is burned is from cones 13 to 15, and gives a good translucent body, is in many respects better than those which are composed entirely of separate ground materials, as flint and spar.—*Keramische Rundschau*, No. 15, 1908.

Sagger Press Machine.—Presses for the manufacturing of sagers have proven a great success. Four corner sagers, such as are used in whiteware potteries, are made very nicely on such presses, and the sagers have proven that they will stand the fire better than the hand made ones. A convenient size is 20x14x12-inch. The body should also be properly made in order to press good. A reasonably short body will give better results than a fat body. The drying should be done slower than for turned or hand made sagers. An addition of fine coal slack or saw dust to the body will be advantageous in order to get a body which will stand rapid heating and cooling. The labor and the general cost of the manufacturing of sagers by machine will come to about one-quarter of the cost of hand made sagers.—*Speechaal*, No. 13, 1908.

Round Chimney Brick.—There has been always some difficulty in building round chimneys to any large height in a manner to prevent cracking on account of the breaking of the joints in the brick work. The Steam Continuous Kiln



Brick Works, of Herborn, Nassau, has been granted German Patent, 325668, for a brick which will break joints evenly, and which will make chimney construction more durable than heretofore. The bent sidewalls will prevent breaking, and the wall will be one solid brick mass. The cut of the brick will explain its purpose properly.—*Deut. Topf & Z. Z.*, No. 23, 1908.

Brick Industry In Denmark.—There are in Denmark 389 brick yards which are inspected by the government, and about 125 small brick yards which do not come within the provisions of the government inspection laws. In gathering statistics in regard to the annual production of the 389 brick yards, 318 have directly reported while the remaining 71 are valued approximately. The 318 brick yards reported a total production of 521,240,000 brick, while the 71 non-reporting yards manufactured about 69,810,000 brick. The small yards manufactured in all only 25 million brick. This brings the total yearly production of 514 brick yards for 1907 to 616 million brick. This quantity is 44 million brick less than were manufactured in 1906. This loss can be traced to the brick consumption of the city of Copenhagen, which was very poor last year. Building was not very brisk, and while the smaller towns and the country at large, used about the same quantity

brick as before, the total loss was made by the brickyards surrounding Copenhagen.—*Lerindustrien* No. 6, 1908.

Fifty Years Existence of the Continous Kiln.—The first German patent for the Hoffman continous kiln was granted on the 17th of April, 1858, and brings the continous kiln to its fiftieth anniversary. Friedrich Hoffman did not find many people at that time, who were in favor of his new ideas, and in order to fully demonstrate the feasibility of his scheme, he had to build a kiln first. In connection with F. W. E. Krueger, of Stettin, he started the building of his first kiln in the spring of 1859, on a place close to Stettin, called Scholwin. The first burn on this kiln took from November 3d to 22nd. The results were all that was expected, and the success of the new venture was assured. It is not necessary to point out the many changes which the adoption of this system of kiln has brought to the clay industry, and the name of Hoffmann will never be forgotten in the history of the ceramic world.—*Deut. Topf & Z. Z.*, No. 31, 1908.

Written for THE CLAY-WORKER.

POTTERY NEWS.



AFTER A SUMMER SHUTDOWN, lasting from three to four weeks, the majority of the potteries in the eastern Ohio district have resumed operations. Indications are that the plants will continue in more active commission from now on than has been experienced earlier in the year. Numerous buyers have been visiting the potteries, leaving orders, and it is upon this business that the manufacturers are now working.

The Smith-Phillips China Company, of East Liverpool, is preparing for a better run than at any other time this year. Additions have been made to the decorating kiln department and the capacity greatly increased. The sale of decorated ware with this firm during the balance of the year will be more extensive than ever.

Stables of the Hall China Company, at East Liverpool, were burned recently, causing a loss of over \$1,000. Prompt work on the part of the firemen saved the main plant from damage. The loss is fully covered by insurance, notwithstanding that two horses were cremated.

The National Brotherhood of Operative Potters has concluded its annual convention at Atlantic City, N. J., where a number of resolutions concerning the internal workings of the organization were favorably passed upon. There was no change in the wage scale of the workmen in the white ware potteries, although some matters concerning a change in the wages of the sanitary branch of the trade were discussed. The same officers were re-elected, and the headquarters will remain at East Liverpool, Ohio, in charge of National President Thomas J. Duffy and National Secretary Edward Menge.

The Zanesville-Crooksville Sales Company has been formed at Zanesville, Ohio, although the main offices of the company will be at Crooksville, Ohio. The object of the company is to sell the output of the Brush Pottery Company, Hull Pottery Company, Globe Stoneware Company, and several other smaller stoneware manufacturers in that district. The allied interests have an annual capacity of 1,500 cars, which is the largest output of the sort in the world under one management.

Stoneware pottery manufacturers in the territory east of the Mississippi River will meet at Pittsburg, Pa., at an early date for the purpose of talking over trade conditions. The first session with this end in view was held about a month ago, when considerable good was accomplished. For several years the stoneware manufacturers have tried to get together to talk over trade conditions and hold a round table for the benefit of the trade, and these two meetings are pronounced the most successful ever attempted by the trade.

After inactivity lasting over a month, the Champion Brick

Company, at Wellsville, Ohio, which was reorganized a few weeks ago, has resumed operations in full. Thomas H. Silver, the head of the Silver Banking Company, at Wellsville, is also at the head of the new Champion Company.

The annual meeting of the North American Manufacturing Company, which controls the Homer Laughlin Potteries, at East, Liverpool, Ohio, and Newell, W. Va., has been held, and no change made in the officials of the company. The East Liverpool properties of this company are inactive, although the plant at Newell is working a little better than 75 per cent. of its capacity. Trade conditions entirely will depend upon the resumption of the East Liverpool plants.

The Rocky River Brick Company has been organized at Cleveland, Ohio, with a capital stock of \$40,000. An Ohio charter has been obtained, signed by Paul S. Knight, J. Hoolicek, R. C. Huffman, R. E. Barnett, and G. Stewart.

The Middleport Brick Company has been formed at Middleport, Ohio, with a capital stock of \$15,000.

When Oliver H. Sebring, of Sebring, Ohio, was in Europe recently, and made a tour of a number of German potteries, he witnessed the successful operation of a new style of decorating kiln. He immediately purchased the title to erect one of these kilns in the United States, and one is being erected at the plant of the Oliver China Company, at Sebring. When completed, this kiln will receive the unfinished ware at one end of the kiln, pass it through certain degrees of heat, and when it is taken from the other end of the kiln it is ready for shipment. The kiln is for decorated ware purposes only.

The brushing machine which was invented by William Polk, of East Liverpool, Ohio, a year ago, is being installed in practically every pottery in the west. The machine brushes bisque ware on all sides at once, is operated by one or two girls, and dispenses with a large crew of women known as the brushing crew whenever the machine is installed. The saving to the pottery manufacturers amounts to thousands of dollars annually.

A new brick machine for the manufacture of fire brick has been placed in successful operation by the Gamble & Surles Co., at East Liverpool, Ohio. It has a capacity of 20,000 brick per day, and is a new machine for this district of the Ohio Valley. The bulk of the business of this company is for local trade, although the plant is kept in active operation.

Two new Ball glaze mills are being installed at the plant of the Vodrey Pottery Company, at East Liverpool, Ohio.

The Wheeling Potteries Company, at Wheeling, W. Va., has arranged to go into the manufacture of American china dinner ware, and it is one of the first pottery firms in the United States to do so. Heretofore, the manufacturers have been confining their attention to making porcelain and semi-porcelain ware. The entrance of American made china dinner ware from Texas china clay marks a new epoch in pottery manufacturing in the United States, and it will be a blow to the imported article. The Pope-Gosser China Company, at Coshocton, Ohio, has been making this character of dinner ware for some time with considerable success. In fact, the Coshocton firm was the first to go into this branch of the trade. I. Bently Pope was the father of the plan at Coshocton, and his work has been successful throughout.

The proposition to establish a small art pottery at East Liverpool, Ohio, seems to have amounted to nothing. The head decorators of several potteries in that district had plans very well in hand early this season, but the depression in the business world caused them to delay final action indefinitely.

A new stoneware pottery of two-kiln capacity is to be established at St. Jose, Cal., at an early date. Machinery has been ordered from the Patterson Foundry and Machine Company, at East Liverpool, Ohio. O. MEGA.

It is just as important to know when to say "yes," as it is to learn when to say "no."



DEPTH OF DRAINS.

In speaking of deep or shallow drainage, it is generally conceded that a depth of 4 feet or more is deep drainage, 3 feet medium depth, and 2 to 2½ feet shallow drainage.

Deep drainage relieves the soil and subsoil of surplus water to a greater width and makes the fertility available for plant growth to a greater depth, and needed moisture, and affords a greater range of root growth, so necessary to the growth of plants.

DRAINING A ROAD.

"W. J. P.," Cedar Hill, Ohio, says, in a recent communication, "There was a half-mile of road in a lane which became impassable every spring for many years, which we annually graded, and which as often flattened out, becoming each year impassable for teams for a time. In the spring of 1890 I had a ditch dug in the center of the road bed 3 feet deep. Beginning at the outlet, I laid 6-inch tile a distance of 45 rods, laying the balance with 4-inch tile, then finished the road with a well-rounded grade. The result is a good road at all seasons of the year. The grade stands well today. It has attracted a great deal of attention; heavy loads have been drawn over it without damaging it. I am fully satisfied that no improvement, where ground can not be had conveniently will pay so well."

THE RECLAMATION OF SWAMP LANDS.

In Goethe's Faust, the hero turns from love and woman and idle dreaming to practical activity. He obtains the sovereignty of a strip of sea coast, and proceeds to dike and drain it, and to make it suitable for a teeming population.

The drainage of Haarlem Lake is of itself a world witness of what may be done on a large or a smaller scale. By its drainage more than 50,000 acres of good land was reclaimed, supporting a population in 1900 of over 20,000. The enterprise cost \$5,000,000, but the sale of land aggregated \$3,900,000. The drainage of Haarlem Lake involved a large expense and skillful engineering. Several large gigantic steam engines were employed, by which the water was pumped up into a canal connected with various outlets.

We have in the middle western states million of acres of land practically worthless for agricultural use because of a lack of drainage, and millions of acres of swampy land that is only partially productive on account of too much water to allow proper cultivation. In addition, there are millions of acres of upland clay soil which will require under-drainage to produce maximum crops.

In the tile drainage of clay land already under cultivation, the increase in the crop yield varies from 15 to 50 per cent., which is a net profit, since it requires less labor to cultivate drained land than underdrained land. The experience of farmers attest the fact that increased yield of crops pay the cost of thorough work in from one to three years. In a call for a conference of the Governors and prominent men of the states of the United States, the President said: "Facts which I can not gainsay force me to

believe that the conservation of our natural resources is now the most weighty question before the people of the United States." Among the "natural resources," the writer classes the reclaiming of swamp lands—low wet lands and overflow lands along the waterways as one of the most important factors in the conservation of our natural resources. What can be more important than the fitting of our millions of acres of low valley lands and our swamp, or wet lands, sloughs and bayous for homes of the millions of population yet to be. Lands which in their present state are practically worthless, but when reclaimed by drainage will be most valuable for agricultural purposes.

The importance of reclaiming and the better development of our agricultural lands rightly addresses itself to the consideration of our state and national meetings of clayworkers and land drainage engineers. The power and influence of such associations properly directed would do much towards focusing public attention upon its importance from economic standpoints.

MY BEST CUSTOMERS.

Mr. J. L. Heath, drain tile manufacturer, in a note giving some of his experiences in the business, says: "The men who are my best customers have been draining their land for twenty or thirty years, or if they are young, their fathers were men who knew the value of under-drainage, and the more tile they use the more they want to use. Some who have wet land say they would like very much to drain if they were able, that they are already some in debt, but they have it in mind to drain some in the fall; but when fall comes they find themselves short in crop yields, so they have little to sell, not more than will pay their taxes and meet other necessary demands, and are not more able to drain than they were in the spring. My own drains pay the expense of putting them down the first year."

A PRONOUNCED SUCCESS.

The benefits of tile drainage are realized in Minnesota, as well as in other states. The "Hutchinson Leader" says that T. T. Fallon and Ed. Kane are owners of two of the finest farms in McLeod County. They have been among the few who have recognized the profits to be gained by tile draining their low meadow lands or cultivated fields, and have, during the past two years, laid over \$2,000 worth of tile on their farms.

Mr. Kane says that he and Mr. Fallon have had proof of what tiling will do in taking off flood water from frozen ground. During the recent thaw, Mr. Kane inspected the outlet of his 10-inch tile drains and found them flowing full capacity, and the meadows and cultivated lands traversed by the laterals were comparatively dry, when, under ordinary circumstances, the thaw would have converted them into a lake. He has also noticed that small potholes or sloughs, located some distance from the main drains, have been drained in like manner.

His explanation of this rather astonishing fact is, that in the fall season the tiles carry off all the surplus water before frost comes, leaving the ground very porous. Consequently when any flood of water comes, either from rain or melting snow, the loose, porous earth allows the water to find its way readily and quickly down to the drains and through them to the outlets. Drain tile spells money for the farmer who has the intelligence and foresight to use it. It renders his wet lands, otherwise useless, the most productive and profitable on the farm. If farmers who are land owners could fully comprehend the consequent benefits of tile drainage on all kinds of productive soils, the amount of drainage done now would be doubled many times in the

near future, and if well done, the annual crop yield would be doubled likewise.

SIZE OF TILE FOR LATERAL DRAINS.

Mr. C. G. Elliott, drainage expert for the United States Department of Agriculture, in his "Engineering for Land Drainage," gives the following as his opinion of the size of tile for lateral or side drains:

"No attempt should be made to make the capacity of intercepting drains equal the combined capacity of the laterals where a system of thorough drainage is employed. The size of laterals where the soils are open and permit the use of drains 100 feet or more apart, should be 4 or 5-inch tile, which, in some cases, may be diminished to 3 inches at the upper end. For drains at a less distance, 3-inch tile may be used for laterals. They are usually required to carry only a small part of their full capacity in order to relieve the soil of its surplus water. To do this well, however, they should not be quite full at any time, unless it be when there is more than ordinary rainfall. They do not work under a pressure head, hence their velocity of flow is as great when running half full as when running full. Water in a drain attains its greatest velocity when three-fourths full, and its greatest rate of discharge when nine-tenths full."

Since the work of laying the tile is usually more than one half of the expense, and with the cost of laying 3-inch tile practically the same as that of 4-inch tile, it is poor policy to put in a small tile where a larger one would sometimes do 50 per cent. better work. With our experience, we would not lay a smaller size than 4-inch tile, unless in some exceptional case.—Ed.

THE USE OF LARGE TILE.

We are all more or less conversant with the benefits to be derived from the use of large tile, but the use of large tile, ten inches and over, is not so generally appreciated. In the drainage of many farms, open ditches or natural drains are used for outlets. Large open ditches crossing the fields which are in cultivation necessarily take a large strip of land two or three rods in width of the most fertile land, which, if tiled, could be used in common with other portions of the field without any hindrance. In the use of harvesting machinery, as well as the cultivation of the crops, there would be no need of extra turning of the teams, and the consequent wasting of grain or tramping of the cultivated crops, a saving in time and waste of grain, enabling the husbandman to do better work, and do it more expeditiously. By the use of large tile, the open ditches may be eliminated, adding to the acreage of the cultivated land, and, at the same time, ridding the land of the unsightly weed strip that is likely to be seen cropping the field. Weeds, briars and shrubs almost invariably grow along the sides of the open ditch. The first cost of large tile and the laying of them is expensive, but the added acreage, the less cost of preparing the seed bed and greater convenience of cultivation, the larger crop returns, the more efficient use of harvest machinery, the saving in time, labor, and waste of grain, will pay a very satisfactory per cent. on the investment.

It is often supposed that an open ditch running quite a volume of water could not be put into an underground tile,—that a drain made of tile two feet in diameter would not take all the water. Such conclusions are likely to be mistaken conclusions. One can have no adequate idea of the amount of water that will flow through a twelve inch tile, the pressure of the soil water and the fall or grade of the drain and the unobstructed flow forces the water through the tile much faster than the flow in an open ditch.

Mr. W. J. Wooley, of Hilliards, Ohio, writes: "In 1885, I

constructed an 18-inch tile drain that carried all the water off of 1,300 acres of wet lands (including the water shed.—Ed.). The water came from the outlet with a rush and filled an open ditch 4 feet at the bottom and 7 feet wide at the top."

The tract of land and the outlet of the drainage system above referred to was viewed by the writer, the amount of water discharged at the outlet was remarkable, quite equal to the foregoing statement. There is one fact that needs to be taken into account in this connection. The outlet served a thorough drainage system embracing, as we now remember, about 400 acres of level, black land, formerly classed as "swamp land." The main drains were laid 5 feet deep and the laterals, or side drains, from $3\frac{1}{2}$ feet deep (at the heads of the drains), the depth being increased approaching the main drains. The average depth of drains, including the entire system, approximated four feet. In a heavy, long continued rainfall, the line of saturation rising in the sub-soil would hold back for a time a large store of water, giving ample time for the discharge of the water at the outlet without any danger of the complete saturation of the entire depth of the drained soil. The above instance of the effective working of a large tile drain shows the difference in the water carrying capacity of a covered large tile drain and an open drain, which, to the writers' mind, is conclusive evidence that nearly all the open ditches could be converted into underground drains, and thus add to acreage and increased productiveness of the cultivated land.

A serious objection to open drains is need of cleaning them out almost annually,—the washing of the sides, the tramping of stock, and the weeds and litter that will in some way accumulate will serve to fill them up and lessen the water flow, making them a subject of unending care from year to year. When open ditches serve as outlets for tile drains, the tile at the outlets are liable to be misplaced by the tramping of live stock, interfering with the free discharge of the water flowing from them. In this particular, frequent repairs will have to be made to secure the most effective working of the drains. The use of large tile has increased from year to year in the past twenty years in proportion as the benefits have become more and more apparent. Large tile are successfully used in the construction of culverts under highways, costing less than other material used for this purpose, and being more durable. There are many other ways in which they are or may be used to advantage. In the purchase of large tile see to it that they are straight and at least two feet in length and cut square at the ends. That they should be cut square across the ends is important in securing tight joints. A small tile can be turned to readily secure a good joint, but it is difficult to turn a large tile so as to secure a good joint and a firm bedding of the tile. When large tile are not cut true at the ends the openings at the joints are difficult to close or protect from the washing of soil into the drains which should be prevented if possible.

The tile manufacturers of the country are fast solving the problem of the manufacture of large tile, in sizes from ten inches to three feet in diameter, the latter being the largest that we have so far heard of. Two-foot tile are quite common, and are large enough to put the most of the open ditches underground.

The writer confidently predicts that the demand for large tile will increase as the years go by, for the reason that the large areas of valley, or low bottom lands, will be reclaimed and brought into cultivation in the near future, and the use of large tile will be imperative to secure complete drainage systems.

Wonder how many of us think success means to get the best of the other fellow? It's a queer thing, that word success, for it may be interpreted in many different ways, though it seems very simple on its face.

Written for THE CLAY-WORKER.

THE SETTING OF BRICK AND DRAIN TILE IN CONTINUOUS KILNS.

IT HAPPENS QUITE frequently that drain tile and brick are manufactured on the same yard, and that in order to take care of the proper burning each class is burnt by itself. Usually we find that the addition of a down-draft kiln is necessary where a continuous kiln is used for the burning of brick. In Germany the practice has been to burn both classes in the same chamber of the continuous kiln, and they have achieved great success. Mr. G. Zehner, of Aumenau-on-Lahn, describes the method of setting very carefully in "Thonindustrie Zeitung," which we here partly reproduce.

In order to produce good draft in continuous kilns, it is

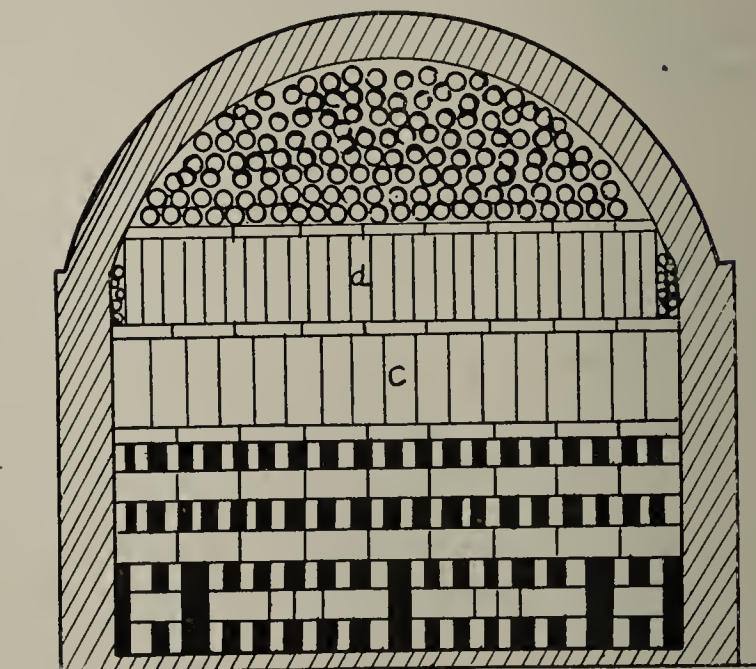


Fig. 1.

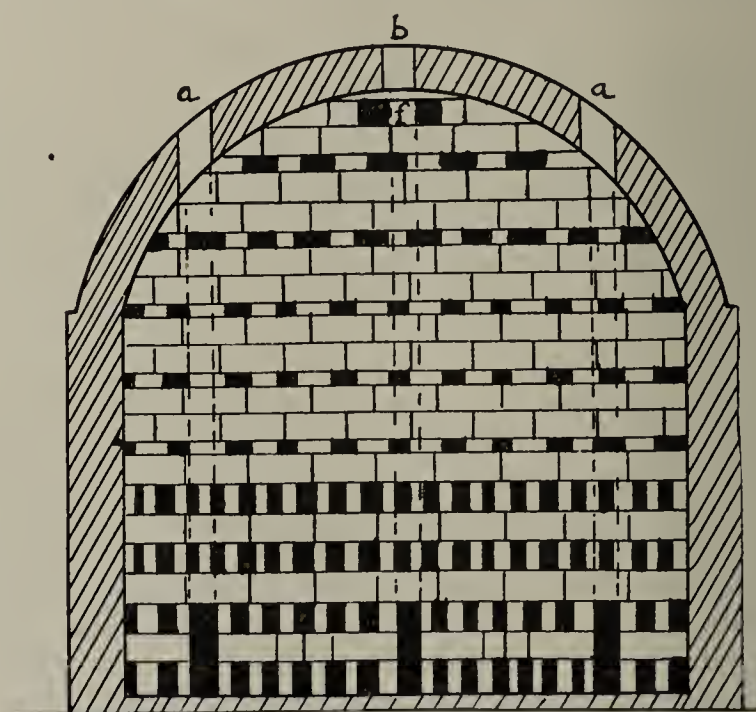


Fig. 2.

necessary to properly set the brick so that the flues will have proper space and size. If the brick in the lower part of the kiln are set too close, it will be found that the draft will be very excessive at the top, in case drain tile is used in that part of the kiln.

The fire will also heat up the thin drain tile much faster than the solid brick, and consequently the heat will be all on top and the bottom will be far behind. These facts should be born in mind when brick and drain tile are set together in a continuous kiln. The draft should be retarded on top, in order to drive it to the bottom. It is not sufficient to build up a small wall of brick, but the general plan

of the setting should regulate the draft features of the kiln. A combination plan to set brick and drain tile without losing any space whatever is shown in the attached cuts.

The general setting arrangement is shown in Fig. 1, while the kiln section is shown in Fig. 4. In both cases the setting is shown between the firing walls. The arrangement for the proper firing flues is shown in Fig. 2, while Fig. 3 shows the method of dividing the top by brick courses. When this system of setting is closely followed, it will be found that we have a uniform division of the flues and the draft arrangements. The brick are set end for end lengthwise, with about 1 inch space between rows. The cross rows can be set closer, as can be seen in Fig. 2. The outside flues are built up straight, while the flues on the inside are alternating. The flues are 4 inches wide, while the outside flue A can be slightly wider. When the fire is back

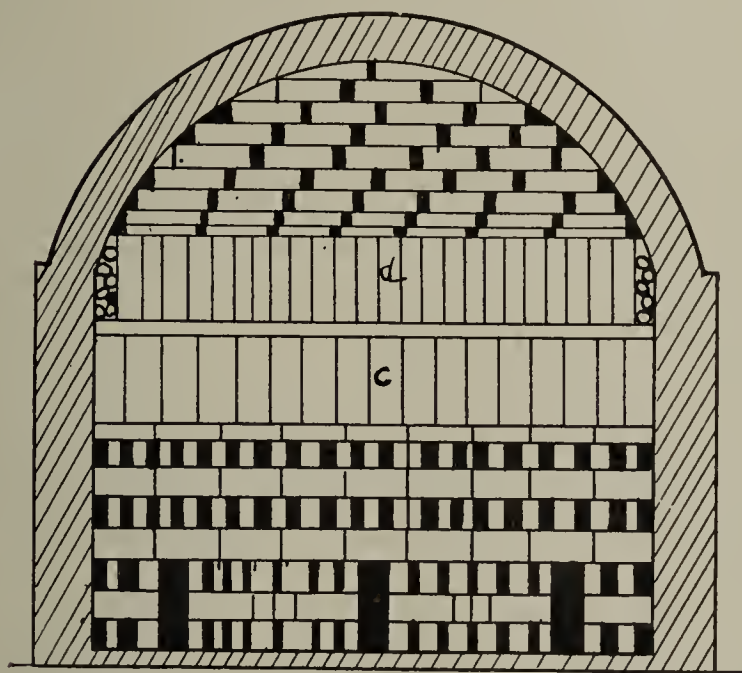


Fig. 3.

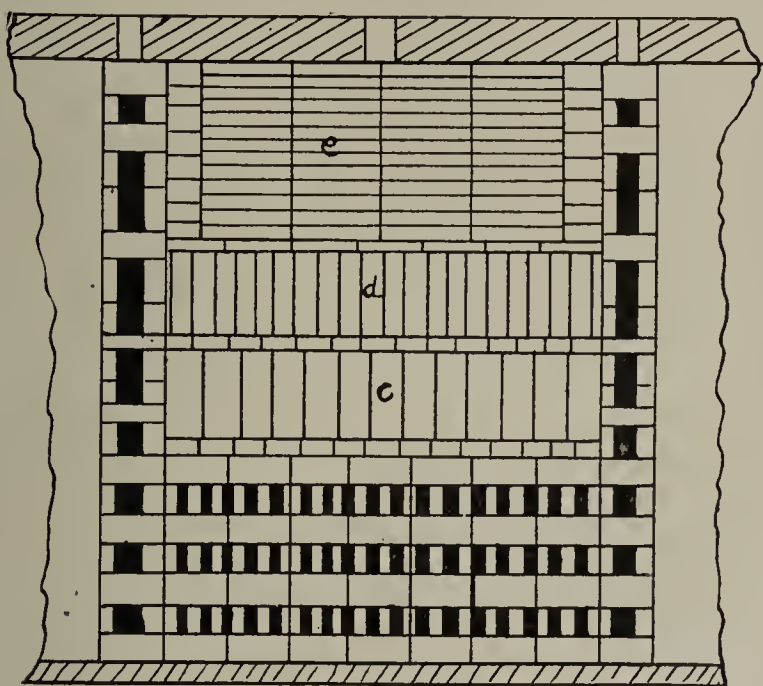


Fig. 4.

on the sides of the kiln, it can usually be traced to tight setting around the kiln door

The drain tile are set on end and very close together. In the lower part C are set the large tile, while in D the medium size, while the top E is filled with small tile. The small tile are usually set lengthwise in order to save space. In order to overcome the trouble of the fire moving faster on the top of the kiln under the crown, the drain tile are separated in several places by a layer of brick. The bottom row of brick should be set across, as this is absolutely necessary to insure a proper cooling of the kiln. The brick at the center flue B should be so arranged that they can be

regulated in case the top F should be ahead of the other parts.

The method of setting which has been described is adapted to the use of all sizes of brick and drain tile. It differs somewhat from the old style in that the drain tile are separated by brick on end and one laying flat. By this arrangement the fire draws better to the bottom and also keeps the ashes back more, and the division of the fire is more uniform. The brick are set alternating to the right and left of the flue stacks, so that after they are taken out the flues are step-like. The combustion with this style flue is complete, while this can not be said of the ordinary arrangement. When many drain tiles are to be burned, we can also commence setting one row lower than is shown. In order to work the continuous kiln successfully two chambers should be water smoking, five chambers should be in first fire, and three chambers can be in full fire. Then we can have six chambers finished and cooling, while two chambers are in use for setting and drawing. The firing should be at least four times every hour.

LINKING BRICK AND LUMBER.

The inquiry made to THE CLAY-WORKER for May on the feasibility of making brick along with a sawmilling operation and using the slabs for burning the brick recalls the fact that there has always been more or less connection between brick and lumber. Both enter into building operations extensively, and while they appear at times as competitive materials they are quite frequently linked together not only in the manufacture, but in the hands of the dealers. The dealers in lumber have for many years been not only interested in buying and selling brick, but many of them have equipped brick kilns of their own and manufacture the brick product to sell along with their lumber. In the earlier days among the country yards doing this kind of work the main call for brick was to build chimneys and flues and foundation work, but along with the desire for better building, brick entered quite extensively into wall construction and lumber was used for joists and finish. It is, therefore, particularly appropriate that the brick industry and the lumber business should be pretty closely linked together, not exactly in a competitive way, but as companion materials used in building and mill work. It is understood, not only as a matter of preference for better building, but because of the supply lumber being likely to run short in volume soon, brick will from year to year occupy a more important place and there is nothing more fitting than, where it is practical, for the sawmill men to manufacture brick along with their lumber products.

Also, lumber yard men and dealers in building material naturally must give a larger place to brick and other clay products in their building material stocks. Here and there may be found some who are favorably situated to manufacture a part of these products, common brick at least, but this is only a small item and there is a great army of lumber yard people throughout the country who must purchase these supplies just as they do their lumber supplies and handle them more each year to keep up their connection with the requirements of the building world. Some day, and the day is not so far off, either, the building material dealer will not be identified as a lumber dealer, pure and simple, but brick will possibly be the biggest item, and lumber will enter for joists to a certain extent, and for mill work, flooring and finish. And thus the business of the retail lumber dealer will be perpetuated, but the lumber end won't overshadow everything else as it has in the past.

Reform is an institution that should have its inception at the same location where the proverbial domestic fowls are presumed to migrate to for slumber.

Letters From a Young Clayworker to His Father.

No. 1—Economy of Small as Compared With Large Plants.

June 29, 1908.

Dear Father—Your last letter seemed to me to be more than usually full of the live, practical observations and suggestions, which I have learned to look for, whenever you can take time to write at all. You must have had an uncommon amount of leisure for meditation of late, or else you have learned to smoke. I can't quite make out which, and knowing you as I do, one seems about as probable as the other.

One of the things in your letter that interested me most and set me thinking hardest was your observation that some of the smaller clay manufacturing propositions seem to be making more money than the big companies in the same districts. You say you would expect, on general principles, that just the reverse would be the case; that there is so much more opportunity for economy in the case of the big concern. You speak of the savings to be effected by the concentration of office force and equipment; the better organization and economy of travel of the sales force; the economy gained by buying in large quantities; and especially you emphasize the advantage of the large concern in being able to employ an able manager without putting all the burden of his salary on one small factory.

I take it that your remarks are expected to bring out something of a rejoinder from me. You know I have been connected with outfits of both kinds and you have a right to think that I ought, by this time, to have done some thinking along this line. Now, to be frank with you, as usual, I didn't have any classified stock of ideas on tap when I should have answered your letter, and in order to reply to it at all satisfactorily, I had to put on a night shift in my think shop and hold up delivery 'till I could get out the goods.

Before going into details of this proposition, suppose we go back to general principles. If you have read Emerson's Essay on compensation lately, you will remember that he leaves you trying to figure out what use there can be in honest effort, since everything one does or thinks and everything that happens or transpires in the world produces two opposite and balancing effects. At any rate, it does seem to be a pretty safe thing to look for, when you follow up a policy of saving in one direction that a corresponding bill of expense will come to meet you from another. I certainly do not mean that you can't cut out losses from actual wastefulness and stop real leaks without losing money by it. Far be it! But, what I am driving at, is that with things in general, you pay the price for what you get. To be concrete, the economies of the big institution are bound to cost something, and my observation is that they often cost all they are worth—sometimes more.

Let us suppose a case in which a prosperous company, with one or two good paying plants, makes up its mind to become a large corporation with six or a dozen factories and do a bigger business in a more economical way. A new company is organized to take over the properties of the original one and some neighboring concerns. But, as the small consolidation thus contemplated is being accomplished, and the advantages to be gained by it are considered, it is sure that much more will be accomplished by having the factories of the consolidation scattered over a greater territory; for in that way a widespread market can be reached with low freight rates, no part of the market being far distant from the nearest factory. So the plan of organization is extended and distant properties are negotiated for. Now right here is where one of the vital differences between the big concern—the clay octopus and the little, independent outfit, puts in an appearance. Everybody connected with the organization of the giant proposition is bent on getting rich by the deal. What is the use of making clay products for a living

when paper ones can be designed, of such pattern and apparent significance that they can be turned into a lot of money in a very short time. Undoubtedly they all start out with the single purpose of enlarging the business in a legitimate way and with a view of accomplishing those improvements and economies, which you and I know are, or should be made possible to the big operator; but when these honest day workers get their minds to working along the lines of organization and the advantages thereof; when they begin to realize the magnitude of what they are undertaking; when they rub shoulders with promoters and talk stocks and bonds in six figures until they almost feel that they have some comprehension of what such amounts signify, those men are very likely to become imbued with the idea that they are the originators of this great economy scheme, and as such are the creators of great wealth, or at least possibilities of wealth, which, when realized will enrich all those who are fortunate enough to hold the stock of this vast corporation. It is natural, then, that, as creators of this great money mill, these erstwhile clayworkers should feel it their duty, in common justice to their own financial genius, to reserve for themselves considerable amounts of the stock of the great enterprise. Moreover, there are so many hitherto undiscovered values to capitalize that it is only natural that somewhat large amounts of stock, representing values created in the minds of the organizers and therefore belonging to them by right, both of discovery and possession, should be issued; and it is also natural that the major portion of stock representing these newly created values, should be retained by the creators.

Of course, in acquiring the properties of a number of small manufacturers, considerable quantities of money as well as stock have to be paid to the owners. That was counted on in the beginning. One thing, however, was underestimated—the greed of the owners of the desired properties. It seems that each of these parties feel that his particular proposition is a sort of key-stone, without which the other can't be held together. Or, it may be that the little plant has been paying pretty well and the old man's son is just getting the business well in hand and they don't want their plans upset and would just as soon keep on as they are as to be consolidated. They have their own identity now and they feel just as well satisfied to go on so and be the big toads in their little puddle as to lose their individuality and be lost in the big swim. At any rate, most of the individual concerns value their business at enormous figures and there seems to be nothing to do but buy them out at any cost. Of course this means a bigger bond issue than was originally contemplated, and the distribution of more stock as well. By this time the big organizers have come to feel that the blocks of stock that they have planned to reserve for themselves are just as much theirs as if they had paid hard cash for them. The only thing to do to meet the demands of the individual property owners is not, of course, to disgorge stock which has already been apportioned to the organizers, but to capitalize higher and so have more stock to pay out. And, naturally, since the capitalization is to be greater than first contemplated the organizers feel that they should apportion to themselves a certain share of the addition, so as to make the percentage right. Well, they capitalize all over again. They have found that the properties and business they are about to acquire are worth more than they were first estimated at, and there are undoubtedly other less tangible values that were under calculated in the first estimate. Good-will, for example, was figured in at a very insignificant price as compared to the values placed on good-will by the individual concerns which have to be bought out. The big new company won't have any good-will to speak of in the beginning, but that will come quickly and can be capitalized in advance. Then all the advantages of economy, power, etc., are gone over and re-valued. Finally, when all the

known possibilities have been capitalized, the organizers conclude that there must be other values to be realized sometime which they are not yet able to appreciate, and these possibilities, beyond the present range of the human imagination, are forthwith capitalized.

But this is an old story to you—I believe you have sat in at one or two little games of this sort yourself. The only thing is that we don't ordinarily expect much high finance among clayworkers. Theirs is a business of moderate profits and usually of conservative operations. Moreover, there isn't much in the nature of the business to encourage the octopus, for there is no possibility that any one concern can get control of all the raw materials for even a single line of product, and there are no patented processes, the control of which will aid in crowding out competition and building up a monopoly. And I think you will agree with me in the belief that the example we have so far demonstrates pretty conclusively that in the clay business the small competitor profits by the methods of the trust instead of being crushed by them.

At any rate, I think you will not challenge me when I say that the big concerns are usually handicapped by a capitalization, a part of which represents benefits to be gained by the advantage of monopoly, which they can never realize, and another large portion representing possible economies which are not practiced. But, granting whatever you like about who got the big pieces in the first cutting of the consolidation pie, it seems to me that there are some reasons, other than necessity of paying interest on too many bonds and trying to pay dividends on too much stock, for the fact, and it seems to be a fact, that the big producer is in many instances unable to undersell or even to meet the prices of the small individual concern. I think we may, with propriety, question even the manufacturing and business economy of the giant organization. Not that there are not opportunities for economy in the operation, under one management, of a large number of factories, but that these economies are not realized, or if some of them are, that there are corresponding leaks and losses that more than compensate for the gains. This, I know, spells bad management, but, in the nature of the case, how can we expect good management. The problems of the big organization differ as widely from those of the small concern as the possibilities do; yet the new organization is necessarily made up, for the most part, of men who have gained their business experience in small concerns, and it naturally takes time for them to get adjusted to the new scale of operations. Fortunate is the new concern of any size which does not have some incompetents on its executive staff; and when you think of the new consolidated interests, with the newly made capitalists whose sons and sons-in-law and nephews and best friends get preference in the assignment of the good jobs with the fat salaries, you see possibilities that you certainly wouldn't capitalize. Now it may be that incompetent relatives do not get important positions in the organization, but, granting that there is none of this sort of graft in the business, it is hard to get together an organization of men of the right caliber and experience and to get them to work together in harmony. You have seen it tried and you know it takes great capacity and considerable time to effect such an organization. Usually they flounder around a good deal for the first few years and change policy a few times, put here and there a man out and break somebody else in his place, and it all costs money. In the meantime, doing things on a large scale does not promote frugality, and the extravagance of the management is likely to eat up all the savings from the economies naturally incident to bunching things in this way.

It may even be questioned whether it be possible, in the clayworking industry, for large combinations of capital to effect economies which are beyond the reach of the small producer. There are notable instances where large concerns, making one product exclusively have, by prolonged adherence to a purpose, by constant vigilance and the expenditure of large sums in the perfection of improved mechanical appliances and engineering practice, made progress which is a benefit to the industry and a boon to the stockholders. Such concerns can perhaps afford to be more daring in spend-

ing money for the attainment of an ideal than can the smaller company with more limited resources; but the concerns of this sort are few and are not to be considered in the same class with the "newly great" corporations to which I have been referring.

As for the question of cost of production in "trust" plants vs. independent plants, I believe it is about a stand-off. The trust plant is pretty sure to have business principle applied to it, and if one plant seems to be doing badly it will receive expert attention. But sometimes the trust manager loses sight of the fact that in the clay industry, as perhaps in no other, the problems are peculiar, and the medicine which remedies the ailments in one plant will not help those in another. Sometimes the factory problems would be worked out more quickly and with less expense if the factory superintendent were left to work them out as best he could without interference.

As for business methods as applied to the factories, and the advantage of good cost systems and thorough reports, there is no reason why the trust factories should excel in these matters and if they do it is a shame to the independent manufacturer. He has the advantage in that he can individualize and fit his systems to his conditions more readily. System doesn't cost anything except attention and if the small operator fails to use it, it is his own fault. In fact, the trust superintendent is apt to be burdened by clerical work that is not worth what it costs. He is likely to spend his time making out reports, furnishing data which is of no interest to him, for compilation in the city office where much of the information thus accumulated will have little practical value. A factory superintendent, who had worked in a trust plant once, told me that he spent his days running the factory and his nights making out reports and that of the two the latter duty was the more burdensome. This is not a typical case, but it is an instance where the company was undoubtedly losing money, because the management did not realize how their report system was working out in that particular factory and that a superintendent was expending his best efforts doing clerical work, which a boy could have done more expeditiously, if it were worth doing at all. He could have told the management as much, but it would have done no good, for it was characteristic of this particular company that those in authority underrated the judgment and discredited the suggestions of the men at the works. Such an attitude is perhaps not general among the big corporations, but I think it can be said that as a rule the trust methods do not inspire loyalty. The superintendent, the foreman, the burner, misses the encouragement that the old management gave him simply by consulting him once in a while. He feels that, so far as the trust management is concerned, he is not Joe Davis—he is number 908.

It may hold true in other lines of manufacturing—it surely does in our line, that the success of a company depends to an important extent upon the loyalty and individual interest of the men in overalls. Such an attitude can be fostered by the large concern, but the natural tendencies of corporation rule lie in the other direction, and until the corporation corrects such tendencies the independent competitor has one tremendous advantage.

As for the economy of operating a large number of plants under one management, it is a question whether anything is accomplished along this line, except for the opportunity for specializing. With the small concerns the same man naturally has to deal with problems of all sorts—from getting the business to producing the goods, whereas, in the big concerns it is possible for a man to devote all his attention to one phase of the business, thereby gaining the opportunity to become more proficient than if his energies were divided. If any good is to come to the clay industry by the application of trust methods, it seems to me that it is most likely to come along this channel, and since we have already seen some important results, we have reason to hope for more. But in the meantime, let us not look to see the little fellows selling out cheap because they can't make any money. On the contrary, the small manager, with the co-operation of his loyal subordinates, will make his share of the money and contribute his quota to the progress of the industry.

Now, if you have been looking over the fence and sizing up the situation in the clayworking field, and I judge you have, I would like mighty well to know how some of these things look to an outsider and I shall wait with my usual interest for your next letter.

Your obedient son,

SI ENTIFIC.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

A Cure for Whitewash.

Editor THE CLAY-WORKER:

I notice in the June issue of your journal, which has just come to hand, that Mr. Keystone is having trouble with "whitewash" in his brick. He seems to imagine that the difficulty comes from the use of oil in the manufacture of same. He is entirely on the wrong road and as a remedy would advise Mr. Keystone to consume a little more time in water smoking his brick kilns, and his difficulties will vanish entirely.

The reason he is experiencing more trouble with the repressed brick comes from the fact that they are more dense, hence the dampness is not so easily liberated and must, of necessity, have more time.

Respectfully yours,

Elkhart, Ind.

J. C. BOSS.

Wants Information as to Salaries Paid in Brickmaking Business.

Editor THE CLAY-WORKER:

Since I have subscribed for THE CLAY-WORKER, I find it very useful in many ways relative to the clay industry. Our industry in this section of Pennsylvania is principally the manufacturing of coke. Fortunately, I have secured an excellent deposit of clays, flint running 9 to 15 feet in thickness, while the plastic runs 10 feet thick. Plans are almost completed to erect a 50,000-capacity plant, for which I have been gathering data covering the cost of construction and manufacture of brick, and would ask if you will assist me in obtaining the following information: Monthly salaries, per 50,000 daily output, of president, Secretary, Treasurer, superintendent, bookkeeper and salesmen? Thanking you in advance for any information you may be able or disposed to give me, I remain,

Yours very truly,

BEGINNER.

Remedy for Whitewash.

Editor THE CLAY-WORKER:

Having noticed an article in your June issue signed "Keystone," regarding whitewash on brick, would say I have had a large and varied experience in all methods of manufacturing brick, and, like many others, have been up against and solved all sorts of problems. In regard to whitewash, would say from my observations and experiences, I consider it due to brick being set damp or not sufficiently dried off in kiln while burning. Brick that are not dried thoroughly before being set in kiln must receive different treatment from those that are dried thoroughly, no matter by what process they are made. I have had kilns set up out of doors, with no covering except several layers of burned brick for protection, and where the brick got damp below the burned layers, they would show whitewash just as far as the rain would settle to dampen them. I have seen buildings not show a particle of white on either side of the walls with the exception of one part where there was an air shaft up through the side of the building which was exposed, and so became damp and caused the white to show. I argue that it is the dampness that causes this, either

during the burning process or after it. To get rid of it while burning, set the brick dry, and to get rid of it in the buildings, build so as they remain dry. Of course that would be impossible in some cases.

In regard to its being more evident in repress brick, would say that repress brick are more dense through repressing, and consequently take more time to dry off, whether in dryer or kiln. We must use considerable judgment in such matters. In water smoking a kiln we create dampness, consequently this dampness added to what the brick already contains, is considerable, and it takes longer to get rid of it in repress brick owing to their density. It also depends upon the composition of material. Brick of a sandy nature of clay or that has a large amount of sand will dry more readily than those made of pure clay. Should you treat a kiln of hollow brick the same as you would a kiln of brick made solid, there would be a very noticeable difference in the two kilns. Just so with repress brick, and those that are not, although made of the very same clay mixture. The difference in burning pallet brick and open yard brick is very noticeable, in that we try to keep the mud stiffer on the pallets. So the precaution, taken must be correspondingly greater in represses brick, both in drying and burning. Hope these remarks may benefit some of our fellow craftsmen.

Very truly yours,

CHAS. F. LACOUR.

Asphalt Pavements in Disrepute in the Hawkeye State.

Publishers THE CLAY-WORKER:

We enclose a clipping taken from the Cedar Rapids Daily Republican of March 13, 1908, which will no doubt be of interest to your readers.

Yours very truly,

North English, Iowa.

E. J. SMITH & SONS.

Poor Asphalt Paving in Iowa.

"Asphalt pavements in Cedar Rapids have proved a sad disappointment, and it probably will not be many years until this city will have to follow the example of Minneapolis, put plows to work and plow up all the asphalt, preparatory to paving the streets with brick.

"Cracks and fissures, big holes and 'buckles,' all these are to be found in the asphalt paving. Much of it is as full of wrinkles and furrows as the face of an octogenarian. And yet it has been down but a few years.

"There have been several efforts to get the city attorney to take hold of this matter while the maintenance bond still holds good. A new turn was taken yesterday when John N. Hughes commenced action against the Conway Company and its bondsmen. Mr. Hughes' residence is on Fifth avenue, and he begins the suit as a property owner. The thought is that the asphalt was put down to benefit the property owners. A maintenance bond was given to protect the property owners. Therefore, if the pavement is defective, the property owner, who has to pay for it, should be able to collect damages. There are many property owners who will very quickly bring similar actions if Mr. Hughes wins this important test case.

"And in the meantime, there will probably never be any more asphalt pavement in Cedar Rapids."

A New Paving Brick Plant in San Francisco.

Editor THE CLAY-WORKER:

There has been formed in San Francisco a strong corporation to be known as the Municipal Paving Brick Company. Although central California has been known for years to be "behind the procession" in the use of vitrified brick for street paving, we have always felt certain it was only a matter of time until this section would "drop in line" with the balance of the country in the use of this most popular of modern paving materials. The shales found near

San Francisco have been thoroughly tested, both here and in the east, and proven themselves highly suitable for the purpose.

The company has secured valuable clay lands on Carquinez straits, about thirty miles from San Francisco, and with its exceptional location will not only be able to supply cheaply San Francisco, Oakland, Berkeley and the bay cities, but the up-country cities, Sacramento and Stockton as well. The plant will be the most modern, electric throughout, using crude oil for fuel, and employing all the best labor-saving devices of the day.

B. J. Gallagher, formerly with the Sheridan Brick Works, of Indianapolis, and Poston Paving Brick Company, of Crawfordsville, Ind., is the manager of the new company, and his wide experience in the business in the east should prove a strong factor in the success of the new enterprise. The company's offices are located in San Francisco, 205-6-7-8 Metropolis Bank building.

C. A. L.

Announcement of Consolidation.

Editor THE CLAY-WORKER:

We beg to announce the consolidation of the Malvern Clay Company, of Malvern, Ohio, with the Collinwood-Deckman-Duty Company, with plants at Collinwood and Carrollton, Ohio.

The name of the new company is the Deckman-Duty Brick Company, with general offices at 854-856-858 Rose building, Cleveland, Ohio. The management of the new company, and its plants, will be under the personal direction of Messrs. Chas. J. Deckman and Spencer M. Duty, who individually have heretofore managed the Malvern Clay Company and the Collinwood-Deckman-Duty Company. The officers of the new company are: Spencer M. Duty, president; Chas. J. Deckman, vice-president, secretary and manager of sales, and Herbert C. Moatz, treasurer.

Very truly yours,

THE DECKMAN-DUTY BRICK CO.

Cleveland, Ohio.

Iowa Brickmaker Wants to Make Paving Brick.

Editor THE CLAY-WORKER:

I have been reading THE CLAY-WORKER and am very glad when I receive it every month, and am more than interested in it, especially the talks by A. V. Bleininger on "The Effect of Heat Upon Clays," also "The Composition of Different Clays." As we all know, a brickmaker interested in his clays watches any changes which may occur in his pits. Our pits have been changing considerable for the last three or four years. We have a pit of clay of 35 feet which we dig from, and, if necessary, we could make it 100 feet, as the clay is good for that depth. We have about 15 feet of yellow clay, 10 feet of real black clay, 5 feet of a sandy yellow clay, and I think there is a layer of about 25 feet of a grey color clay. What has caused me to be more interested in my pit is this layer of black clay. It has some fine pebbles in it, but is the nicest clay to work I ever saw or heard tell of. It really makes a brick when properly dried that would make a repress brick feel ashamed of itself. This brick becomes very hard when dry, but we have to be very careful in drying, as it cracks very easily, but when once dried it certainly is a nice brick. After this brick is burnt it is as hard as flint, but shrinks considerable, and can stand more heat than any common brick known. Would like to know if anybody can tell me if this brick would be suitable for pavers. Brickmakers in my locality complain to me of not being able to break this brick with a trowel, and it takes lots of hammering with a brick hammer to break it. This brick burns a very deep red, but can be burned black, I believe. They will not stick together in being burned, if burned ever so hard. I have not made it a point to burn a whole kiln of these brick at once, but am going to do so

later, as we now arrange it to put these brick where they catch all the fire and our other brick back of them, so they will be protected from the real hard heat.

I might further say that last year this vein of black clay was only 2 feet deep, and by digging farther back came within 4 or 5 feet of the top.

We have an E. M. Freese Mammoth machine, and will say that when this clay is cut by the wires it leaves a very nice smooth face between the brick, with no rough edges.

Would be pleased very much to hear from anybody who could give me a few pointers on this clay, or of the composition of same, or of its use.

Yours truly,

ARTHUR GREENE.

Wants Information in Regard to Up-Draft Kiln With Arch.

Editor THE CLAY-WORKER:

Do you know of any up-draft kilns with the arch over them in use in this country? If you do, I would like to know where I could see them in operation. We intend to increase our capacity this fall, and will build more kilns; we are using the clamps to burn brick in now, but are thinking of changing to the down-draft, but my father thinks by using the up-draft the repairs would not be so great and the arch would last longer if they could be used that way. Thanking you for any information you can give me, I am,

Yours truly,

F. W. ALHORN.

A Corrected Statement Relative to Reese-Hammond Receivership.

Editor THE CLAY-WORKER:

I note an item of news in your June issue under "Western Pennsylvania Notes," page 841, about Reese-Hammond interests that is misleading. Your correspondent states that the Westmoreland Savings and Trust Company, of Greensburg, Pa., acting as receivers for some time, by careful and conservative management were able to place the Reese-Hammond interests on a sound basis and then turned the properties over to the company, but that poor management again resulted and in a short time the concern became financially embarrassed and involved, with the result that the properties were sold.

During the receivership of the Westmoreland Savings and Trust Company the old Reese-Hammond management was continued. The business was put on a sound basis and through the efforts almost entirely of the old company a five-year extension agreement was secured from the creditors, but a condition was exacted by the leading creditors that the business must be turned over to a creditors' committee, who would manage it. The company turned everything over in compliance with that request, and the business was taken out of the receiver's hands and turned over to the creditors, not to the company, and it was through the bad management of the creditors' committee, who did not give the old company an opportunity to handle the business as they thought it should be handled that resulted in the financial embarrassment. After this committee got full control of the business they placed in full charge a professional man, who knew absolutely nothing about the brick business, and at the time of the financial trouble and for some time previous, none of the Reese-Hammond people were in any position of authority in connection with the management of the concern.

I feel that it is but fair that this wrong impression should be corrected, for there is no doubt but that the old company could have carried the business through successfully if permitted to do so.

Yours very truly,

Bolivar, Pa., June 28, 1908.

J. B. HAMMOND.

It is better to borrow money to buy a new machine than to lose money trying to operate an old one. Then, too, you can find a buyer for your old one by running an ad in THE CLAY-WORKER "For Sale" column.

Written for THE CLAY-WORKER.

CLEVELAND AND NORTHERN OHIO BRICK AND BUILDING LETTER.



BUSINESS IN ALL LINES is steadily improving and the effect is being felt in the building world. Banks are loosening up a little on their hoards of money and more loans are being made. There are countless projects on hand and optimism runs high, though cash is low.

While the bulk of the building being done is in connection with residences, brick is securing its fair share of the business. Scores of houses are going up in all parts of the city, and therein lies the hope of this season. The volume of public building in progress in this city is unusually large and is helping the situation materially.

The paving outlook is as good as ever and considerable work is being done. Provision has been made in the city's budget for the last six months of this year for the completion of most of the jobs planned for this season. The Cleveland brickmakers are also securing a fair share of the contracts for paving supplies needed in adjoining towns, and as far west as Detroit, where the Deckman-Duty Company holds several large contracts.

The Deckman-Duty Company has consolidated its three plants under one management and henceforth the Malvern, Collinwood and Deckman-Duty plants will be directed by them personally. No radical changes are planned.

A birthday party in honor of President H. C. Bradley, of the Builders' Exchange, was given during the past month at Mr. Bradley's home on East Seventy-ninth street. He is a member of the well known firm of Blackwell & Bradley. Dinner was served to fourteen, including prominent members of the exchange and family friends. Mr. Bradley was congratulated on all sides for having successfully passed another milestone in his life.

The members of the Cleveland Builders' Exchange held their annual summer outing on July 13 at Burlington, Ont., where a stay was made for four days at the Brandt House. The resort is midway between Hamilton and Toronto. Niagara Falls and Buffalo were visited on the return trip.

Another section of the big interception sewer has been let. It covers the section between East Twelfth and East sewer from East Ninth street to East Fortieth street. The Twentieth street, and will bring into service the completed section will be 8½ feet in diameter and will be of brick.

Bids have also been received by the city for the construction of a large sewer on West Thirtieth street. Considerable other sewer work is to be done this year, which will help out the situation materially.

A novel contest was slated for one day during the past month between union and non-union pavers. The secretary of the trades council boasted in a conference with the heads of the street car company that union men could do three times the work of non-union men. As the street railroad company was employing a good deal of non-union help at one-third the wages paid union pavers, they expressed a desire to have a test made of the matter. Arrangements were made for union and non-union gangs of pavers to work on strips along side of each other. At the last minute the courage of the union men failed and they postponed the contest. It may be held some time within the next few weeks.

The contract for the new five-story store for Sterling & Welch, to be erected on Euclid avenue, adjoining the property of the Union Club, has been let by the architects, Dyer & Bates, to the Hunkin Brothers Construction Company. The building will be 60 feet wide and 500 feet long. The front

will be largely of terra cotta, with the walls of brick and steel. Northwestern terra cotta will be used, while the Cleveland Builders' Supply Company will furnish the 1,500,000 shale brick required for the work.

The C. H. Fath & Son Construction Co. has been awarded the contract for the new building at the Warrensville Farm Colony. It will cost \$115,000, and will be of hollow brick covered with plaster. The architecture will be in mission effect. It is estimated that the city is saving \$40,000 over figures received for the same work less than a year ago. Work on the structure will be pushed as rapidly as possible. The excavating has been done by the workhouse prisoners, who are soon to have a new series of buildings. The city is moving its infirmary and workhouse to the country and an immense amount of building is under way. Although there is plenty of crushed stone right on the ground, and cement is cheaper than it has been in years, it is announced that brick is preferred to cement construction.

A big project which was to have been gone on with last January, but which was sidetracked by the panic, has been revived again during the past month and the announcement made that work will be taken up shortly. The Bailey Company, owners of one of Cleveland's biggest department stores, is to erect a ten-story fireproof brick annex. It will have a frontage of 80 feet and a depth of 125 feet. The plans have been prepared by Lehman & Schmitt, architects in the Garfield building. The estimated cost of the new structure is \$300,000. The new annex will be three stories higher than the rest of the Bailey building. A rather novel method is to be followed in building the annex. Excavations will be carried on and foundations will be put in under the present four-story structure which occupied the site. Then the rear of the building will be torn down and the steel frame erected. By this means the concern will have the use of the ground while a great deal of the work on the new structure is in progress.

The contract for the erection of the new Mayflower School, a twenty-one-room building, has been let to the Reaugh Construction Company, of Cleveland, and work is well under way on the foundations. It will be a brick fireproof structure, costing about \$90,000. An effort will be made to have it ready for the school term opening next January. The shale brick will be supplied by the Cleveland Masons' Supply Company.

The corner stone for the new Morley Chemical Laboratory, at Western Reserve University, which is to be erected with money from a bequest, was set during the month. It will be four stories and of red brick. It will be fireproof throughout, costing \$110,000. The mason work was let to John Riggs.

R. C. Mitchell, the man in charge of the brick department of the Cleveland Builders' Supply Company, is a brave young man. Despite the hard times and the business depression he took unto himself a wife during the past month, when he was married to Miss Bessie Keese, daughter of Dr. P. H. Keese, a well known Cleveland physician.

The Plain Dealer will erect a \$300,000 granite and terra cotta building, the first of the five stories to be of stone and the other four of plain terra cotta. D. C. Griesse & Walker Co., of Cleveland, have been awarded the contract for the mason work. The terra cotta contract has not yet been let.

With the death of Benjamin R. Rose, a multi-millionaire of Cleveland, it was thought that his plan for the erection of a sixteen-story building on East Ninth street, near Eagle avenue, would fall through. By the terms of his will, however, it is directed that the work be gone on with. Funds aggregating \$1,000,000 are left for the project. A big skyscraper owned by Rose is of terra cotta, for which he entertained a special regard. It is believed that that material will be used for the structure, at least for the front.

BUCKEYE.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF THE TWIN CITIES AND THE NORTHWEST.



THE PRESENT BUILDING SEASON in the northwest has been a peculiar one in a great many respects, and the rapid changes have made it a hard one to follow and analyze with accuracy. The season opened late and building operations were slow for a long time. For a time it seemed as though the season would prove much below the average of the last decade, and there were many authoritative predictions of this character. Even as early as two months ago, however, it was hard to figure on the work actually projected, as the class of building had changed materially from the previous years, residence building work being carried on to even a greater extent than before, while the construction of larger structures fell off. There has been a very encouraging change, however, during the last few weeks, and there does not seem to be much further doubt but that the present year will prove a big one in the building lines, although probably somewhat below the record of 1907. The cheaper cost of materials, the abundance of labor, and the absence of danger of labor troubles have combined with the general prosperity of the northwest to remove the doubts of capitalists, and there have been a number of large buildings projected lately which it had been thought would be carried over indefinitely. Many of these will be started during the summer.

The fact that the movement for the open shop has been almost uniformly successful has had a considerable influence in bringing about this improved situation, as it has had the effect of making builders and the public generally confident that any work started would not be subject to petty disturbances and delays such as have been a menace in the past. The low cost of building material, while unsatisfactory to the manufacturers, has also had a strong effect in encouraging people to build, as well as to put in the best materials, as a rule.

It is difficult to prognosticate as to what the future will bring forth, as there is still a feeling of uncertainty existing which may at any time see a cessation of operations for the season. The election influence may at any time develop in a way which will make things dubious, and all movements at present are being made with extreme caution. Should the present conditions continue, though, it seems safe to say that the record for the season will prove very satisfactory. Construction work is so closely allied with the general financial and business conditions, especially in seasons of uncertainty, that they can be easily upset. While the latter at the present time seem to be promising, they are not such as to lend any great degrees of confidence of the future, and work will be carried on in such a way that there can be a sharp let-up at any moment. At the present time the crop situation is very promising, and as this is one of the most potent factors in the prosperity of the northwest, much depends on a continuance of the present outlook. Should there be a good crop, as now seems likely, the present good prices would make the northwest extremely prosperous and independent, and the work projected would probably be carried through about as outlined.

The Minnesota Brick Manufacturing Association, which formed a preliminary organization early in May, met at the Builders' Exchange, Minneapolis, on June 10th and voted to make the temporary organization permanent. The next meeting will be held on August 12th, and committees were appointed to arrange for a program. The officers are as formerly announced: Geo. W. Higgins, of Minneapolis, president, and R. P. Morton, of Brickton, Minn., secretary.

The past month has been a busy one, both from a social and business standpoint, with the Minneapolis Builders' Exchange, which recently moved into its new quarters in the Warner building, on Sixth street. On May 28th the exchange

held its housewarming, when members and guests to the number of about 200 gathered. Besides a number of musical numbers, short addresses were given by Wm. Rhodes, president of the St. Paul Builders' Exchange; Jas. R. Quigley, of the Duluth Exchange; R. D. Cone, president of the Minneapolis Real Estate Board; Jas. G. Houghton, Inspector of Buildings of Minneapolis, and Geo. W. Higgins. Wm. A. Elliott, president of the exchange, acted as master of ceremonies. On June 10th the exchange was host to the ladies, the function proving such a success that it was decided to repeat the affair occasionally. A short musical program was rendered.

Building permits were issued in St. Paul during May for \$891,499, a gain of \$1,948 over May, 1907. In Minneapolis, permits were issued for \$1,506,950, as against \$1,626,425 last year.

Plans have been prepared by Long & Long, architects, for a six-story steel building on Sixth street, South, Minneapolis, for John E. Andrus. It is to be 120x160 feet, will have a pressed brick and terra cotta front, fireproof throughout and will cost in the neighborhood of \$200,000.

The Minneapolis Board of Education has taken out permits for additions to four of the public schools of this city, which will cost an aggregate of close to \$100,000. The contract for the addition to the Longfellow School was let to the Davis Construction Company at \$20,850, for an addition to the Grant School to R. J. Cheney & Co. at \$22,889, and for the erection of the Harrison School to E. J. Davis.

Kees & Colburn, architects, have completed plans for a new theater building to be erected on South Seventh street by C. H. Miles. It will be fireproof, with pressed brick and terra cotta front. Bids are being taken.

Among other work planned for the summer in Minneapolis are the following: A three-story brick apartment house for F. A. Gahring, plans by E. C. Haley & Co., architects; Forest Heights Congregational Church, Downs & Eads, architects, H. N. Leighton Company, contractor; Bethel Presbyterian Church, C. E. Bell, architect, J. L. Robinson, contractor, cost, \$40,000; E. O. Mead, four-story brick flat building, cost \$30,000; three-story brick flat for Dr. L. Harper, C. T. McElroy, architect, cost, \$20,000; a fire engine house at South Sixth avenue and Third street, A. L. Dorr, architect; St. Paul's Episcopal Church, L. A. Lamoreaux, architect, A. Cedarstrand & Co., contractors; a fireproof building for the Murphy-Travis Company at 328 South Sixth street to cost \$50,000; a five-story brick warehouse for the Forman-Ford Company at 111 South Second street, cost \$50,000; a brick and steel power house for the St. Anthony Falls Water Company, cost, \$61,000; a brick club house for the Automobile Club, Kees & Colburn, architects, F. N. Hegg, contractor, cost, \$15,000.

One thing noticeable in the present year's building, is the number of brick dwellings to be erected in Minneapolis.

F. D. Orff, architect, has prepared plans for a modern brick school house, to be erected at Hopkins, a suburb of Minneapolis. Cost, \$35,000.

Mark Fitzpatrick, architect, has completed plans for a modern pressed brick hotel building to be erected for W. B. Hatton and others in St. Paul. It will be five stories high, 100 feet square and will cost \$175,000.

The First Church of Christ, scientist, has purchased a site on Grotto street, near Summit avenue, St. Paul, on which will be erected a fine brick place of worship at a cost of \$150,000. Plans will be prepared shortly. The St. Agatha Catholic Society will erect a four-story brick dormitory at Cedar and Exchange streets. Cost, \$50,000. Thori, Alban & Fisher, architects, have completed plans for the new First Methodist Church building at Victoria and Portland avenue. Cost, \$50,000.

A new building which will be 800 feet long will be erected this season in the Midway district for a freight depot. It will be of brick and concrete.

Work is progressing on the St. Paul Fire & Marine Insurance Company's new \$150,000 office building. A large addition will also be built to the Endicott building. Cass Gilbert, architect.

Noyes Bros. & Cutler, the big St. Paul wholesale druggists, will erect a five-story brick addition to their warehouse at Fifth and Sibley streets. J. Walter Stevens is the architect.

T. WIN.

Written for THE CLAY-WORKER.

BRICK NEWS AT THE KENTUCKY METROPOLIS.



WHILE CONDITIONS IN THE brick market have not undergone any radical change in this locality in the past few weeks, the demand for clay products is holding up very well, and the plants are all busy. There has been a slight increase in the building world, and the demand for brick for this purpose has shown some increase.

It is reasonable to hope for a better demand this fall, and the brick people are inclined to take this view of the matter.

There have been some complaints here about brick streets, and while this may seem reasonable to some, because of the kind of brick that have been permitted to be laid on the streets, in some instances, it should not be sufficient to cause any such tirade as the authorities have made against them. Anyone who has any knowledge of vitrified brick streets knows that when they are properly put down, and a good quality of brick is used, that there is no better street in the world. The people need a better and more thorough insight into this matter.

There will be a number of brick streets laid here within the next few months, and there is some talk of purchasing a rattler, so that there will be less trouble with the brick in future. This is well enough; let there be good brick streets, and then there will be no complaints. It is a keener education that the people and some of the contractors need in this line.

The Kentucky Vitrified Brick Company say that there has been a nice increase in the demand with them in many sections of the country. They are inclined to treat the complaints about the streets lightly. They say that their brick have been very satisfactory, and they feel that there should be more attention paid to the material and the workmanship, and that this will leave no room for any just complaints.

The Kentucky Fire Brick Company, Haldeman, Ky., are still very busy at their plant, and have no complaints to make as regards conditions with them at this time. They are making preparations to greatly extend the size of their plant, and they will then be in a better position to take care of more orders than they have been in the past. Business is showing an increase with them all the time, and they are delighted to find the returns so gratifying. Their output has been pleasing to all those who have used them, and there has been no fault to find with the material.

The Hydraulic Brick Company say that there has not been any remarkable increase in the demand with them. They are operating most of their plants, though only on part time, and this has been sufficient to take care of their demands up to this time. There seems to be a hope in the future and they are looking forward to some better demand before very long.

The Southern Brick and Tile Company continue to operate their plant on full time, and are selling a considerable amount of both brick and tile. They are very well pleased with conditions and are looking for a continuation as long as the favorable weather continues. The year thus far has not been as active as it should, but there has been enough life to the trade to make things interesting.

The Hillenbrand Brick Manufacturing Company has been changed to the Falls City Brick Manufacturing Company. J. W. Connors and W. F. Gregory are the new proprietors. They find the call for backing brick to be very fair, and they have no complaints to make at the way conditions have continued in their line. They hope for a continuation of brisk business, and there has been enough life to the demand in the past month to justify this belief.

The Burrell and Walker Clay Manufacturing Company do not find the demand to be as brisk as they wish to see it. They are doing some business, but this has not been as active as they could wish, and this has had the effect of making them a little dubious as to the fall demand. They are not letting the grass grow under their feet, however, and

they are in shape to make the wheels go rapidly when the time for action comes.

The Louisville Brick Company manage to keep things on the jump, and have enough business to keep them actively engaged at their plant. There has not been any notable revival to their business, but they are still inclined to see in the coming months something akin to hustle, and this has been a guiding star for them in laying their plans for the future.

The Meyers Brick Company, West Point, Ky., has been succeeded by the West Point Brick and Lumber Company. All the parties interested in the new concern are Louisville business men and they say that business is very fair with them. They make backing brick only and have a nice and well-equipped plant. They anticipate a busy time in the future.

The Carrollton Brick Company, Carrollton, Ky., find the demand for their brick in this locality to be increasing and are well pleased with the prospects here.

The Louisville Fire Brick Works, at Highland Park, Ky., are getting busy at their plant, and they say that there has been an increase in the demand in the past month that is gratifying to them. They are operating their plant on full time now, and seem to view the future in a very encouraging way. They feel that the fall months will be much more favorable than the past few months have been and are very much gratified.

The Louisville Pottery Company say that they find enough orders on hand at all times to keep their plant on the go, and that they can not complain about any dullness in their lines now. They make a large number of special lines and there has been an increasing call for these in the past month or so that is very flattering.

The Winchester Brick Company, Winchester, Ky., are pleased at the way their sand-lime brick are meeting with favor here. There could be more activity, but as it takes time to introduce anything that is not widely known they are not disappointed.

COLONEL.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

CONDITIONS IN NEW JERSEY are improved, business in the suburban districts surrounding New York having about reached its maximum. It is encouraging to point out that building permits in those large towns about New York which are the most important of all, are nearly, if not quite, up to the average. The knowledge of this fact will have a tendency to make business improve all along the line. For example, building permits in Newark are about the same as they were a year ago. In lesser cities the same thing holds good.

Along the Hackensack they are acting very conservatively, and only portions of the sheds are filled with burning brick. Most yards are full, but the first burnings are about all that have been delivered as yet. In some instances no burning has been put up as yet. And all this has occurred when the weather has been remarkably good. Not for weeks has there been a damaging rain, and the yards have presented an appearance that would have done the manufacturers' hearts good if they had only had orders with which they could have reckoned. A few fortunate ones have contracts, but the bulk of the manufacturers in the vicinity of New York are not blessed with orders, neither do they see any immediate prospect of an increase.

The damage done to macadam roads by heavy automobiles has aroused a good deal of discussion in this state, and propositions have been made to lay some miles of brick roads as an experiment. It has been pointed out by experts that brick is about the only solution of the present unsatisfactory condition. It doesn't take long for automobiles to grind out the best macadam. The stones which form the top are small and break up very easily. Brick would be better because they are hard enough to withstand the wear on the surface without breaking up, and a brick road would be practically indestructible. Whether the experiment will be tried this year is uncertain, but investigations now in progress point to increased interest in this question, and may result in something important along new lines in road construction.

A. L. B.

Written for THE CLAY-WORKER.

PITTSBURG AND WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS.



HERE HAS BEEN more activity in the local clayworking field during the past month than during any other month this year. General business conditions have been increasing at a rapid rate, and are now fast assuming their normal status, so that all lines of industry and manufacturing are showing marked improve-

ments. The demand for building brick has increased rapidly during the month and some excellent orders have been placed with many of the local manufacturers, both for the common red building brick and the better grades of pressed and light colored brick. Building operations are again resuming normal conditions and increasing each month. Nearly all of the plants manufacturing this class of brick have increased their capacities, and in several cases are working full turn for the first time this year.

Probably the greatest increase, however, is in the demand for vitrified paving brick. There is an immense amount of street paving being done in many of the smaller towns surrounding Pittsburg, and the bulk of this business is being placed with local concerns and with those located in the Beaver Valley. As a result, the majority of these plants are very busy.

Another branch of the industry that is thriving at present, and gives promise of flourishing through the remainder of the year, is the sewer pipe business. Most of these plants are busy and large orders are being received from all parts of the Pittsburg district, as well as many from more remote parts of the country.

The demand for fire brick and other refractory material also continues good, and while the steel mills have been closed down the companies owning the same have taken this opportunity to make many badly needed repairs and improvements to linings of furnaces, stoves, cupolas, open hearths, etc. Nearly all manufacturers carry an extra lining on hand, as well as a stock of other fire and refractory brick, and generally as soon as this stock is called upon orders for new linings are placed with the manufacturers.

The demand for coke oven brick is particularly heavy, and throughout the Connellsville and Klondyke coke regions immense numbers of ovens are repaired while out of blast. There are also many new ovens in the course of construction, and manufacturers of coke oven brick have generally as much business as they can take care of for several months.

The fireproofing business continues good, also, and while orders for home use are far below the average the foreign orders are all that can be expected or asked. These plants are in many cases running at from 50 to 75 per cent. of their capacity.

The building record of Greater Pittsburg for the six months ending June 30, is as follows:

New Buildings.		Additions.		Alterations.	
Permits	Cost.	Permits	Cost.	Permits	Cost.
January . 26	\$213,713	22	\$37,340	29	\$24,370
February. 73	230,007	20	22,500	57	46,250
March .. 165	391,500	81	58,535	124	117,795
April 173	870,870	92	73,918	194	94,268
May 185	2,141,385	70	162,235	168	18,695
June 189	776,635	44	40,730	142	120,784

The totals by months and for the year are as follows:

January	77	\$275,425
February	150	298,757
March	369	567,830
April	459	1,039,056
May	423	2,322,315
June	370	938,144
Totals	1,848	\$5,441,527
Totals, 1907	1,765	\$5,627,720

The Pittsburg-Buffalo Company, Frick building, Pittsburg, has been awarded the contract for furnishing the paving

blocks and brick that will be used this summer in paving several streets at California, Pa. The contract is a good one, amounting to several hundred thousand pieces.

The California Clay Manufacturing Company, of California, Pa., has resumed operations at the plant in that city, after having been idle for about six months during the business depression on account of the scarcity of orders.

The announcement has just been made by Swank & Sons, the well known brick and pottery manufacturers, of Johnstown, Pa., that a fine new brick plant will be built by them at Irvona, Pa., and that work on the new operation will be started within the next month or so. It is the intention of the owners to complete the plant in time to place it in at least partial operation before the close of the present year. One unit of the plant will first be constructed, and after this is placed in operation the brick will be manufactured and burned for use in the construction of the remainder of the plant, which will be modern in every detail, and will be equipped with the latest and most improved machinery.

The brick plant of the Perry Manufacturing Company, Perryopolis, Pa., has been running to its capacity for the past month, and on several different days all records of production were broken. The highest day's run of brick was 40,500, which is considerably over the rated capacity of the plant. The company has plenty of business on hand, and the plant will remain on full turn for the remainder of the year.

The Allegheny Valley Brick Company, which operates a large plant across the Allegheny River from Tarentum, Pa., is very busy, and has but recently received an immense order for brick for the United States Government, all of which will be used in new Government construction at and in the immediate vicinity of Washington, D. C. All of the brick will be used for paving, and the contract is of sufficient size to keep the plant in full operation for the coming nine months at least.

The Mack Manufacturing Company has been awarded the contract for supplying the vitrified paving brick that will be used in paving several streets at Johnstown, Pa. The brick will be used in that portion of the city known as Franklin, and about 100,000 will be required.

The Latrobe Brick Company, Latrobe, Pa., has received the contract for a large number of paving brick that will be used this summer in paving several streets of that city. The contract for the paving was awarded to John Hermann, also of Latrobe.

The big plant of the Bickford Fire Brick Company, at Curwensville, Pa., resumed operations this month, after having been idle for nearly two months. The company reports that several very large orders for fire brick have been received, and that from now on the entire plant will be operated to its capacity.

A. SMOKER.

DEATH OF EDWIN BENNETT.

Edwin Bennett, aged ninety years, of Baltimore, Md., the oldest pottery manufacturer in the United States, is dead, the result of advanced age and injuries sustained recently while ascending the steps of his home without the aid of his cane, causing him to fall.

Mr. Bennett, with two brothers, came to the United States early in 1840 and landed in New York. They came to East Liverpool and built the first pottery in the country. Lack of shipping arrangements caused the brothers to remove their plant to Pittsburg, but after remaining there a few years, Edwin Bennett withdrew from the firm. He went to Baltimore, erected a plant, and has been at the head of a great pottery institution ever since.

Although past four score and ten, Mr. Bennett was always looked up to as one of the most progressive pottery manufacturers the world ever produced. It was not how much ware, but how good can the ware be made, with this venerable old gentleman. His motto brought him success in all his efforts.

Twice elected president of the United States Potters' Association, he served the association's interests with great satisfaction, both to himself and his fellow members. His death is regretted by the entire trade, who looked upon the elder Bennett as the "Father of the American Pottery Industry."

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF TOLEDO AND NORTH-WESTERN OHIO.



THE BUILDING brick business went all to pieces recently, and were it not for the outside trade it would be in even worse shape than it is. Out of the nine manufacturing plants here in Toledo, but four are running at all, and these are finding it no easy matter to market their product. Prices recently took another tumble, and good brick are now selling at from \$5 to \$6 per thousand, while several instances have been reported of sales as low as \$4.50. These prices are said to be considerably below the actual cost of production and are brought about by the pressing financial needs of a few concerns. While Toledo business has been almost at a standstill, there has been more or less demand for building brick from the surrounding territory and this has helped out some.

There is one redeeming feature in the business and that is the fact that collections are much easier than they were, and this in itself is taken to indicate an improved condition. Money is once more beginning to seek investment and it is thought to be but a question of a short time until there will be some building brick business.

The paving brick concerns are doing a good business, and the delay in public work which loomed up so threateningly sometime ago by reason of the inability to sell municipal bonds, has practically disappeared. Street paving work is now progressing nicely, and the volume of business is somewhat ahead of that of last year, with excellent prospects ahead. Most of the surplus stock has been absorbed recently and the yards generally are sold up fairly close at this time. The percentage of paving block as compared with other materials stipulated in street improvement lettings, is considerably ahead of last year. Prices have held up well and are now in favorable comparison with those which prevailed last year.

The same conditions which have brightened up the paving block industry in this section recently have also caused a like effect on sewer pipe concerns. Municipalities all through this section have been exceptionally liberal with their public improvements, actuated by the fact that many citizens were out of employment, and this in addition to conducting to cheaper labor, has furnished a means of livelihood to many. For this reason there has been an increased amount of this work, and while cities were finding difficulty for a time in disposing of their bonds, there is no longer any difficulty and the work is proceeding as originally planned.

Plans are under way for the new Art Museum, and it is probable that work will be commenced upon the handsome Monroe street building this fall. It should furnish one of the best contracts of the season.

E. H. Eckert, claim agent of the Toledo Rail Light Company, will erect a new \$5,000 brick residence this fall. Plans are being prepared for the structure.

A petition in bankruptcy has been filed in the United States courts at Toledo, by creditors of the Defiance Tile Mills, of Defiance, Ohio. The claim is made that the concern is insolvent, and has committed an act of bankruptcy by preferring the Defiance City Bank to the detriment of the petitioners.

J. A. Reaugh & Son, of Cleveland, recently landed a nice contract when they were awarded the mason contract for the new \$30,000 residence to be erected for H. D. Berner of that city, on Euclid avenue.

Roy L. Williams, of Kalamazoo, Mich., was recently awarded a contract for 22,000 square yards of brick paving at Conneaut, Ohio, at the agreed price of \$45,000.

Street paving amounting to \$30,000 was awarded at Toledo last week. The work consists of four streets and the feature was the rejection of the bid of S. J. Pickett, the lowest bidder, the board holding that he was representing James Sheehan in the bidding. Sheehan, being in poor repute with the board, because of former transactions, the work was awarded to the next lowest bidder.

An unusual experiment was recently tried out in the test-

ing department of the American Clay Machinery Company, at Bucyrus, Ohio, with wonderful results. At the instigation of the Society of Research, a common toad was placed with granulated clay in a brick press, where it was subjected to a pressure of eleven hundred pounds to the square inch. Upon being released it calmly blinked its eyes and hopped away, apparently uninjured, and after a lapse of ten hours was as active as ever. The brick was formed from dry press clay, and was perfect in every way except where the toad lay. The indentation made by the toad was an inch and a half deep. Full information covering the experiment has been furnished for the society for which it was made.

A nice sewer contract was recently awarded to Downs, Campbell & Haskell, of Canton, Ohio. They will construct 6,000 lineal feet of sewer at Conneaut, Ohio, at the contract price of \$4,714.

The city of Defiance, Ohio, has authorized a bond issue of \$18,000 for the purpose of paving North Clinton street, the thoroughfare leading to Defiance College.

John W. Porter, administrator of the estate of William Howe, has sued the American Sewer Pipe Company, at Steubenville, Ohio, for \$10,000 damages, growing out of the death of Howe when a wheel burst at the Toronto plant, in October, 1907.

The city of Akron, Ohio, recently received and opened bids for the second time for the construction of a central police station and city prison. The bids averaged about \$9,000 lower than at the first contest. George Crisp & Son filed the lowest bid \$34,350, and it is probable will receive the work.

The state building inspector has furnished a market for a nice little bunch of brick at Bellefontaine, Ohio, by condemning the Logan county infirmary building. The sum of \$50,000 will be expended in the near future for a new building to take its place.

T. O. D.

BRICK NOTES OF THE NORTHWEST.

The Mason City (Iowa) Brick & Tile Co. is erecting sixteen model apartments for its employes. Many of the men employed by the company, the number of which has increased very rapidly, have been unable to rent houses, and the company will endeavor to supply them.

A new brick plant is proposed at Ada, Minn. A fine bed of clay is reported to be located there.

The Lehigh (Iowa) Sewer Pipe & Tile Co. has placed its new plant in operation.

The Washburn (Wis.) Brick Company has re-incorporated with a capitalization of \$20,000.

The building inspector of Duluth, Minn., will hereafter insist that permits be secured before work is started on new buildings in that city.

What threatened to be a serious strike at the gypsum mills at Fort Dodge, Iowa, has been declared off.

New machinery has been installed in the brick plant at Detroit, Minn.

A brick and tile plant at Dodge Center, Minn. is a possibility.

It is reported that a valuable pottery clay deposit has been uncovered near Crookston, Minn.

The Plymouth Clay Products Company of Fort Dodge, Iowa, has enlarged its plant.

A brick yard may be started at Eau Claire, Wis. A \$200,000 company is proposed.

Mobridge, South Dakota, may have a brick yard.

The Mayo Brick & Tile Co., of Walhalla, N. Dak., has commenced operations.

New machinery has been installed in the plant at Rapid City, S. Dak., of the Rapid City Brick & Tile Co.

The Enamel Brick Company has put in some new machinery in its plant at Oskaloosa, Iowa.

The plant of the Livermore (Iowa) Brick & Tile Works was demolished by a cyclone recently. Loss, \$10,000.

B. F. Lucas, formerly of Ohio, is the new manager of the plant of the Lehigh (Iowa) Clay Products Company.

Gates Bros. are planning on establishing a brick yard near Two Rivers, Wis.

T. WIN.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.

IN COMMON WITH the rest of the country, New England brickmakers are paying tribute to the rich man's panic, which frightened every rich man and every man of moderate means into his cyclone cellar, and when he effected his escape from the apparent storm he took his capital with him, and neither the man nor the capital has been seen since. The natural and expected result has followed. In place of money and energy, there is lack of capital and indifference. A combination which no one, no matter how ambitious and how powerful he may be, can successfully combat. The result of all this is that the market for brick, which is dependent upon the building and other structural operations in progress or contemplated, is in bad shape and the situation presents almost no possibility of an important improvement in any direction.

Information from Boston is to the effect that it would not be correct to say that there is any important movement or demand for brick, but it is true that during the past few weeks an expansion in general business of some importance has occurred, and the indications point to a continuance of this desirable state of affairs. There is still too much competition for the orders pending and prices too frequently slaughtered to obtain the business. This makes the market irregular and the situation doesn't appear to offer much chance for change. There is still a wide range between the prices quoted by dealers and manufacturers, and negotiations will secure concessions in practically all circumstances. During the week just closed it is said that actual sales have improved somewhat, but they are still too small to be considered. With improvement already here and with the prospect of further improvement, there is much less need for discouragement and much less likelihood of business going to smash entirely.

While detailed statements are impossible, it is known that the trade as a whole throughout the six New England States is quiet and business is done only for local requirements. No particular interest is shown in any locality, and while manufacturers here and there are doing business in quite as liberal volume as formerly, their cases are exceptional, and they do not, in any sense, represent the actual conditions which govern the market.

HIRAM.

PURINGTONS MAKE RECORD SHIPMENT.

The largest shipment of paving brick ever made by the Purington Paving Brick Company, Galesburg, Ill., was sent out of the yards June 17. Seventy-four cars were filled with 694,500 brick. A large part of the shipment will go to Minnesota and Wisconsin. The company is very well pleased with the results of business and are optimistic over the trade prospects.

BUSY AND HAPPY.

"Are we down hearted? 'Bless you, no!" write the J. D. Fate Co., Plymouth Ohio. "On the contrary we are very busy and consequently happy, notwithstanding the fact that in the interesting write-up of the Twin City Brick Company's plant in the June Clay-Worker no mention was made of the machinery we have in that plant though they are using our 'Imperial' machine with an automatic cutting table, crushers, dies, etc. The omission was an oversight we feel sure. We are glad to say we are running our factory full handed and full time six days in the week. We may be lucky but we attribute our good fortune not to 'luck' but to the superior merit of our large capacity brick and tile machinery. Here's an instance: About a month ago, a committee from the Los Angeles Paving Brick Co., came East and visited all

of the clay-working machinery plants, and also some of the plants where different makes of clay machinery were installed, to investigate the machinery, and after they went back home they wired us that they would take one of our large 'Fate Special' machines, with two automatic cutting tables. We are just now getting ready to install one of our side cut tables for cutting paving blocks in the plant of the Athens Brick Co., Athens, Ohio."

PROF. ALBERT V. BLEININGER ACCEPTS A GOVERNMENT APPOINTMENT.

ANNOUNCEMENT is made of the appointment to the position of Ceramic Chemist to the U. S. Geological Survey of Professor A. V. Bleininger, of Champaign, Ill.

Professor Bleininger goes to this position with the best wishes of a host of friends, both in the University of Ohio and the University of Illinois, and the entire membership of the American Ceramic Society over the country. It is understood that the position carries with it a handsome salary as well as great responsibilities.

The creation of this position and the taking up of this work by the government is to a large extent the result of the agitation brought about by the American Ceramic Society and also the National Brick Manufacturers' Association. The Ceramic Society has been in close touch with the U. S. Geological Survey for two years or more, and its advice and assistance have been constantly accepted by the officials in charge of the technological work of the Survey.

Dr. J. H. Holmes, head of the Technologic Division, has kept constantly in touch with the matters of the Ceramic Society, and the present step marks the inauguration of a department for testing structural materials and ceramic products, similar to and of equal importance with the fuel testing work and cement testing work which the Government has been conducting for the last three or four years. It is a very great step ahead for the clay industries to receive this substantial recognition from the government.

The election of Professor Bleininger insures that the work will be done on the broadest and most thorough basis, and that what is done will not have to be done the second time. All clay manufacturers may expect to soon receive the benefits which will certainly follow from the establishment of exact standards and exact methods of testing.

BRAZIL PLANTS HARD HIT BY A STORM.

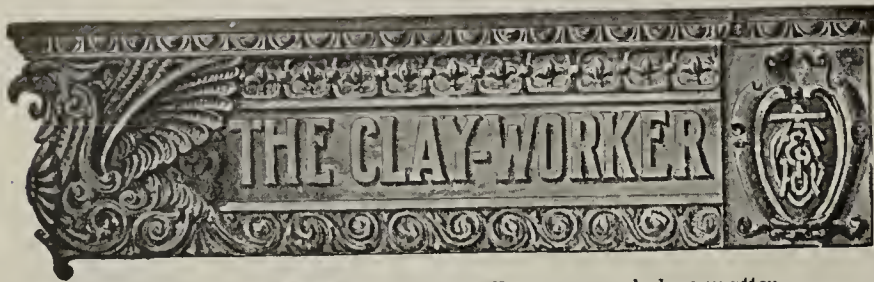
The severe storm of June 19 damaged many of the clay plants at Brazil, Ind. The Sheridan Brick Works, which had just undergone elaborate improvements and changes, was the most seriously injured.

The roof of the machine shop was lifted from the building and carried to the machine shops, where it caved in the roof of the building. The roof of the carpenter's shop was torn off and hurled against the drum room, wrecking one side of the building. The stacks blew down and set fire to the buildings and it was feared the entire factory would be consumed, but it was extinguished before serious damage was caused.

The Clay Products Plant, which had just landed a big contract for 300 miles of conduits for the Chicago City Railway Company, was also damaged. A large portion of the roof of the main building was torn off by the wind, the rest of the roof was badly damaged, while the west wall of the main building was blown out. Repairs were soon made and operations were continued as usual.

The handsome residence of R. H. Morrish, manager of the Chicago Sewer Pipe Company, was struck by lightning during the storm, the bolt tearing off part of the roof.

M. E. B.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " "	10.00
Ten copies, " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. L.

JULY, 1908.

No. 1.

CURRENT COMMENT.

It is now a safe bet that "Bill" will be the front name of our next President.

* * *

Commercial collections may get bad, but the wages for wrong doing are always promptly forthcoming.

* * *

To the politicians; never mind mud slinging, sling around a few jobs for the unemployed, and a few orders for manufactured products and you will get more votes.

* * *

The government is going to investigate the divorce mills—and they will probably find that they are not the mills of the gods—at least they are not given to grinding slow, nor exceedingly fine.

* * *

Some people don't know the difference between an original idea and a freak fallacy, and some don't care whether there is any difference or not; but, just the same, we are all glad to accept the benefits of new ideas as they come to us every day.

* * *

The bulls and bears can now take a vacation; the latest crop reports indicate that the wheat crop is not only safe, but is the largest we have had in ten years. So the country is safe from disaster and those active people who imagine they make the grain markets can go to—Europe or any old place without being seriously missed.

* * *

It is fish story time now, and while anticipating the usual crop we have been looking over some of those of the past, and are surprised to find that out of all the different fish stories there is no account of any of the clayworkers having knocked a fish in the head with a brick bat. It is up to some of the clayworkers to work a brick into a fish

story some way to perpetuate the history of the brick industry along with that of the disciples of Izaak Walton.

* * *

When you have acted well your part, you are not likely to have much time nor inclination left to criticise the actions of others.

* * *

If the reform spirit does not die out or get warped, there is a chance for us to eventually reach the point where it will actually be a disgrace to be a political boodler or grafter.

* * *

When any agitation about structural material is stirred up it may do a number of strange things, but it finally comes out at the point of doing a good turn for clay products, which is not strange in the least when we give due consideration to the fact that this is the best structural material made.

* * *

Where the brewers can't sell beer they sell Nextobeer, but when the distillers get to selling Near-whiskey they don't dare brand it whiskey because of the rulings of the Pure Food Commission. So the chances are that some men in this world will be learning some things about the liquors they have been drinking, when they see the new brands on their favorite booze.

THE A. C. S. SUMMER MEETING CALLED OFF.

Secretary Orton has advised the members of the American Ceramic Society that the number of responses to the call for a meeting at Denver the 13th of July were too few to justify an attempt to carry out the plan and so it has been abandoned. Evidently Denver, tho' a most attractive city, is too far west to appeal to the busy members of the society at this time, so there will be no mid-year meeting this summer unless a goodly number of the members express a desire for a meeting in August or September at a central point easily accessible to a majority of the members. If any considerable number are really anxious to have such a meeting later, the Secretary will be pleased to have an expression to that effect, when, if it is deemed feasible, arrangements will be made and due notice given.

THE PUBLICITY PROBLEM.

We are of the opinion that those of our readers who are worrying over the concrete fad are "more scared than hurt." When the records are written it will be found, we believe, that more burned clay has been used for structural work in the United States during 1908 than for any previous year, in proportion to the general volume of business transacted. The same will prove true of the years to follow for the merit and economy of burned clay for permanent building insures its supremacy even if clay products are not "boomed" as cement products are. Just the same, clayworkers will profit by calling the attention of prospective builders to the superior qualities of their products. This can be done in various ways. Local papers will be found quite an effective means of reaching the eyes and ears of those interested in each manufacturer's home market and every brickmaker ought to assist his local paper both by carrying an advertisement and by furnishing the editor with reliable information on the merits of clay products and building matters in general. Our readers will find just such matter in every issue of the Clay-Worker and they are careless and negligent if they fail to make good use of it. On pages 28 and 29 of this number will be found a number of terse, readable items that local editors may be glad to reprint and comment on if the matter is laid before them. It behooves you Mr. Clayman to "get busy" and let your neighbors know that you can supply them with the best, most dur-

able and in the long run the cheapest building material in the world. Then the concrete bogy will not disturb nor annoy you. Clip these items from the Clay-Worker and give them to your newspaper, manifest an interest in and a purpose to support your local paper and much good may result. Don't expect the editor to print in full, long technical papers. He may at times be glad to read such offerings for the information they contain but brief, pat and pertinent paragraphs are most acceptable for publication. If you really desire publicity in your home field cultivate and patronize your local paper.

THE "BUILD NOW" CAMPAIGN.

The lumber people throughout the country, led by the "American Lumberman" editorially, have been for some time now waging quite a vigorous campaign for the revival of building operations. Data of various kinds has been gathered up, showing the relative prices of building material now and a year ago, and this is put forth in such form that the secular press throughout the country can, and is, making good use of it. The logic is good and unanswerable that now is the time to build, if one contemplates building any time within the next few years, because it can be done for less money, which makes it a good investment, and will give employment to people who are needing the work, which makes it a good public move. Something of this sentiment was voiced by the "Decatur (Ill.) Sunday Review," in commenting upon some of the logic, which was reproduced in its columns. It said: "This is not printed as an advertisement for the lumber dealers or the planing mill men. It is written in the interest of every man in Decatur who contemplates building, in the interest of every contractor, carpenter, bricklayer, plumber, electrician, plasterer, painter, laborer, and dealer in building materials in the city. It is intended as a statement of a few facts relating to building this year that concerns all of them."

Comments of this kind, together with data and arguments set forth in favor of building operations at the present time are being made by weekly and daily papers all over the country, and no doubt but what it is doing a lot of good and arousing people to more active building operations. It is assumed, naturally, that every enterprising brick manufacturer is lending a hand in this movement because building operations include the use of brick as well as other material, and every brick manufacturer and every dealer in this product has a chance to do good not only for himself, but for workmen out of jobs, and for those men who contemplate building, by joining in this movement and helping push the good thing along. Are you doing your part? If not, get busy and thus help load up the prosperity wagon.

FACE BRICK AND BEAUTY.

There is evidently room for quite a lot of educational work on the subject of using face brick so as to get more beautiful and artistic effects. Also, as was suggested by Mr. Richardson in the May CLAY-WORKER, it will probably be advantageous to have a sort of national movement of face brick manufacturers to study and experiment with different combinations of brick, terra cotta and mortar, etc., so that brick manufacturers would be in a position to know positively how to get the best effects with the use of any specific color of brick in any given kind of building. Artistic beauty in the work of the future must be furnished largely by brick and terra cotta, and the more the manufacturers can enlighten themselves and their customers and through study and experiment conducted by themselves be able to enlighten the general building public on this subject, the better it will be both for the public and for the brick man-

ufacturers. It is in a certain measure an architectural job—this making a study of how to get the best effects with face brick of different color or of any given color, but it is a thing the brick manufacturers are interested in, too, and they and the architects should work hand in hand for the development of more specific information on this subject.

There is quite a wide variety of colors in face brick, and could be more, and some of the progressive architects have been pleading for some time for the introduction of more variety in color effect in clay products. What is wanted is not freakish doings, but a more liberal study of color and a wider use of new things. It is always desired to break the monotony with a little variety, and perhaps it would even be better to have a few freaks scattered along the road than too much monotony. We have brick in a wide range of colors and there is no color but what an excellent effect can be had with if properly manipulated. There is also in addition to color effects the matter of face, smooth or slick face, rough face, and various other effects produced in this manner and with different kinds and quantities of mortar. There was given in Mr. Richardson's translation from Hasak's paper in THE CLAY-WORKER for May some interesting matter on this subject, and it should be followed up with more about how to get artistic effects with whatever material is at hand. These discussions in turn should naturally lead to experiments that will become standing demonstrations of new ideas. It is new ideas properly carried out that keep the wheels of progress moving.

A STARTLING DISCOVERY.

Architects, engineers and building experts are much amused at a grave pronouncement that has just been issued by the Geological Survey, that, incidentally, is spending about \$300,000 of the people's money yearly making tests of building materials, fuels, etc. If all of these tests developed nothing newer than this last one, that money had better be expended in experimenting how to keep rats out of grain bins, for instance. According to press reports, those profoundly learned and able experimenters, "impelled by the present tendency in New York and elsewhere toward building enormously high structures," have had their attention directed to the corresponding danger from fire. They have just completed a series of elaborate tests of building materials, with a view of ascertaining definitely the relative fire resistance in each. While these tests are not conclusive, they show a number of facts: "That brick stands the tests better than any other material; that natural building stone behaved worst of all, and that the almost complete destruction of these stones precludes them from any comparison. * * *"

The world is certainly grateful to these scientists for this astounding information. It at least puts the official stamp of approval upon what was commonly known and has been perfectly understood for something like 4,000 years. It shows the dignified slowness, but absolute certitude of governmental methods.

These high authorities might also officially inform us that lime is made by burning limestone, that granite pops in a fire like so many toy pistols, spalls and ultimately goes to pieces, and that concrete, itself an artificial stone, acts just like the stone from which it is made and is a scant protection against fire; and that steel or other exposed metals bend and twist and contort themselves most shamefully in fire. Then they might also add the official information in corroboration of what is so well known that the ideal building is one whose steel frame is completely protected with fireproofing clay tile and whose partitions and floors are of brick and similar fireproofing tile, and whose outer walls are of well burned brick, with equally well burned terra cotta decorations and trimmings. They might then tell us that the world is round. In fact, for \$300,000 a year we expect to be told much that is new, but of ancient information, facts of many vintages ago, why, \$300,000 should procure us bushels thereof.

WITH MINT SAUCE.

Mary had a little lamb—
 You've heard this fact before;
 But have you heard she passed her plate
 And had a little more?

—Lippincott's.

KOPPEL RAILWAY EQUIPMENT IN CONTRACTING OPERATIONS

We received recently an elaborately illustrated pamphlet setting forth the many good points of the Koppel cars, locomotives and railway supplies, etc. The eighteen pages bound in an attractive brown cover are full of interesting information. The Arthur Koppel Company is a well-established firm having for many years supplied their machinery and apparatus to many points in the United States and abroad. Persons wanting information concerning the first cost, utilization and benefits derived from the use of their dump cars and machinery employed on various lines of contractor's work should write the Arthur Koppel Company, 1635 Machesney Building, Pittsburg, Pa., for this attractive catalogue.

AN ILLUSTRATED LECTURE ON VENTILATING AND DRYING SYSTEMS

Mr. J. R. McColl, formerly associate professor of steam engineering at Purdue University, Lafayette, Ind., and now connected with the engineering department of the American Blower Company, Detroit, has been delivering a series of lectures before engineering classes of the technical schools in the Middle West. The subjects dealt with are the movement and heating of air for heating, ventilating and drying systems; the theory and practice of blower design and installation, and kindred topics. The lectures are illustrated by means of stereopticon views and are followed by animated discussions on the part of the students, who invariably evince great interest in the subjects presented.

TRADE ANNOUNCEMENTS.

The Leviathan Belting Company announce that they have opened a branch office at Pittsburg at 208 Third avenue. Any of our Pennsylvania readers who desire information as to the best belting on the market for clay plants, will be accommodated if they will call at this Pittsburg office or communicate with the Company at its main office in Philadelphia, as per their ad on page 95.

The Standard Dry Kiln Co. of Indianapolis have favored us with their "BOOK OF SMILES" for June. It is a breezy little publication yet contains much of wit and wisdom. A copy can be had for the asking.

The Laclede-Christy Clay Products Company announce that they have acquired the "business, property and good will" of the Jamieson-French Fire Clay Co., Lake Junction, St. Louis County, Mo.

Mr. Henry K. Lackland, formerly Secretary and General Manager of the above company, will be associated with them in the capacity of Manager of their high grade clay department, and solicits correspondence from manufacturers desiring a high grade of clay of any character.

The Massachusetts Fan Company, Watertown, Mass., has just issued an exceedingly attractive booklet, entitled, "Davidson Ventilating Fans." The illustrations show both pulley fans and many types of electric fans driven by standard motors of various makes. These are applicable for the economical movement of large volumes of air at moderate pressures.

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ESTABLISHED COMPANIES, as well as beginners, find our services profitable. We correct faults of manufacture and keep plants up-to-date. Engagements for special service, or by the year.

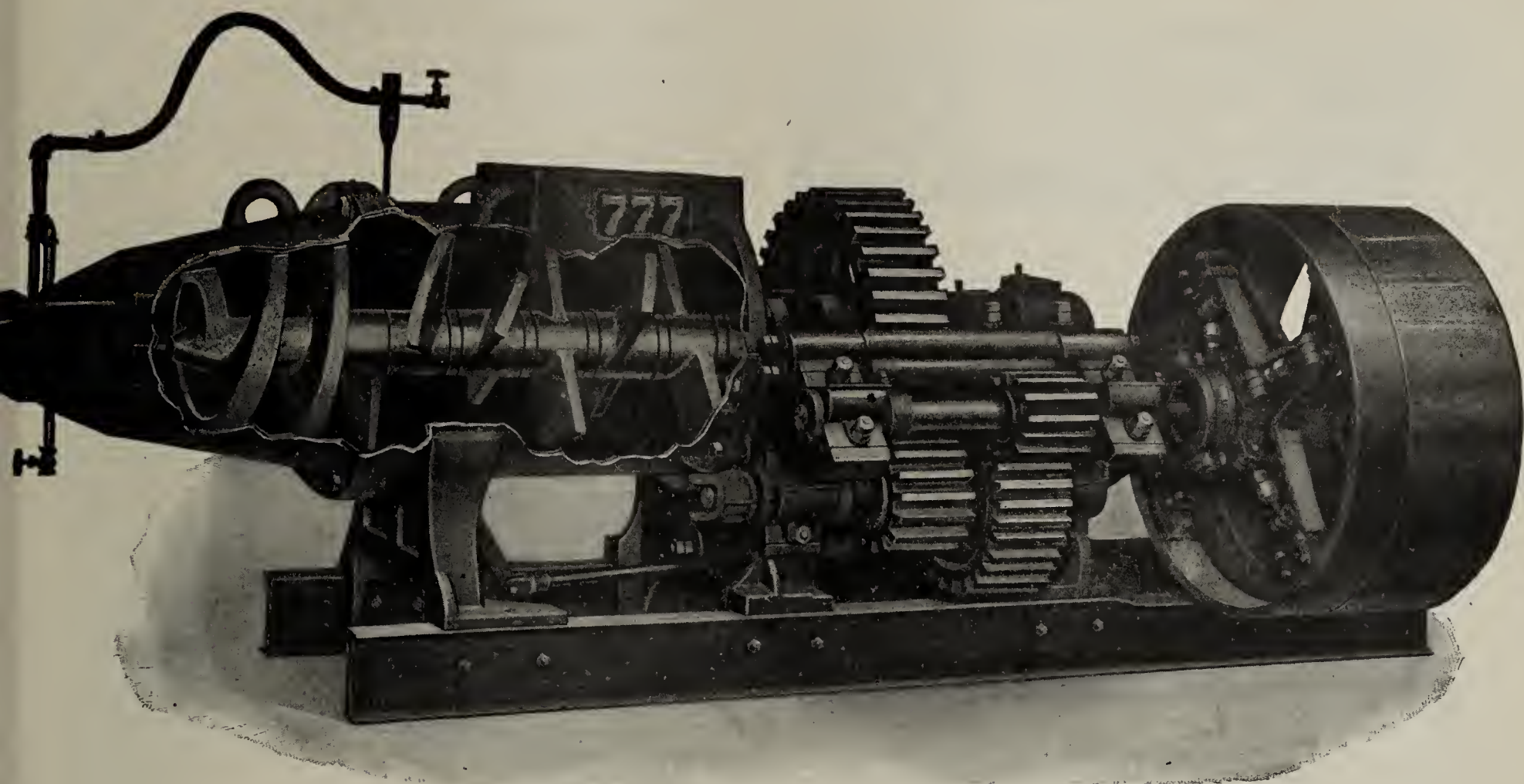
THE RICHARDSON-LOVEJOY ENGINEERING CO.

[See page 99.]

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick, and gives valuable recipes. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. "Vitrified Paving Brick," \$1.00; tells all about the best materials for and methods of manufacturing paving brick. All or any of these books mailed postage prepaid, on receipt of price. Write for list of other valuable books for clayworkers. Address, T. A. RANDALL & CO., Indianapolis, Ind.

For Sale, Wanted, Etc., Ads Continued on Pages 84, 85 and 86.



RAYMOND "777" BRICK MACHINE.

Over six million brick made every day on the famous Raymond "777" Brick Machine.

It is the embodiment of strength, durability and performance—so with all of our manufacture.

We issue the following publications which may be obtained upon application to our Publicity Department:

GENERAL CATALOG CATALOG OF DRAWINGS AND SPECIFICATIONS "Smiles."

Exhibits

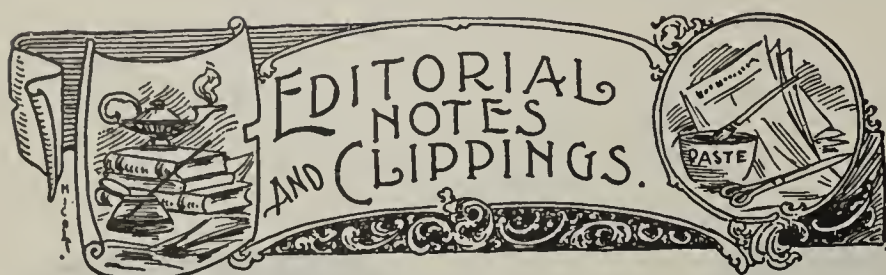
- 2040. Nine-foot Heavy Duty Dry Pan.
- 2042. No. 2 Rotary Automatic Cutting Table.
- 2044. "999" Brick Machine.
- 2045. Perfection Hand Represses.
- 2046. Clay Conveyors.
- 2047. Four Roll Crushers.
- 2049. Niagara Hollow Ware Machine.
- 2052. Victor Repress.
- 2053. Granulators and Bevel Geared Pug Mills.
- 2055. Clay Elevating Machinery.
- 2056. Portable Track.
- 2060. Roofing Tile Designs.
- 2061. Dry Presses and Dry Press Machinery.
- 2062. Automatic Tile Cutter.
- 2063. System of Open Air Drying.
- 2069. Peerless Smooth Roll Crusher.
- 2070. No. 3 Brick and Tile Machine.

Exhibits

- 2071. Standard Pug Mills.
- 2072. Single Geared Pug Mills.
- 2075. Semi-Automatic Cutter.
- 2077. Radiated Heat Dryer.
- 2078. Soft Mud Machinery.
- 2079. Belt Apron Type Clay Elevator.
- 2080. "555" Brick Machine.
- 2081. Automatic Wet Pan Emptier.
- 2082. Piano Wire Screens.
- 2083. No. 1 Automatic Cutter.
- 2084. Dryer Cars.
- 2085. No. 3 Hand Dry Press.
- 2086. Automatic End Cutter.
- 2087. "777" Brick Machine.
- 2088. Hoisting Apparatus.
- 2089. No. 2 Combination Brick Machine.

THE C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

The Largest Exclusive Builders of Clay Working Machinery in the World.



Austinville, Ala., is to have a new brick and tile manufacturing plant.

J. Roomrie, of Kalispell, Mont., is preparing to start a brickyard at Libby, Mont.

Ralph D. Smith has purchased the brickyard of George W. Balls Sons, Keene, N. H.

The Burke Brick Company, Ft. Smith, Ark., was compelled to shut down their brick plant during a large part of June on account of high water.

"Ball Bearing Fans," is the title of a new section of their perpetual catalog recently issued by the Massachusetts Fan Company, of Watertown, Mass.

Fire which started early in the morning of June 17 almost totally destroyed the plant of the Latonia Brick Company, Latonia, Ky. The loss is estimated at \$20,000.

The Granger Brick and Tile Company, of Granger, Yakima County, Wash., has been organized with \$20,000 capital stock by E. W. Dooly, E. B. Johnson, A. W. Johnson, and C. B. Hurt.

The Temple Fire Clay Company, Temple, Pa., has just installed on their plant a Martin 5-foot dry pan, elevator and octagon revolving screen, for reducing sand rock to fine sand.

The Camp Conduit Company, Akron, Ohio, has purchased from the Massachusetts Fan Company, Watertown, Mass., a heating apparatus for drying conduits for underground electrical work.

A company has been organized with \$250,000 to establish a large brick plant at Stanton, Del. The company will be known as the Stanton Brick Company, and preparations for the building of the new plant are now under way.

The overflow of the Minnesota River the latter part of June caused heavy damage to the brickmaking plant of G. Pannenburg & Co., Mankato, Minn. In addition to having buildings containing tools and large quantities of lumber float away, over 400,000 brick were ruined.

The American Sewer Pipe Company's plant at Grand Ledge, Mont., closed down the first of the month for the purpose of making a number of much needed changes and repairs, including the building of a tramway to the clay pits. They hope to be running again before the first of August.

Capt. C. W. Boynton died suddenly at his home in New Brunswick, N. J., recently. Capt. Boynton was seventy-three year old and still actively engaged in the clay business, having extensive interests in the clayworking factories around Perth Amboy. He is survived by his widow, four sons and four daughters.

The American Vitriified Brick Company has been organized with \$100,000 for the purpose of building a plant at Caney, Kans. The officers are: O. A. Kentner, Coffeyville, Kans., president and general manager; G. W. Cannelly, Caney, vice-president; John B. Paul, Mound City, treasurer, and E. N. Gause, Mound City, secretary.

Among public and similar buildings for which ventilating apparatus is being furnished by the Massachusetts Fan Company, Watertown, Mass., are Wilkes Barre School, Wilkes Barre, Pa.; Erie School, Erie, Pa.; Swissvale School, Swissvale, Pa.; Worcester Art Museum, Worcester, Mass.; Elks Hall building, Stockton, Cal., and Waukon High School, Waukon, Iowa.

The Laclede-Christy Clay Products Company, St. Louis, Mo., the largest of its kind in the United States, yesterday announced the purchase of the plant of the Jamison-French Fire Clay Company, at Lake Junction, in St. Louis County, Mo. The purchase price is said to have been in the vicinity of \$100,000. The latter company will in the future be known as the "J-F" Plant of the Laclede-Christy Company and will be in charge of Henry K. Lackland, its former manager. The Jamison-French Fire Clay Company has been in business for

the last twelve years and has gradually built up a large and profitable business.

Houston, Texas, needs a drain tile factory. They have good clay and a good market.

The entire pit force of the Northern Pressed Brick Company, Crookston, Minn., went on a strike recently for an increase in wages from \$1.50 to \$1.75 a day.

Capt. T. S. Shaw and John W. Kelly, of Cadiz, Ky., contemplate establishing a fire brick plant at Wickliffe, Ky., where they have leased several acres of fine clay land.

Mr. W. W. Phifer, Charlotte, N. C., is just about completing the installation on his plant of the Martin improved rack pipe steam brick dryer system of 20,000 daily capacity stiff mud brick.

The United States Brick Corporation, Michigan City, Ind., recently purchased a Simpson screen and separator for screening hydrated lime which, they purchased from the National Brick Machinery Company, Chicago, Ill.

M. H. Zimmer, of Independence, Wis., is making a number of improvements in his brickyard, including the installation of a dryer, so he will not be dependent on the sun, and will be able to run his plant until late in the season.

O. Duclos has sold his brickyard and adjoining property at Little Falls, Minn., to his son, P. O. Duclos and Alphonse Dugas. Mr. Duclos, Jr., has had charge of the yard for his father for a number of years, so the work is not new to him.

The Garfield Brick Company, located at Garfield, Ohio, which has been idle for several years, has been procured by Canton men, who expect to put it in operation at an early date. The plant was formerly owned by Cleveland men, E. A. Lamb, of Cleveland, being superintendent.

The Massachusetts Fan Company, Watertown, Mass., is making a large export shipment of fans to the Sutcliffe Ventilating and Drying Company, Manchester, Eng. This comprises six three-fourths-housed steel plate fans in various sizes, equipped with new frictionless ball bearings.

Mr. George Ch. Dovas, a gentleman from Egypt, who has been visiting the states for some months past, is taking back with him to Egypt an outfit of Martin stiff mud machinery from the manufacturing plant of the Henry Martin Brick Machine Manufacturing Company, Lancaster, Pa.

The first shale brick plant in Canada is being erected by the Canada Cement Construction Company, Quebec, Canada. It will be equipped with drying apparatus manufactured by the Massachusetts Fan Company, Watertown, Mass., consisting of a 160-inch supply fan, with heater, and a 72-inch exhaust fan.

The Burgaw Brick Works, of Burgaw, N. C., was incorporated with a capital stock of \$25,000, but will begin business with \$2,500. The company will manufacture brick, tile and terra cotta building blocks. The incorporators are: H. F. Pierce, Milton M. McIntosh, D. R. Faison, A. B. Croom, Jr., and J. H. Moore.

The Massachusetts Fan Company, Watertown, Mass., is furnishing drying apparatus for the new plant of the Watertown Brick and Clay Product Company, Watertown, Pa. This apparatus consists of a 200-inch fan, with engine and heater, and an 84-inch Davidson exhaust fan, with engine. The present capacity will be 60,000, but it will ultimately be increased to 85,000 brick per day.

H. W. Caldwell & Son Co., of Chicago, Ill., engineers, founders, machinists and manufacturers of elevating, conveying and power-transmitting appliances, announce that they have opened a New England engineering and sales office, room 337 Oliver building, 141 Milk street, Boston, Mass. This office is in charge of Mr. Malcolm R. White, mechanical engineer, who will give attention to engineering propositions, inquiries and orders from the New England states.

The Narragansett Fire Brick Company, of Somerset, Mass., has been incorporated with a capital of \$100,000. The directors are: William E. Fuller, Jr., of Fall River, president; John B. Hadaway, of Swampscott, treasurer, and Paul R. Johnson. The company has been incorporated to take over the interests of the Gay Head Fire Brick Company, of Somerset, which has been in operation for some time and has been bringing its clay from Gay Head at considerable expense. The same interests are concerned in the new corporation.

(Continued on page 80.)

NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.

EDITORIAL NOTES AND CLIPPINGS—Continued.

It is intended to erect a new plant at Gay Head, Mass., and gradually discontinue the Somerset plant.

The Waupaca Brick Company has been incorporated to manufacture brick at Waupaca, Wis., by C. Gmeiner, Wm. Dessen, and F. H. Lord, with \$25,000 capital stock.

O. T. Denison, of Mason City, Iowa, is constructing sixteen model houses for the use of the families of the men employed at the plant of the Mason City Brick Company.

Taylor Brothers, of Cincinnati, Ohio, have purchased the stock of Horace Thomas in the Tygart Fire Brick Company, and thereby have become sole owners of the plant.

Mr. Charles E. Lawrence has been appointed local manager of sales for the Massachusetts Fan Company, with headquarters in the Hudson Terminal building, 50 Church street, New York City.

Long Brothers, proprietors of the Washington Brick and Tile Company's plant, Washington, Iowa, are making a number of improvements at their plant in order to increase the capacity of same.

The Terry-Holmes Brick Company, of Kingston, N. Y., has been organized to manufacture and market brick. The directors are: David and Jay Terry, Kingston, and F. L. Holmes, of New York City.

J. C. Whitcomb, editor of the "Conecuh Record," Evergreen, Ala., writes that there is a good opening there for a small brick plant. Interested parties will do well to communicate with Mr. Whitcomb direct.

The Belt Line Brick Company, Minneapolis, Minn., have purchased and are now operating their new Simpson hand press which they bought from the National Brick Machinery Company, of Chicago, and report that they are very well pleased with the same.

The Ceramic Brick Company's plant at East Liverpool, Ohio, has been purchased by John H. McCord, of Wellsville, Ohio, one of the stockholders. Mr. McCord is making a number of repairs and improvements in the plant, getting it in first class shape for operation the rest of the summer.

The plant of the Red Cliffe Brick Company, at Medicine Hat, Saskatchewan, Canada, was badly damaged by a fire June 29 which originated in the dry kilns. The loss is estimated at \$75,000. The plant is owned by St. Paul and Minneapolis capitalists, and will probably be rebuilt without delay.

The St. John's Brick Company, St. John's Quebec, has just installed the Martin latest improved 1908 model, Style A steam power brick machine in combination with the Martin improved and modern Style P disintegrator, sander, etc., the above furnished by the Henry Martin Brick Machine Manufacturing Company, Lancaster, Pa.

Edward Scheutz, receiver of the Carbon Clay and Mining Company's plant at Carbon, Ind., recently sold the plant to James Kerr, of Carbon, one of the heaviest stockholders, for \$7,358. The plant, which was built for the manufacture of pottery, was one of the best equipped plants in the state, but for some cause the company overstepped its resources and could not make the venture a success.

The Wabash Brick Company, of West Terre Haute, Ind., was recently incorporated with \$75,000 capital stock. The new organization has taken over the holdings of the C. M. Miller Manufacturing and Mining Company, and is turning out brick at the rate of 40,000 per day. The officers of the company are: W. H. Albrecht, Jr., president; Logan G. Hughes, vice-president, and H. M. Spang, secretary-treasurer.

The kindness of Meredith & Croninger, the tile and brick manufacturers, at Hartford City, Ind., in allowing boys to bathe and fish in the pond near the tile mill, has been repaid by the theft of nearly all the tools used at the tile yard. A number of tools have been recovered from a local junk dealer and a notice threatening prosecution for trespassing has been posted, so now the youngsters of that vicinity will have to hunt a new swimmin' hole.

The Mitchell Brick and Tile Company started its plant at Mitchell, S. D., recently. The company has invested \$20,000 in the plant, and the clay that is used for the brick has been tested, showing a fine quality of soil. The capacity of the plant is 35,000 per day, and can be increased by the addition of more tunnels in the dry kilns. The company has put in good machinery throughout and it is driven by

electric power. Its first order is for 300,000 brick for the electric light and gas plant of the Mitchell Power Company.

The capacity of the Rich Hill (Mo.) Brick and Tile Company's factory will be more than doubled by the erection of a number of kilns and the installation of a dryer.

The Champion Brick Company, Wellsville, Ohio, has been incorporated with \$100,000 capital stock by Thomas H. Silver, Thomas R. Andrews, Thomas H. Silver, Jr., Guy C. Chamwell and John F. Deineer.

William Mohl, who owns a large fruit and grain farm near Gifford, Idaho, is arranging with the Gifford Brick Company to have a kiln of 75,000 brick burned on his farm for his own use. Mr. Mohl contemplates extensive building.

Mr. Max Schmitt, of Cullman, Ala., has purchased an outfit of crushing machinery from the Henry Martin Brick Machine Manufacturing Company, Lancaster, Pa., including the Martin No. 4 rock crusher, in combination with a Martin 9-foot dry pan.

Fire which started in the kiln shed of F. H. Vanderheyden's brickyard at Ionia, Mich., caused a loss of over \$5,000. The yard is situated outside of the city limits and the fire department was unable to stretch a line of hose. Mr. Vanderheyden was insured for about half the amount of the loss, and the plant will be rebuilt at once.

The Rochester Composite Brick Company, Rochester, N. Y., are now running full blast and operating both the six-mold National brick presses, Simpson Patent, they have installed. This plant is one of the largest of its kind in America, and is a credit to the National Brick Machinery Company, of Chicago, who designed it and supplied the machinery.

The Georgia Brick Manufacturers' Association held its annual meeting in Columbus, Ga., July 9, with a fair attendance. The brick men present reported that business is improving, although trade could hardly as yet be called brisk. The new officers of the association are: President, N. J. Cruger, Albany; vice-president, George O. Berry, Columbus; secretary and treasurer, P. J. Brown, Albany. The next meeting will be held in Albany.

Caught in the huge drive wheel of the Parker Brick Works, at Paines Station, near Saginaw, Mich., Engineer W. J. Bell was whirled around fifteen or twenty times at a terrific rate. When the engine was stopped every shred of clothing had been torn from his body excepting his shoes, his left leg was broken at the knee and long cuts slashed in his body which required forty stitches. He was taken to a hospital, where it is said he will recover.

The Henry Martin Brick Manufacturing Company, Lancaster, Pa., continue to ship a large number of their horse power equipments to the far west, adding continually to their list of shipments during the past few months. Among the shipments of these horse power outfits recently shipped we mention the following: Complete equipments to W. E. Fish, Aberdeen, S. D.; Messrs. Larson & Fors, Castlegar, B. C.; E. F. Church, Joseph, Ore., and W. F. Hardin, Golden-dale, Wash.

BRICK WORKS SOLD CHEAP.

Montello and the Gery Patents are Disposed of at Auction.

The leases for the plants of the Montello Brick Works, Reading, Pa., as well as the licenses for the use of the A. A. Gery patents for making brick at these plants, and in the Reading district, were offered for sale recently at Reading for the benefit of creditors.

The Gery patents were first offered. "Who will bid \$50,000?" asked the auctioneer. "These patents cost the company half a million of dollars," said an attorney. Ten cents was bid.

The Montello lease was next offered, when notice was given that the buyer must assume an annual rental of \$75,000. The lease was bid to \$200 and sold at that figure to Hugh Fitzpatrick, of Philadelphia. The Gery license was again offered, bid up to \$25 and sold to George S. Stirl. The Montello Company, when organized, was capitalized at several million dollars and was part of the United States Brick Company, which had a capital of many millions.

ARKANSAS BRICK MANUFACTURERS MEET AT
LITTLE ROCK

THE THIRD Annual Convention of the Brickmakers Association of Arkansas met at Little Rock, June 24.

There were present many of the representative manufacturers of that section and the day was spent in informal discussions of various matters pertaining to the business such as the employment of convict labor on the yards, the effect and benefit of the lien law of the state, the most effective means of circumventing irresponsible contractors, and other similar themes. The meeting was presided over by President A. Brewster of Pine Bluff, who has been manufacturing brick for twenty-four years. He said it would seem as if in that time one would gain a thorough knowledge of the business, but that he never met with a lot of brickmakers but what he gained some new ideas.

In the course of his address he said:

"I hope the time may soon come when every brickmaker in Arkansas will meet with us and join with this association. Each one of us frequently has some experiences in the business which if told to others would enable us to avoid heavy losses. The courts are constantly making new rulings about the lien law, and as we are busy making bricks and selling them we sometimes overlook new rulings.

"By meeting and talking together we would soon learn who the irresponsible contractors are who go about from place to place picking up odd jobs of building."

Secretary-Treasurer C. E. Taylor of Little Rock submitted his annual report, which showed a substantial balance on the right side of the ledger. On motion the President appointed a committee on Legislation to serve for the ensuing year as follows: W. W. Dickinson, chairman, Little Rock; C. W. Clark, Little Rock; M. C. Burke, Ft. Smith; G. B. Youch, Pine Bluff; T. N. Atchison, Perla.

It was decided to hold annual conventions in the future on the third Tuesday in January.

The city of Ft. Smith, through Mr. D. J. Young, extend-

ed a cordial invitation to the Convention to hold the next annual meeting in 1909, in that city. On motion of Mr. W. W. Dickinson of Little Rock, the Convention unanimously voted to accept the invitation.

On motion the Convention elected officers for the ensuing term. Following were unanimously elected: President, M. C. Burke, Ft. Smith; First Vice-President, R. B. Frizzell, Monroe, La.; Second Vice-President, G. B. Youch, Pine Bluff; Secretary-Treasurer, C. E. Taylor, Little Rock.

President-elect Burke appointed the following gentlemen as members of the executive committee, for the term ending January, 1910, to fill vacancies occasioned by expiration of the term of three members: O. C. Sutton, Mariana; C. W. Clark, Little Rock; N. P. O'Neal, Hope.

The following concerns were represented in the meeting:

Pine Bluff Brick Company, Pine Bluff, A. Brewster; Pine Bluff Brick Company, Pine Bluff, Garland Brewster; Monroe Brick Company, Monroe, La., R. B. Frizzell; Clark Press Brick Company, Malvern, C. W. Clark; Clark Press Brick Company, Malvern, J. H. Thalman; Y. O. C. Brick Company Pine Bluff, J. W. O'Neal; Y. O. C. Brick Company, Pine Bluff, G. B. Youch; Arkansas Brick & Mfg. Co., Little Rock, W. W. Dickinson; Arkansas Brick & Mfg. Company, Little Rock, C. E. Taylor; Arkansas Brick & Mfg. Company, Little Rock, J. W. Dickinson, Jr.; Hope Brick Works, Hope, N. P. O'Neal; Hope Brick Works, Hope, D. H. Lipscomb; O. C. Sutton & Company, Mariana, O. C. Sutton; Sulphur Springs Brick Company, Ft. Smith, D. J. Young; Brown Press Brick Company, Hot Springs, G. C. Brown; Brown Press Brick Company, Hot Springs, J. N. Kauffman; G. H. Wessells, Stuttgart, G. H. Wessells; Burke Brick Company, Ft. Smith, M. C. Burke; Malvern Brick & Tile Works, Perla, T. N. Atchison. Mr. Mord Roberts of Little Rock was also present.

BRICK STAND TEST OF TIME.

An ancient court house, eighty-one years old, at Kenbridge, Va., stands as a monument to the endurance and superiority of brick as a building material. This old building is as sound and the brick in its walls are as fresh and red today as they were eighty years ago.

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Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



BUILDING HERE CONTINUES with little change. As compared with other points on the coast, the activity is good, but in view of the immense amount of re-building yet to be done, it is not what some of the brick men had anticipated. There is a large supply of brick on the market and this is acting as a damper on prices. Most of the plants are operating though a few are still waiting for the surplus stock of common mud brick to be used up. Pressed and facing brick of all kinds are in good demand and prices are fairly firm. White glazed brick for facing, which is becoming very popular for fronts and for light walls, is very firm and is bringing as high as \$80 per thousand.

The changed conditions in general business and financial affairs is now being reflected in the character of the buildings for which permits are being issued. Although the number of permits issued in San Francisco during the month of June was 638 as compared with 589 during the month preceding, the valuation shows a considerable falling off in the aggregate, being only \$2,351,000 as compared with \$2,709,000 for the month preceding. However, the percentage of brick used does not show any falling off, the decrease in valuation being due to the construction of cheaper buildings in all lines rather than to the substitution of wood for brick.

The bankrupt Alexander Brick and Terra Cotta Company, of this city, has filed schedules of assets and liabilities showing assets of approximately \$16,000, and debts aggregating \$54,000. The plant of the company has already been disposed of to another company.

Gladding, McBean & Co., of San Francisco and Lincoln, Cal., had a fire scare at their pottery plant at Lincoln, a couple of weeks ago. The fire was, however, put out in short order and the loss is but nominal.

The buildings of the Remillard Brick Company, at San Jose, Cal., caught fire June 13 from burning stubble in an adjoining hay field. By quick work the fire was controlled after a small amount of damage had been done.

G. C. Clark, of the Bay Shore Brick Company, successor to the Alexander Brick Company, visited the plant in South San Francisco a few days ago. He states that the company intends to put the plant in first-class condition and make it one of the best on the Bay.

The California Pressed Brick Company, with a plant under construction at Niles, Cal., has started a test oven, and is now erecting kilns of the most approved design. The ceramic engineer in charge is John C. Smith, who will remain at the head of the mechanical department. The company expects to be shipping brick from its works into Oakland by the Western Pacific Railway in about two months.

A San Jose brick company has secured an option on land at Ione, Cal., where large quantities of asbestos have been found, and is considering the development of the property.

A big sewer system is projected at Portland, Ore. It is to cover the greater portions of Mount Tabor, Montavilla, Center Addition, Rose City Park, and the territory along Sullivan's gulch. On account of the large amount of preliminary work necessary, it is not likely that actual construction will begin for several years.

The brick yard that is to supply the building material for the new college buildings of the Agricultural College of New Mexico has been opened up just back of the experimental orchard, and brickmaking has already begun. The plant is being operated on a contract and will make the 500,000 brick necessary for the new buildings.

The Leavenworth Brick Company, of Leavenworth, Wash., has just finished burning a kiln of over 200,000 brick, one of the largest single burns ever made there. The quality of the brick is an improvement over previous kilns, as the company is becoming better acquainted with the material in that locality.

Captain Charles H. Morrison, of Port Townsend, Wash., has just returned from a trip to Seattle, where he spent

several days investigating the possibilities of sewer pipe manufacture. Captain Morrison recently acquired a tract of land near Port Townsend, which has a large deposit of clay particularly adapted to tile and pipe making, and is well situated for shipping. A shipment of the clay is to be made immediately to a Seattle manufacturer for experimental purposes, and there is a possibility of considerable business in this direction. Captain Morrison is also endeavoring to interest Port Townsend capital in a project to install a small plant on the land to make sewer pipe, etc., for the local market.

A special meeting of the Santa Monica Board of Trade was held June 16, for the purpose of getting citizens interested in the Union Brick and Tile Company, which is establishing an extensive plant in that city. It was decided to appoint a committee of five to assist the officers of the company in selling stock to people there. The president was also authorized to circulate petitions for free delivery.

As soon as the new wing of the St. Francis Hotel is completed in September work will be commenced on an addition to the hotel on the Geary street side. The lot which will be built on has a frontage of 50 feet, with a depth of 137½ feet.

The Stone Canyon Coal Company, of Salinas, Cal., has started a brick plant, and is now burning a kiln of 400,000 for the foundation of the power house and various other building operations that are being started by the company.

The Pocatello Pressed Brick Company, of Pocatello, Ida., began its season's run about the middle of June. A large dry press is being put in commission, and new work is rapidly going on at the kilns. The company has orders on hand to keep the plant running uninterruptedly for the remainder of the year.

The property of the Monadnock Brick Company, at Victorville, near San Bernardino, Cal., consisting of several large lime and rock quarries and 400 cords of wood, has been sold under attachment to satisfy a judgment secured in the Superior Court at Los Angeles by Scheerer & Co. Interest centers in the sale for the reason that the defunct corporation was organized by Abe Ruef, the then "boss," and Eugene E. Schmitz, then mayor of San Francisco, shortly after the fire. Their plans were to corner large building contracts and ship materials from their Victorville property. The "graft prosecution" brought these plans to a halt, and the corporation was unable to meet an indebtedness of \$1,475.30 owed to C. Scheerer & Co., of Los Angeles, for machinery installed at the quarries.

The contract for a brick warehouse at Fort Baker, for the use of the United States, has been awarded to Lindgren & Co., its bid being \$5,700.

The Eureka Brick Company, of Eureka, Cal., which changed hands recently, is preparing for a busy season. About 600,000 brick have been made and stored at the yards. The latest contract is for 200,000 brick for the construction of a new telephone building.

The machinery for the Humboldt Brick and Tile Manufacturing Company, at Freshwater, near Eureka, Cal., has arrived at Oakland, and will be forwarded at once.

The plant of the Simons Brick Company, at Santa Monica, Cal., which closed down last November, has resumed operations.

The city of Los Angeles is receiving bids for fire brick, in accordance with specifications.

The Corona Pressed Brick Company has received an order for nine miles of sewer pipe for Los Angeles.

At a demonstration of the new machinery of the California Pressed Brick Company, at Niles, Cal., on June 14, bricks were turned out at the rate of 11,800 per hour.

The Union Brick and Tile Company, near Santa Monica, Cal., is preparing to prospect for oil on its clay lands, as the well recently bored for water showed indications of the presence of oil. The brick machinery arrived in Santa Monica, June 26.

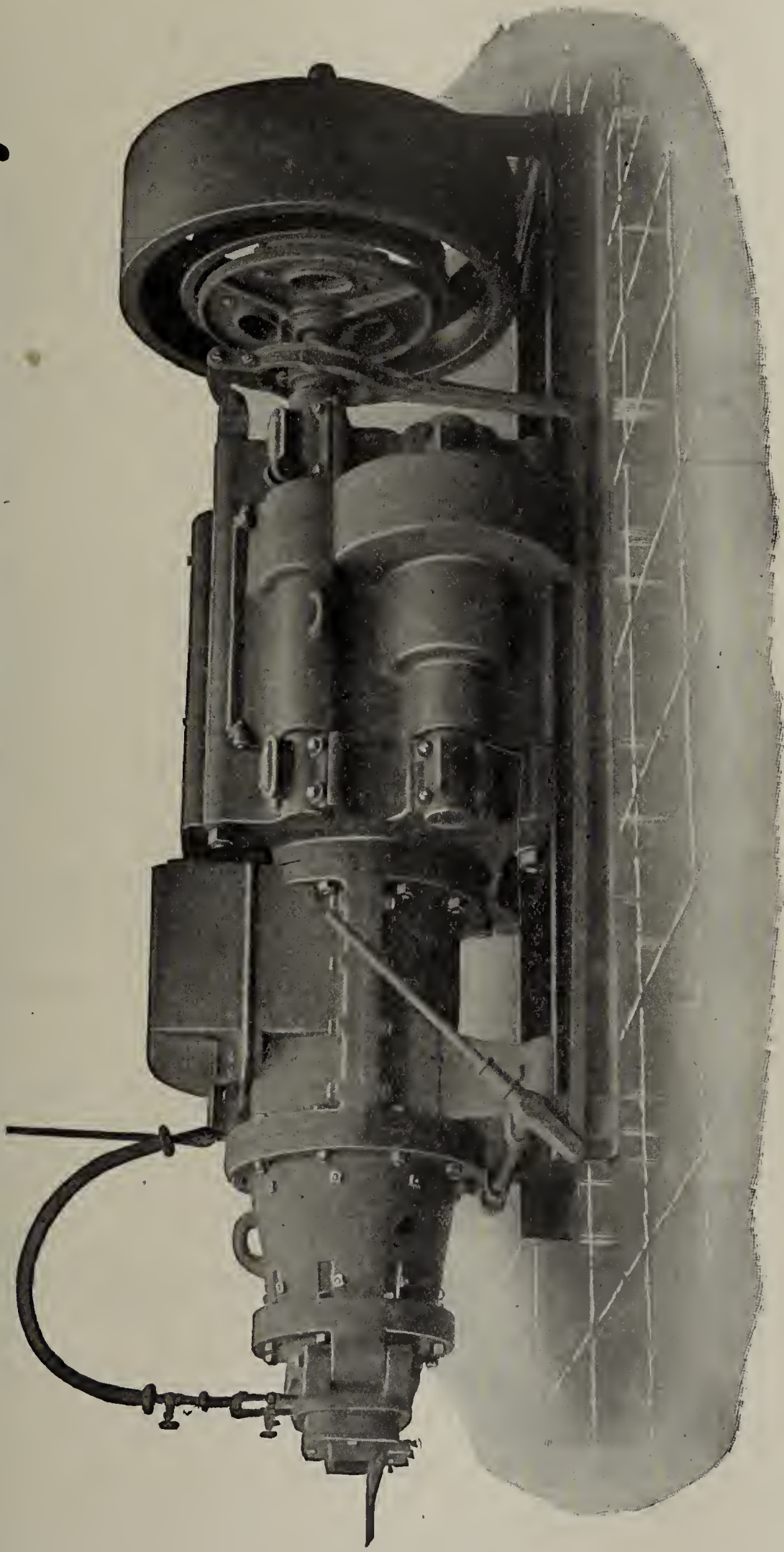
SUNSET.

CLEARFIELD BRICK MANUFACTURING CO.,
CLEARFIELD, PA.

Works at Krebs, Clearfield Co., Pa.

FIRE CLAY PAVING BRICK.

Modern Stiff Mud Brick Machinery.



We've been building Brick Machinery a good many years and have, naturally been brought into contact with a variety of clays and conditions and have been able to produce machinery more and more nearly adapted to the requirements of our customers. Our motto in this work has been "Prove all things and hold fast to that which is good." Consequently the features in our products which have not been found good have been discarded and improvements from time to time have been substituted.

Let us get acquainted with your troubles or your wants, and if we cannot do you good we will tell you so. We build Brick Machines in many sizes and patterns.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

(See ads on pages 114 and 115.)

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—One 150 h. p. Corliss engine.
Address THE LAKON CO.,
7 1 L Elkhart, Ind.

FOR SALE—One dozen slightly used standard German draft gauges. Will sell the whole or part cheap. Address
DRAFT,
7 1 L Care Clay-Worker.

FOR SALE—Two thousand feet five-eighths steel wire rope slightly worn on passenger elevators, 1½ cents per foot. Address
MANAGER,
Holland bldg.,
7 1 dm St. Louis, Mo.

WANTED—To buy a large dry pan, a wet pan, Berg or Boyd four-mold press, gas engine, steam engine, boilers, elevators, screens, etc. Must be in first class condition. Give prices. Address
BRICKMAKER,
7 1 d Care Clay-Worker.

FOR SALE.

One Freese automatic cutter, Grath four-mold dry press, American two-mold dry press, Richardson two-mold repress, American "Acme" auger machine. All in first class condition.
SOUTHERN CLAY PRODUCTS CO.,
7 1 d Chattanooga, Tenn.

FOR SALE.

Modern tile factory in central Iowa, now in successful operation. Good business established at good prices. Fine shipping facilities and product is of best quality. Might take land in part or full payment. Address
IOWA,
7 tf d Care Clay-Worker.

FOR SALE.

A first class stiff mud brick plant at Lawrenceville, Va., on Southern Railway, half way between Norfolk, Va., and Danville, Va. Steele's machinery. 100 h. p. boilers and engine. Up-draft kilns, with grates for burning coal. Capacity 25,000 per day. Eighteen acres of clay land. National Dry Kiln erected spring of 1907, with transfer system and full complement of cars. All in good condition and in shape for ready operation. Full particulars on application to WALTER C. ARCHER, 365 Withers bldg., Norfolk, Va.
5 3 cm

FOR SALE—ENGINES AND BOILERS.**—Engines—**

Corliss and Automatic—20x42 Allis, 18x42 Hamilton, 18x36 Wright, 16x32 Buckeye, 14x24 Atlas; also 12x30, 10x30, 13x16, 13½x15, 12x18, 12x14, 12½x12, 10x10, etc., etc.
Throttling—18x26 H. S. & G., 18x24 Eric City, 16x20 Chandler & Taylor, 14x24 Atlas, 14x14 Vertical, 12x18, 11x16, 10x16, 10x12, 10x10 Vertical, 9x12, 8x16, 8x12, etc., etc.

—Boilers—

Horizontal Tubular—84x18, 78x16, 72x18, 72x16, 66x16, 60x16, 60x14, 54x16, 54x15, 48x14, etc., etc.
Fire Box—60, 50, 40, 35, 30, 25, 20, 16, 14, 12 and 10 horse power, etc., etc.
Vertical—55, 35, 30, 20, and 15 horse power, etc., etc. Pumps, heaters, tanks, saw mill and general machinery.
THE RANDLE MACHINERY CO.,
1735 Powers st.,
7 tf d Cincinnati, Ohio.

WANTED—Position as burner or foreman, sixteen years' experience; understand all kinds of kilns. Good references. Address
F. W.,
7 1 c Care Clay-Worker.

WANTED—Thoroughly practical brick-maker for stiff mud and dry pressed brick, who can take charge of and invest some money in the plant. Address
H. D. C.,
7 1 dm Care Clay-Worker.

WANTED—A brick burner to burn vitrified paving brick with gas. Must be between the age of 35 and 45 years. Must be able to furnish best of references. Position in the southwest. Address
BURKE,
7 2 d Care Clay-Worker.

FOR SALE—Three-mold Boyd dry press, with a lot of ornamental and shape dies. One 36-inch Steadman pulverizer. Four-mold Simpson dry press with extra mold box cheap. Address
THE B-K BRICK CO.,
6 3 d Denver, Col.

FOR SALE.

A complete set of machinery for the manufacture of stiff mud brick, 20,000 per day; 9-foot dry pan, engine, boiler, machine, pug mill, dryer cars, pulleys, shafting, etc. Will sell at a bargain.
ED. NICHOLSON,
7 3 cm Steubenville, Ohio.

FOR SALE.

The best equipped brick plant in Kentucky. Plenty of clay and good demand for output. Reason for selling, have other business which needs our attention. For full particulars address
THE CARROLLTON BRICK CO.,
7 1 dm Carrollton, Ky.

FOR SALE.

A brickyard consisting of dry press and Hercules mud machines, 70 h. p. boiler and engine, waste heat dryer, eighty rack cars, sheds and pallets, fourteen tenement houses, twenty-one acres of land, two brick kilns. The machinery has been used but little. Yard is located near large city and demand for all the brick that can be made. Will sell entire plant for \$5,000 on easy terms. Address
S. J. C.,
7 3 d Care Clay-Worker.

WANTED—Superintendent for fire brick works. Must be competent to take complete charge of plant. Give references. Address
CHARLES,
7 1 dm Care Clay-Worker.

FOR SALE.

Matthews gravity 12-inch brick carrier, nineteen 8-foot sections, one 6-foot, five 4-foot, three 7-foot, curves, seventeen adjustable jacks, two aprons, eighteen extra rollers. Good reason for selling cheap.
THE HEIDECKER BRICK CO.,
7 1 c Sharonville, Ohio.

WANTED.

Position by first class man as head burner or assistant superintendent on a dry clay, press brick, down-draft kiln plant. Can guarantee results if proposition is not fundamentally wrong. Address
RESULTS,
7 tf d Care Clay-Worker.

FOR SALE.

A brickyard, with machinery, fifty acres of land. Finest of clay, near a large saw mill on the N. O. G. N. Railroad. Sixty-three miles from New Orleans; price, \$6,000. Address
ST. TAMMANY BRICK YARD,
7 tf dm Ramsey, La.

FOR SALE.

Modern equipped brick plant. Modern dryer and conveyances, etc. Located on Erie Canal, between Albany and Schenectady, accessible to New York and up state markets. Capacity, about 50,000 daily with power for additional capacity. Seventy acres of land, stone quarry, timber and molding sand. Plant now in operation. Large unfilled order, and brick specified in specifications for many new school build-to be erected in Schenectady.

This plant is exceptionally well equipped with machinery and appliances. Erie Canal runs through brick sheds. Company will dispose of plant as it now stands at a reasonable price to responsible parties.

Reason for selling: Owners are not brick manufacturers and are otherwise engaged and can not give plant personal attention. Enquire of JOHN SCANLON, Cohoes, N. Y.
5 4 cm

WANTED.

A good man to take charge of a 50,000 a day soft mud brick plant. Must be thoroughly practical, sober and industrious and have a knowledge of artificial drying by steam heat and be able to handle a tender clay that is likely to crack if dried too quickly. References and statement of previous experience required. Address
7 1 d GRACE C, Care Clay-Worker.

SITUATION WANTED.

Believing that the clay industry affords opportunity for a permanent and profitable situation to one with the ability and ambition to master the details of the business, I desire a situation that will enable me to earn living wages to start with, believing that in time I can earn promotion and satisfactory salary. I am 27 years old, married, and for the past few years have been erecting, operating and doing experimental work on gas producers. Previously was schooled as a chemical engineer. Can give satisfactory references as to character, habits, etc. Correspondence solicited.
7 1 d AMBITIOUS, Care Clay-Worker.

Brick Drying and Conveying.

You can save one-half the cost, in fuel and labor, of your present method of drying, by installing a Walsh System. Address **HIRAM H. WALSH,**
5 tf L 131 Lander Street, Newburgh, N. Y.

The Starkey Automatic Brick Counter.

(Patent Applied For.)

A machine that counts the number of wheelbarrow loads of brick absolutely correct and cannot be tampered with. To forget or to swell the count are both impossible.

We will sell a limited number of machines on trial and at a low price to introduce them.

Write for descriptive catalog, terms and prices. Address

JOHN STARKEY,
MINERVA, OHIO.

Mention The Clay-Worker.

THE SOUTH DEMANDS!

The Best

FIRE BRICK

FOR KILN CROWN AND LININGS.

WE MAKE THEM!

SOUTHERN CLAY PRODUCTS CO.,

Chattanooga, Tennessee.

The Improved Flue System.

The most profitable kiln on the market
for burning any clay product.

Absolute Draft Control. Economy of Fuel and Time.
All Hard Brick.

Kiln and Yard Rights, with Plans, Specifications, etc., sold at very reasonable rates. Booklet, estimates and full information cheerfully furnished.

GEO. E. SNOWDEN & CO.,

[Formerly J. P. Bradley & Co.]

New Cumberland, W. Va.

FOR SALE.

Brick and tile plant. If properly managed will pay 20 per cent on investment. Reason for selling, death of partner. J. J. BROWN,
6 2 cm Crawfordsville, Iowa.

FOR SALE—Several automatic end-cutters and brick edgers for Chambers Bros. brick machine. Cheap. Inquire

ILLINOIS BRICK CO.,

5 3 c

Chicago, Ill.

WANTED—One kiln burner, one pressman and one kiln setter for sewer pipe plant. Must be thoroughly competent men and give references. Good wages. Address

"CANADA,"

5 3 c

Care Clay-Worker.

FOR SALE—One 2-mold Simpson dry press. One eight-foot iron frame dry pan. One No. 6 Brewer brick and tile machine, with all necessary dies and cutters. One tile elevator, one clay elevator, one clay disintegrator. O. W. DUNLAP,
2 tf L Bloomington, Ill.

FOR SALE.

I have fifty acres of fine clay suitable for the manufacture of red face brick. The property is located within thirty miles of New York, near tidewater. Write for full particulars and price. Address

C. A. B.,

6 tf d

Care Clayworker.

WANTED—A No. 1 man as superintendent of brick plant. One who thoroughly understands all details of the business. Our machinery is of the American Clay Machinery Company's make. Capacity, 50,000 a day. A good position awaits a competent man. Address "BUILDER,"
7 1 d Care Clay-Worker.

IF YOU WANT TO BUY, SELL, OR EXCHANGE

Any kind of business or real estate anywhere at any price, write

FRANK P. CLEVELAND,
Real Estate Expert,
965 Adams Express Bldg.,

4 tf d

Chicago, Ill.

WANTED.

Clayworkers who are having troubles of any sort in the operating features of their plant, whether in the making, drying or burning, to know that my experience of twenty-five years enables me to give valuable practical advice that will prevent further loss and trouble, if skill and knowledge as a practical worker and chemist can accomplish that purpose. Terms reasonable and contracts made contingent upon success. Address J. J. KOCH,
5 tf L 3325 Caroline st., St. Louis, Mo.

DO YOU NEED MODELS or MOULDS?

We can furnish you with them for any line of clay products, ornamental or plain. Plaster-blocks and cases made to order. First class work guaranteed.

IRONTON CLAY SPECIALTY CO.,
Ironton, Ohio.

Continued on page 86.

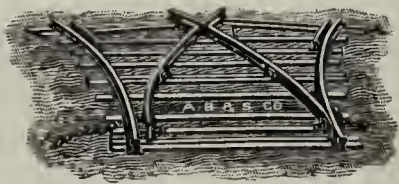
FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
THE T. B. TOWNSEND BRICK AND
CONTRACTING CO.,
4 tf d Zanesville, Ohio.

FOR SALE.

No. "0" Thew Shovel ½-yd. dipper, good.
6 "Little Giant" Traction Shovels.
Dredges for clay swamp, ½ yd. to 2½ yd.
Locomotives, cars and rails for up-to-date
clayworkers.
We buy and sell.

THE MALES CO.,
26 Cortland Street, New York, N. Y.,
1508 First Nat'l Bank Bldg., Cincinnati, O.



SWITCHES FOR SALE.

Right and left hand one, two and three
way switches of various gauges, radius
and weight rail, at special prices.

THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

(See additional ads under Table of Contents.)



They Never Fade

Twenty
Long Years

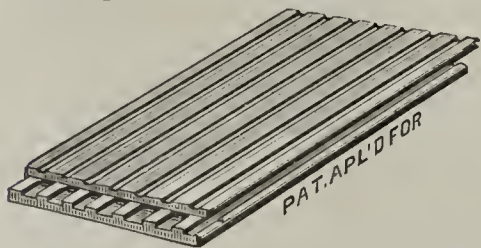
of time and weather
have tried out Ricketson's
famous Red Brick brand

COLOR

For Mortar, Brick,
Cement, Stone, etc.
Proved to be absolutely
permanent. Red,
Brown, Buff, Purple
and Black.

Ricketson's Mineral Paint Works,
MILWAUKEE, WIS.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for
Interlocking Tiles, Dies for all shapes,
Hips, etc., in metal or plaster.

Special Roller and Auger Presses for
Shingles, Interlocking Spanish Tiles, Au-
tomatic Shingle Cutting and Punching
Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capa-
city and horse power, stiff mud brick
and hollow block dies, dry press liners.

MUELLER BROS.,
2935 Clark Avenue. St. Louis, Mo.

DOVER FIRE BRICK CO.,

509 Cuyahoga Building, Cleveland, Ohio.

Operating plants at North Bend, Clinton County,
Pa., and Strasburgh, Ohio.

"NORTH BEND." "DOVER." "BUCKEYE."

We have have been furnishing fire brick for kilns
for over forty years.

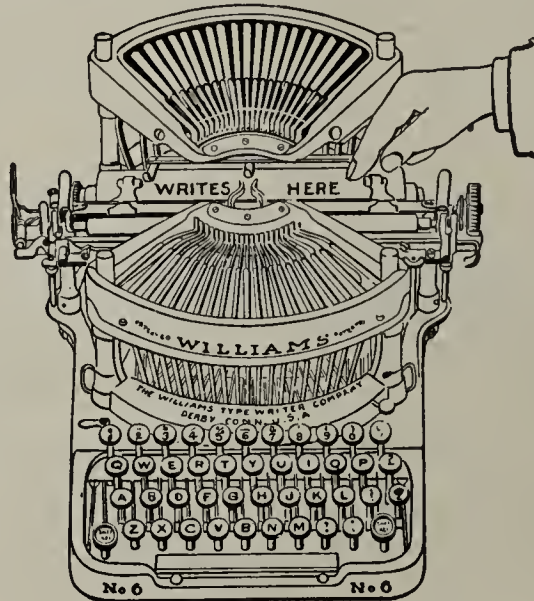
WRITE US FOR PRICES.

SEEING

Saves the beginner time when learning.

Saves the learned time when beginning.

New
Number
Six
Visible
Writer



Saves time, energy,
worry and money.

Gives speed, simplic-
ity and beautiful work.
Single shift. Strictly
visibe writing.

Old machines of any
make taken in trade.

The Williams is sold
under a positive guar-
antee and on easy
terms.

If you want the best
value in a typewriter
ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.

MADDEN & CO.,
Rushville, Ind.

Full Line of

CLAYWORKING MACHINERY.

See two-page ad in April No. Clay-Worker.

New Specially Designed Machine for Large
Drain Tile and Hollow Ware now ready.

New automatic attachment for any hand cut-
ting table.

Send for circulars and catalogues.

THE WEBB WIRE WORKS

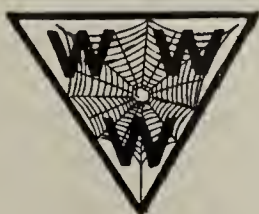
MANUFACTURERS OF

MUSIC WIRE NEEDLE WIRE

NEW BRUNSWICK, N. J.

We manufacture BRICK AND TILE CUTTING WIRE, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.



C. A. SHOOP, Pres.

N. R. WITHERS, Sec. and Treas.

H. L. JACOBS, Gen. Mgr.

SUFFOLK CLAY COMPANY,

MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

Marion Machine, Foundry & Supply Co., Marion, Indiana:

Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

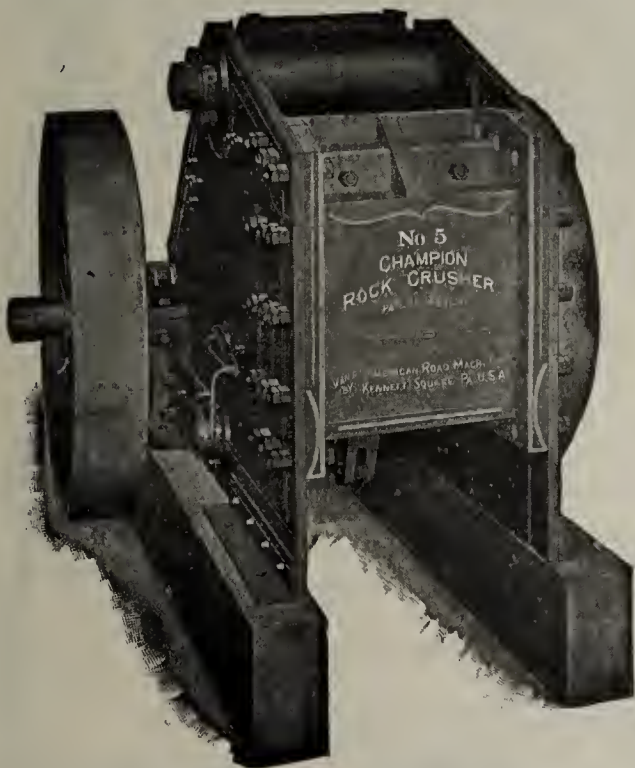
Very truly yours,

SUFFOLK CLAY CO.,

For further information address

H. L. Jacobs, Gen. Mgr.

MARION MACHINE, FOUNDRY AND SUPPLY CO., MARION, IND.



NO. 5, 11x26 CHAMPION CRUSHER.

It Looks Good
on paper.

It Looks Better

crushing shale, fire clay,
rock and other hard material.

THE CHAMPION CRUSHER

is expensive, *to do without*, because it saves you money.

Catalogue is free on application. Address

AMERICAN
ROAD MACHINE CO.

KENNETT SQUARE, PA.

The Department of Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.

W. H. S. DEMAREST, D.D.

OHIO STATE UNIVERSITY

Offers through its College of Engineering, full courses of instruction in Civil, Mechanical, Electrical and Mining Engineering, and in Architecture, Ceramics, Chemistry, Industrial Arts and Manual Training.

ITS DEPARTMENT OF CLAYWORKING AND CERAMICS, established in 1894, was the pioneer of its kind in America, and has been from the first successfully training men to overcome the technical problems of clay manufacture.

Tuition is free. Laboratory fees are nominal. Faculty of over one hundred instructors. Equipment very extensive.

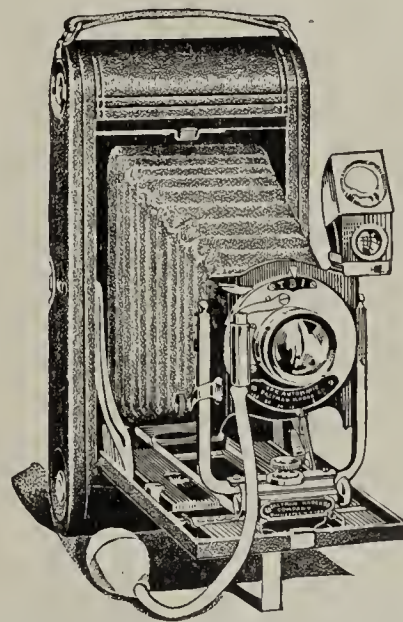
For information or catalogue address,

Prof. EDWARD ORTON, JR.,

Department of Ceramics.

DR. W. O. THOMSON, President.

Columbus, Ohio.



TAKE A KODAK WITH YOU.

Any one can take good
pictures by the

KODAK SYSTEM.

Its daylight all the way.

Kodaks \$5.00 to \$105.00.

Brownie Cameras \$1.00 to \$9.00.

EASTMAN KODAK COMPANY,

Rochester, N. Y.

Catalogue Free by Mail.

When Writing to Advertisers
Mention The Clay-Worker.

C. K. WILLIAMS & CO.,
EASTON, PA.

Largest Manufacturers in
United States of

Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
on application.

Chattanooga Paint Co.,
Chattanooga, Tenn.

Manufacturers of

**Red Oxides for Brick-
makers' Use.**

**Eclipse
Mortar Colors,
Red, Brown, Buff, Black.**

COLORING

All Mineralogists Know
Clinton Hematite Red
is the highest grade
Oxide of Iron.

Be sure you get the genuine, with the "Little
Yellow Side Label" on each package.

MADE ONLY BY
Clinton Metallic Paint Co.,
CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.
NEW YORK.

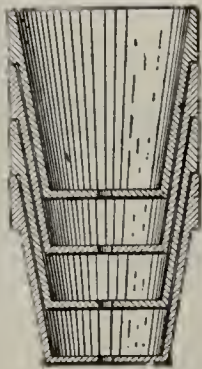
Sole Importers in the United States of the

Precipitated  Carbonate
or Barytes

The only preventative for scum and discolor-
ation on Facing Brick and Terra Cotta, neu-
tralizing the Sulphate of Lime in the Clay and
Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

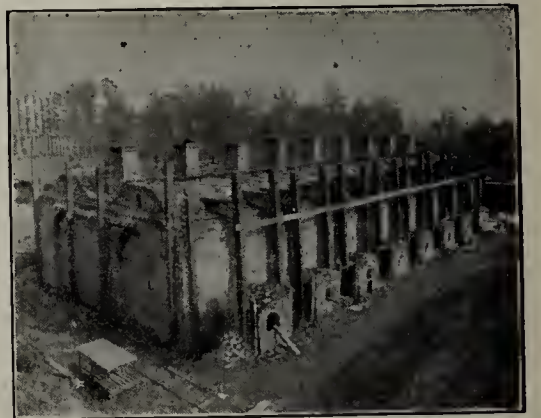
To Whom it May Concern:

I take pleasure in commending Mr. F. W. Dennis on his double down-draft kiln. I have worked on dry press brick plants for the past eighteen years as brick setter, burner and superintendent, and for the last nine years have used several different makes of down-draft kilns and a number of different kinds of kilns and can truthfully say that I have helped to build and burn three of the Dennis double down-draft kilns, and we built them of much less material per thousand brick than any other kilns I ever built, or ever saw built, and I burned the Dennis kiln with less coal and got just as hard a burn as I ever got with any other kiln I have ever had experience with. I have superintended the burning of a great many kilns of dry press brick, and truly believe that the Dennis kiln can be built cheaper and better and take less fuel to burn than any other down-draft kiln on the market, and burn just as hard brick as any kiln. I was superintendent of the plant at Newburn, Ill., also at the Industrial Dry Press Brick Plant, at Mount Vernon, Ill., where we had three of the above kilns, holding over 300,000 each.

Yours very truly,
BERT CHAPPEE.

Newburn, Ill., June 16, 1903.

Wood burning kilns changed to coal burning.
Brick plants installed and put in operation.
Write for booklet. Correspondence solicited.

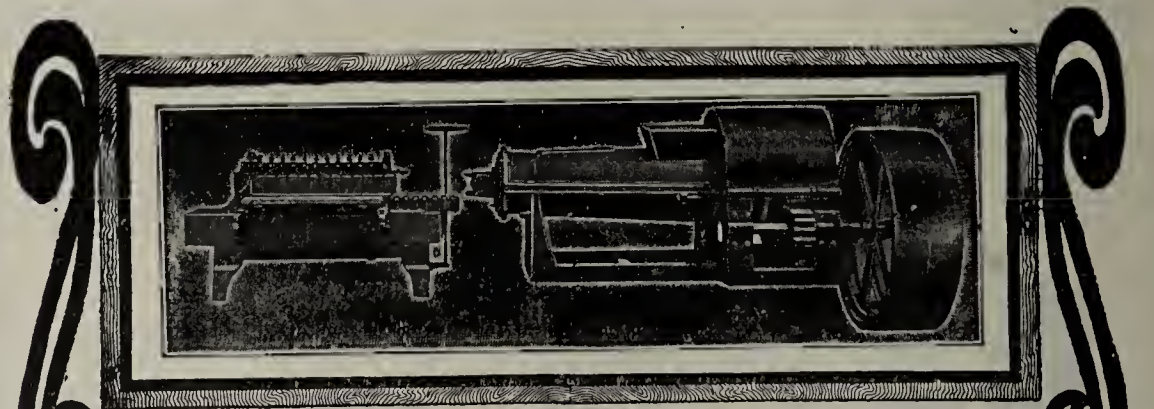


Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

145 Water St.,
NORFOLK, VA.



THE PIONEER.

Kells Brick and Tile Machine

has been the synonym of excellence in the Brick and Clay-
working industry for the past thirty years.

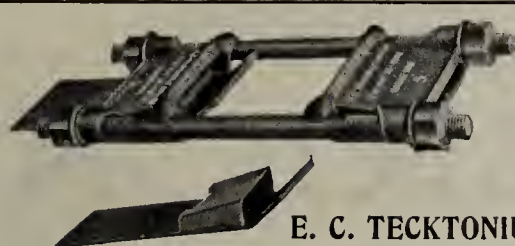
It has had few rivals and no superiors. Improved from
year to year to gain increased

Strength, Simplicity, Durability, Efficiency and Quality

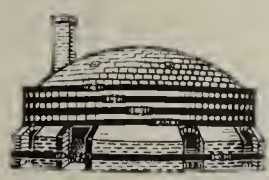
of finished product, until it has reached the highest state of
the Mechanical Arts in Brickmaking.

Our new handbook will give you the detailed informa-
tion desired.

The Kells Foundry and Machine Co.
ADRIAN, MICH.



The Best and Cheapest
BAND LUG
on the market.
Write us for price.



E. C. TECKTONIUS MFG. CO., Racine, Wis.



Machine-Molded Gears

One to 6-inch pitch and larger. Our machine-molded gears last longer than others, give higher efficiency under actual scientific tests, and in many cases cost no more than inferior gears. Catalogue 27 for all gear users.

H. W. Caldwell & Son Co.
17th St. and Western Ave.
CHICAGO

NEW YORK CITY
Fulton Bldg., Hudson Terminal,
No. 50 Church Street.

White Pine Pallets

For Brick, Roofing Tile,
And Sewer Pipe Boards.

The Best Are the Cheapest.

Send Specifications and Get Prices.

Mershon, Schuette, Parker & Co.,
Saginaw, Mich.

TRIPLE PRESSURE BRICK PRESS

The strongest and most efficient Brick Machine made, and the only Press that gives three distinct pressures to the brick.

We build and equip complete
SAND-LIME BRICK PLANTS,
SHALE AND CLAY BRICK PLANTS.

Ross-Keller Triple Pressure Brick Machine Co.,
Offices Fullerton Building, St. Louis, Mo.

\$2.00 THE CLAY-WORKER **\$2.00**
ONE YEAR (IN ADVANCE)

MANGANESE
FOR ALL USES.
LUMP, GRAIN AND GROUND
60-70% 70-80% 80-90% OXIDE.
CLAY WORKERS GOODS A SPECIALTY.
SAMPLES AND PRICES ON INQUIRY.
METALLIC ALLOYS CO.
99 JOHN ST NEW YORK, N.Y.
SUCCESSORS TO KENDALL & FLICK.

TAPLIN, RICE & CO.,
AKRON, OHIO.

Sewer Pipe and Clay-
Working Machinery.

ESTABLISHED 1862.

The Anton Vogt
Down Draft Kiln

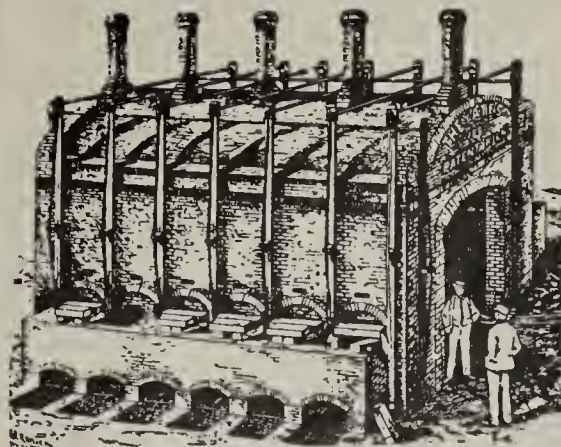
and the
QUESTION OF THE HOUR.

Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,

Ada, Okla., U. S. A.



For Economy of Fuel and Percentage of Hard Burned Brick, This kiln will give satisfaction. Constructed to burn without smoke and give an even distribution of heat, producing uniform burns. Hot air dryer. Continuous and muffle kiln.

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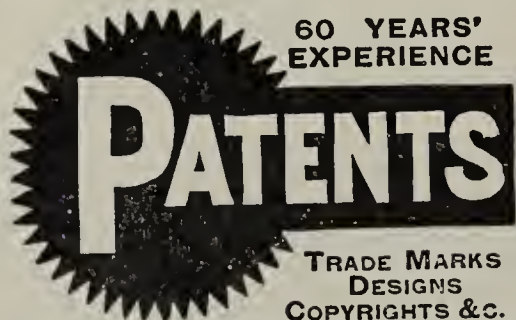
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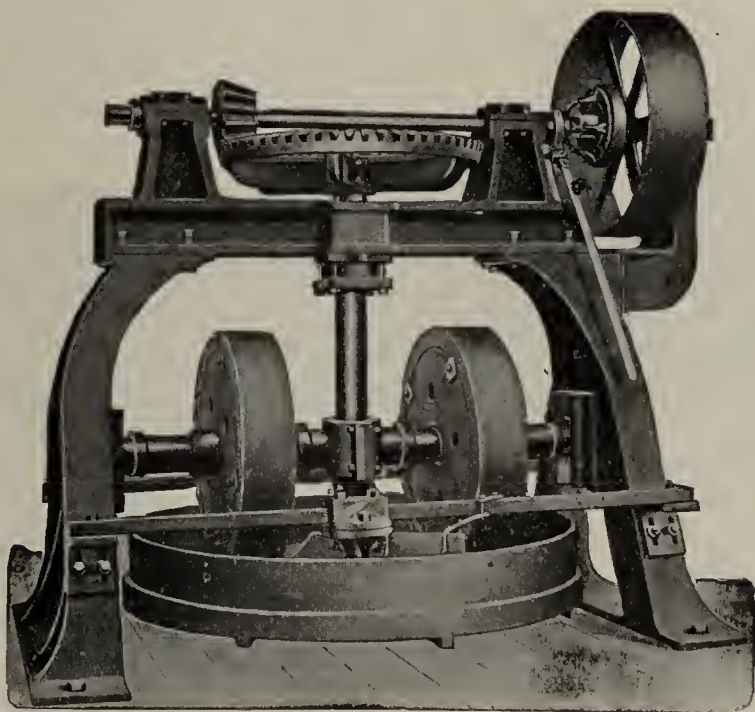
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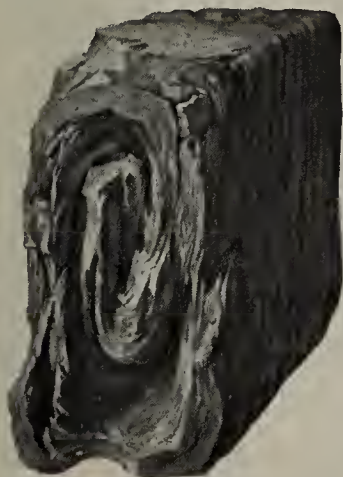


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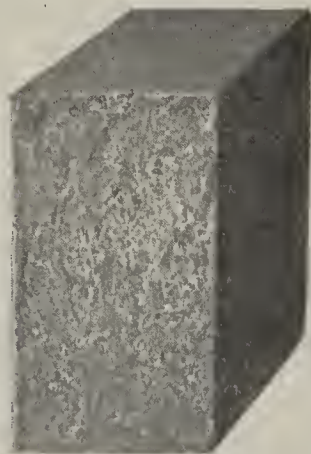


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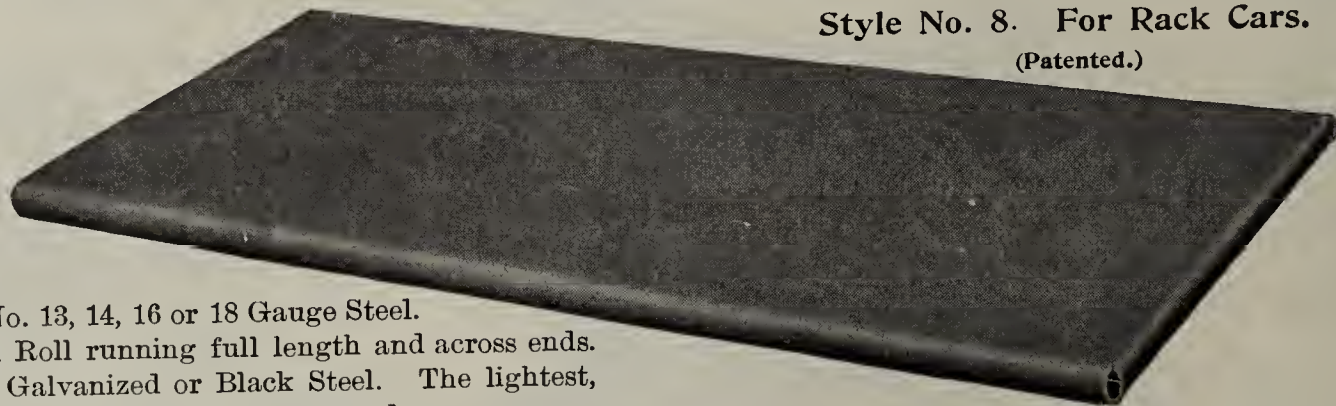
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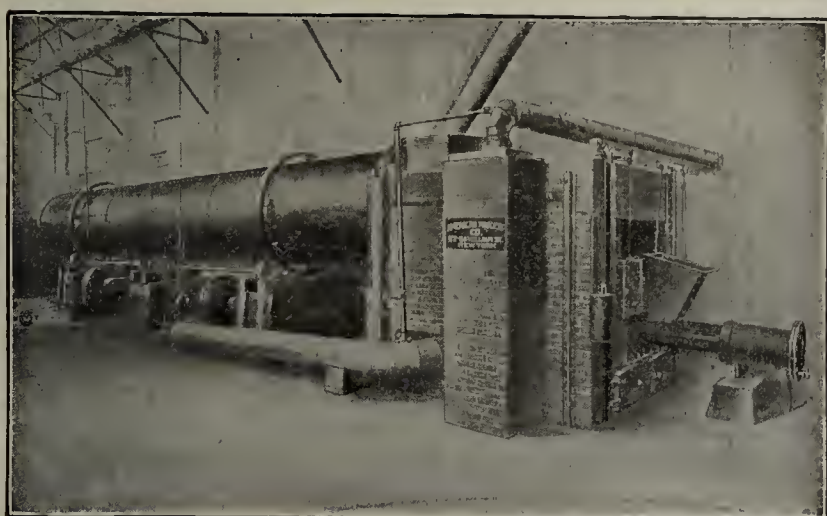
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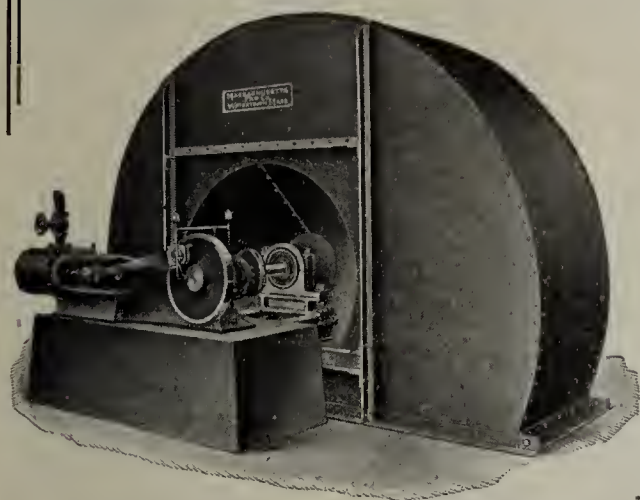
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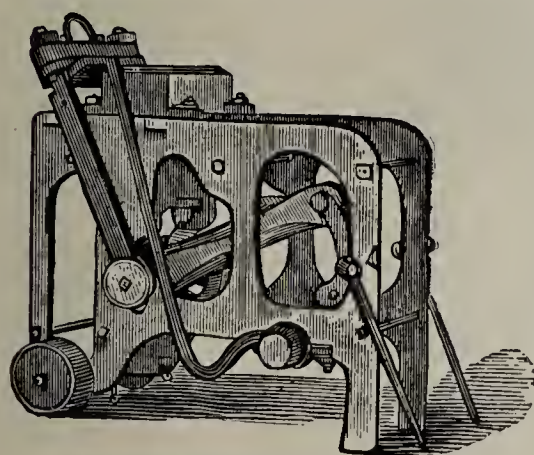
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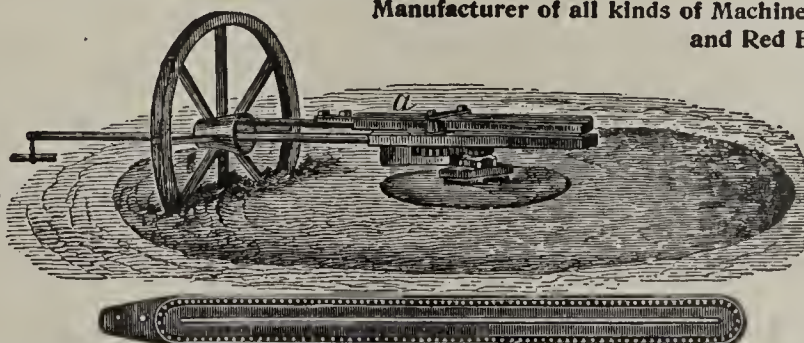


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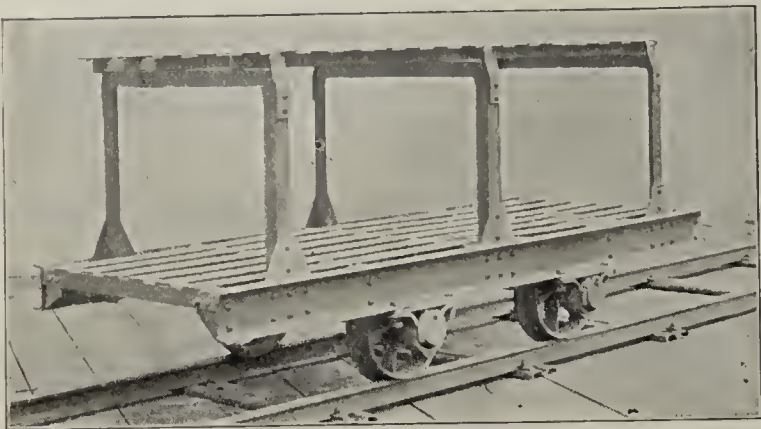
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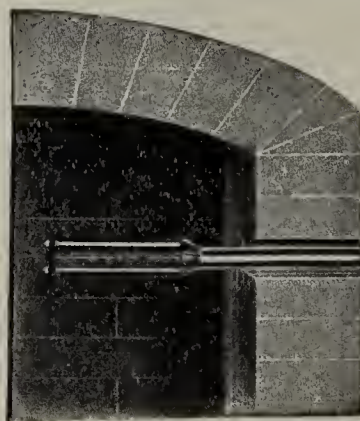
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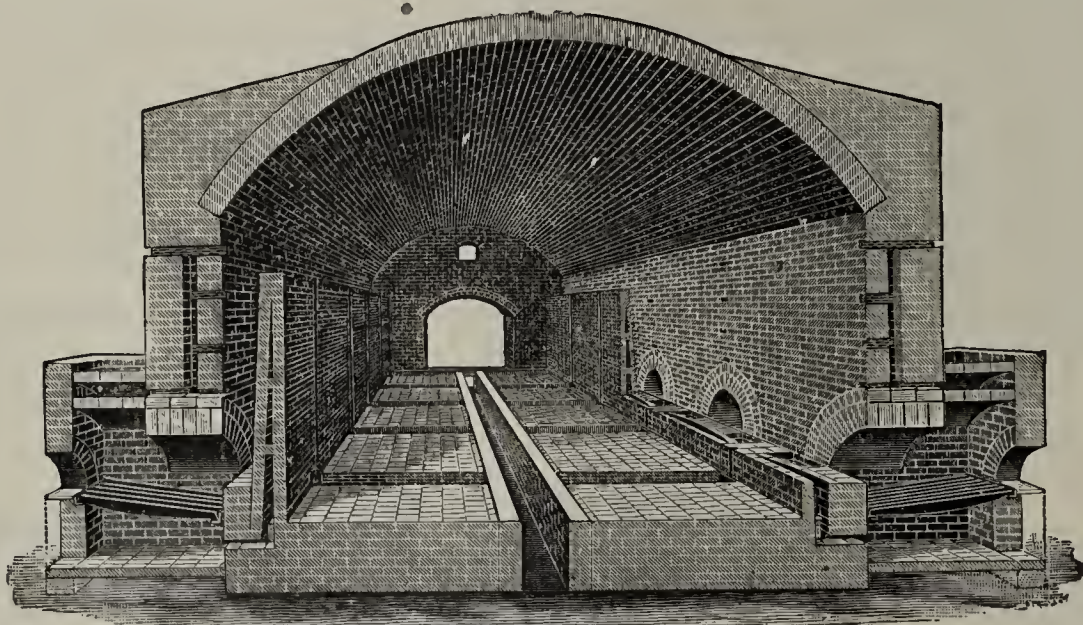


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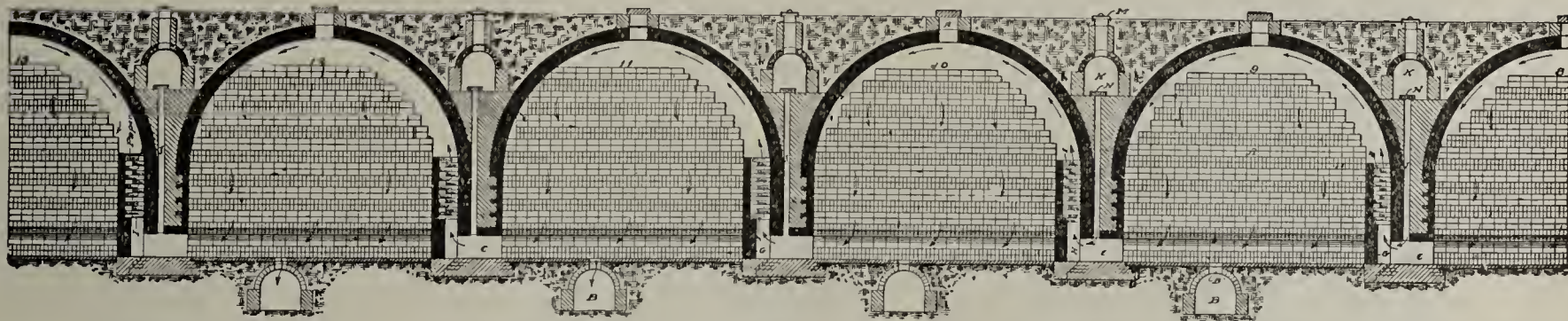
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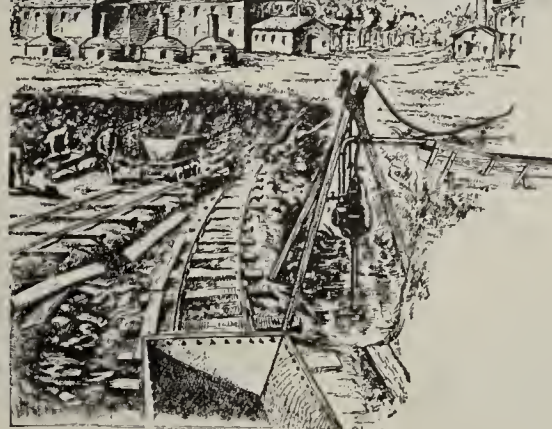
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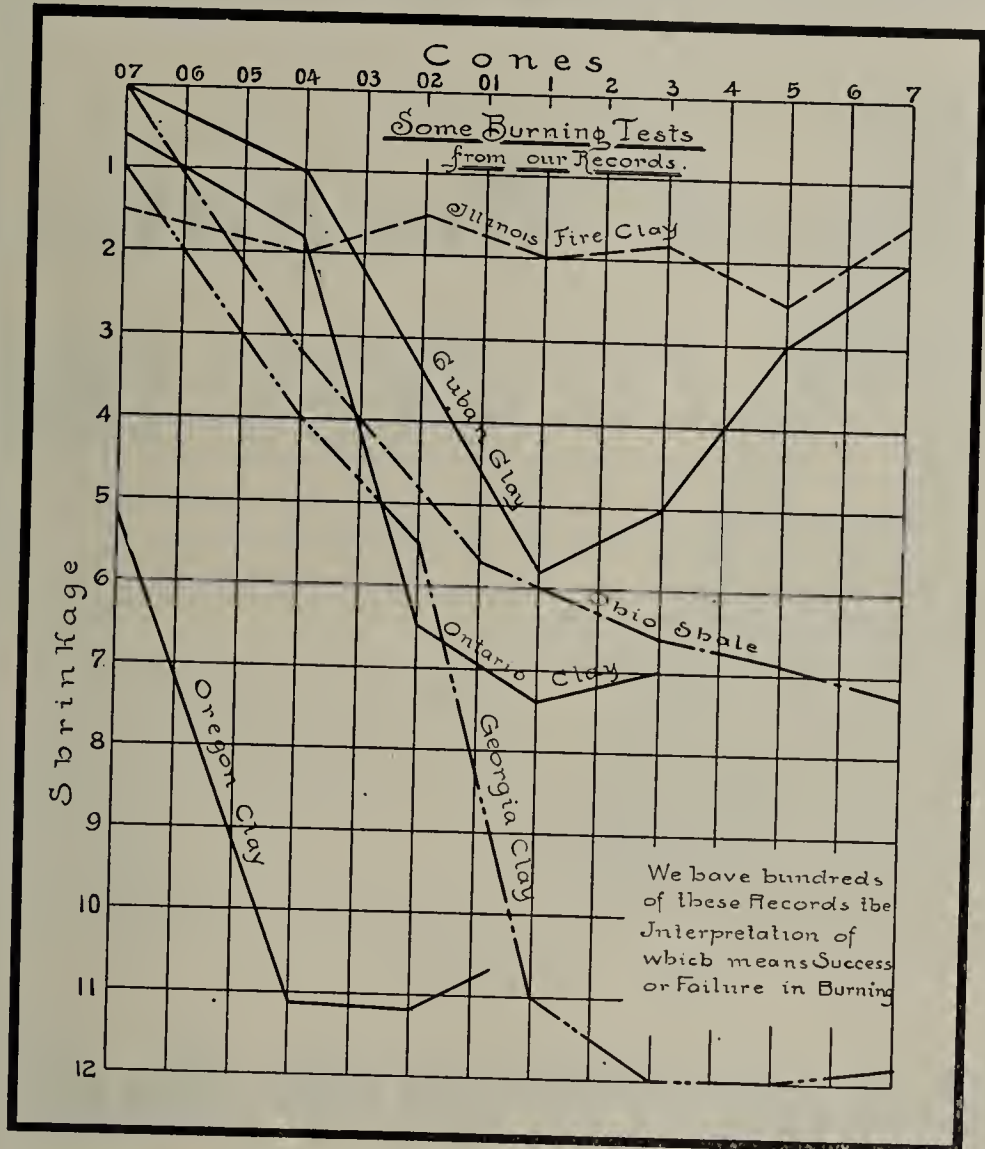
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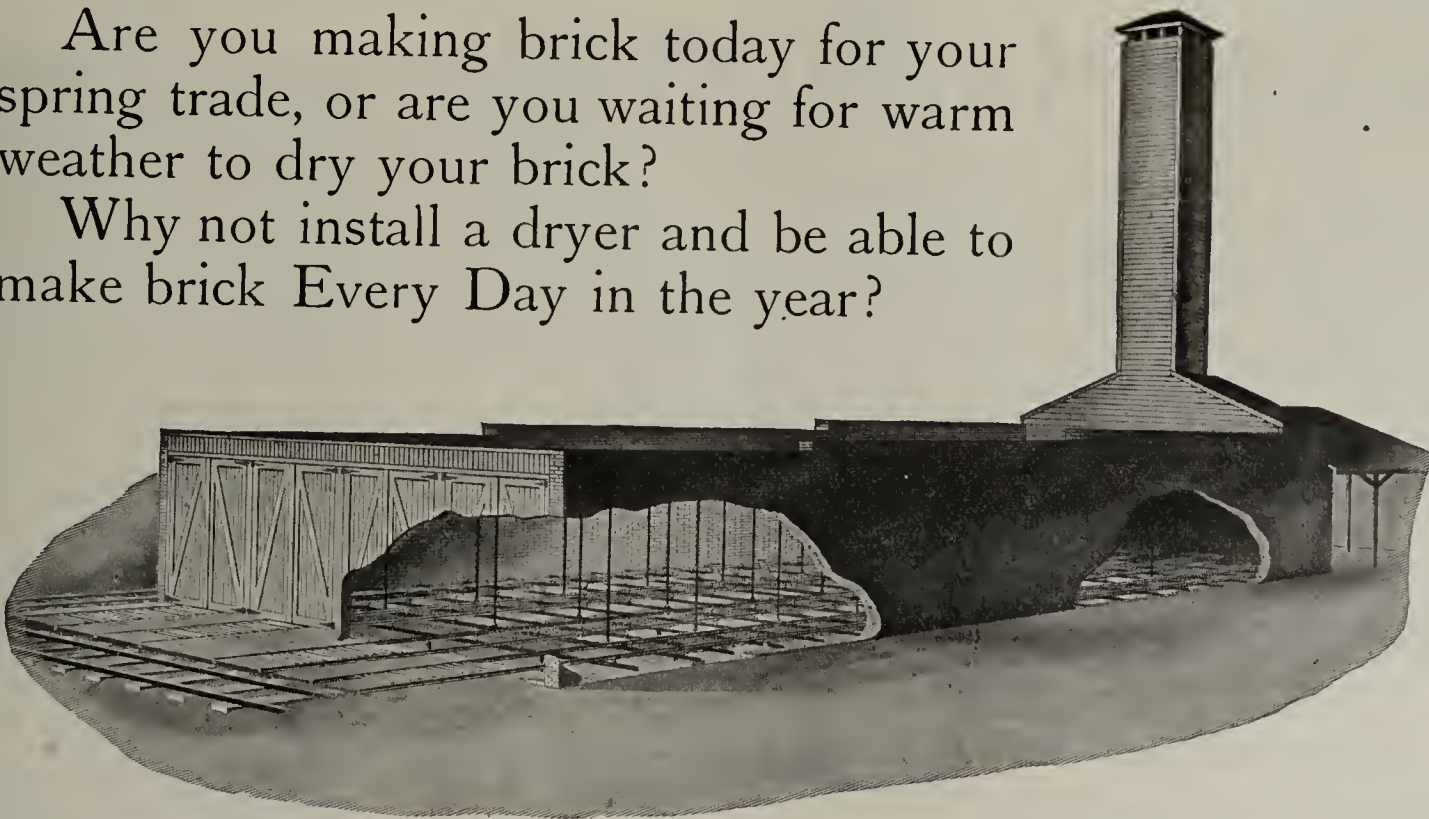
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Why not install a dryer and be able to make brick Every Day in the year?



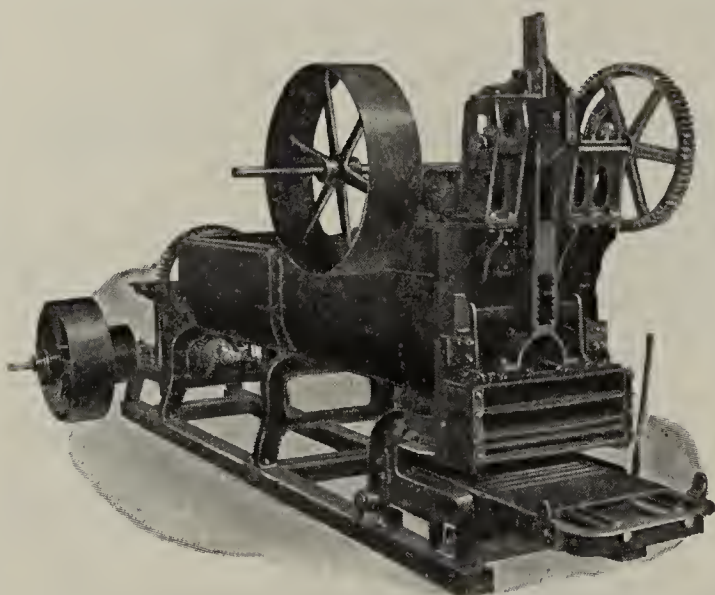
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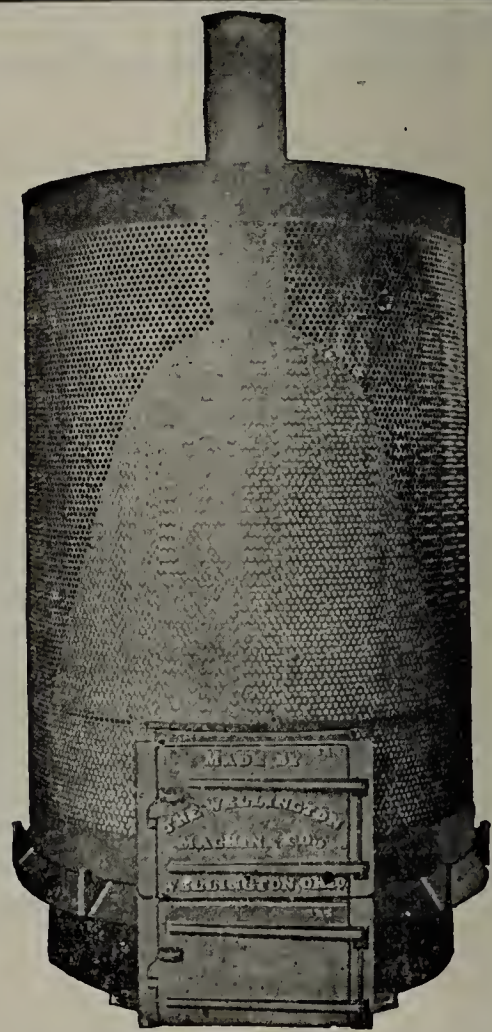
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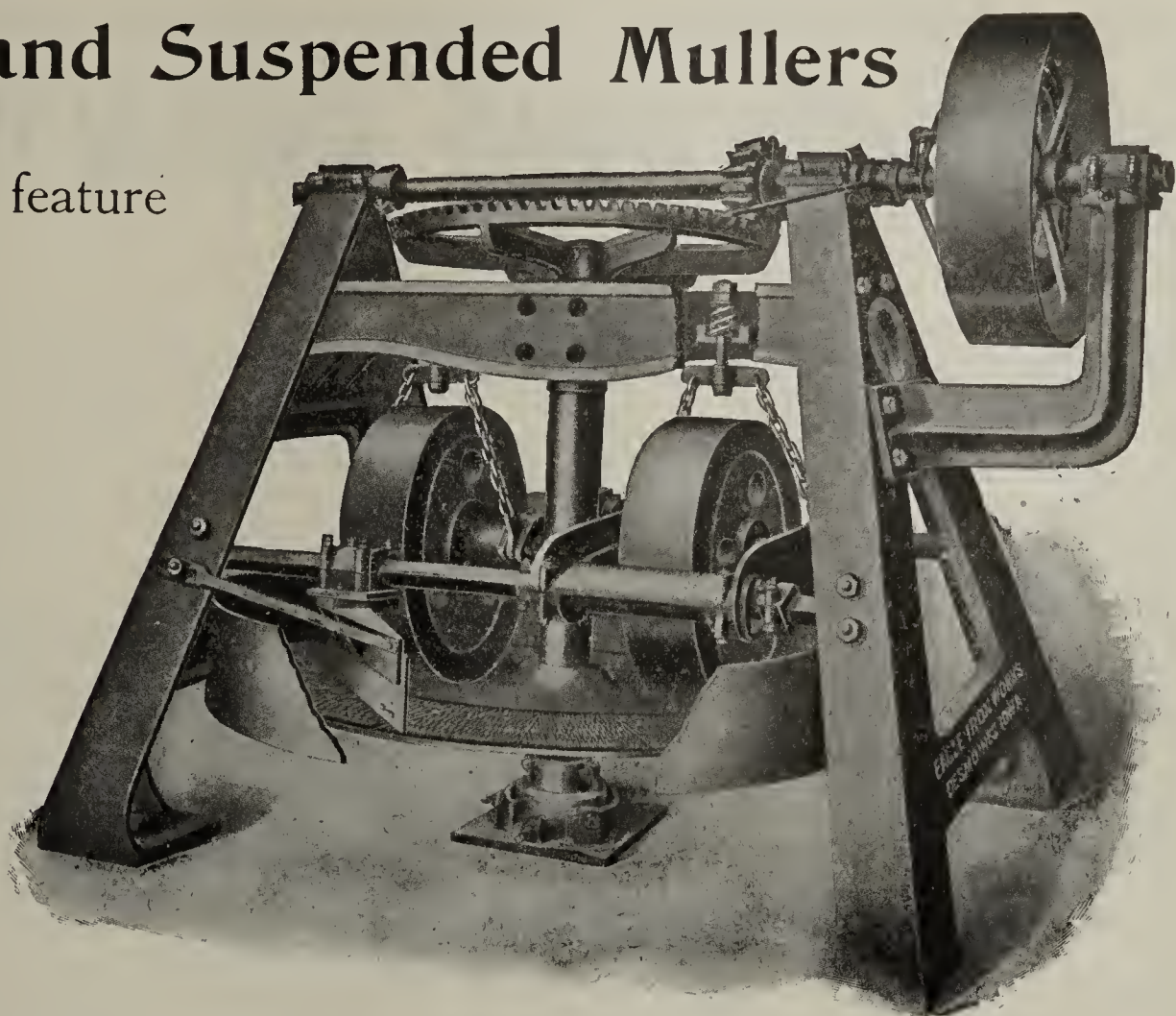
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Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.

BOOKS FOR CLAYWORKERS.

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An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryer, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors now in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

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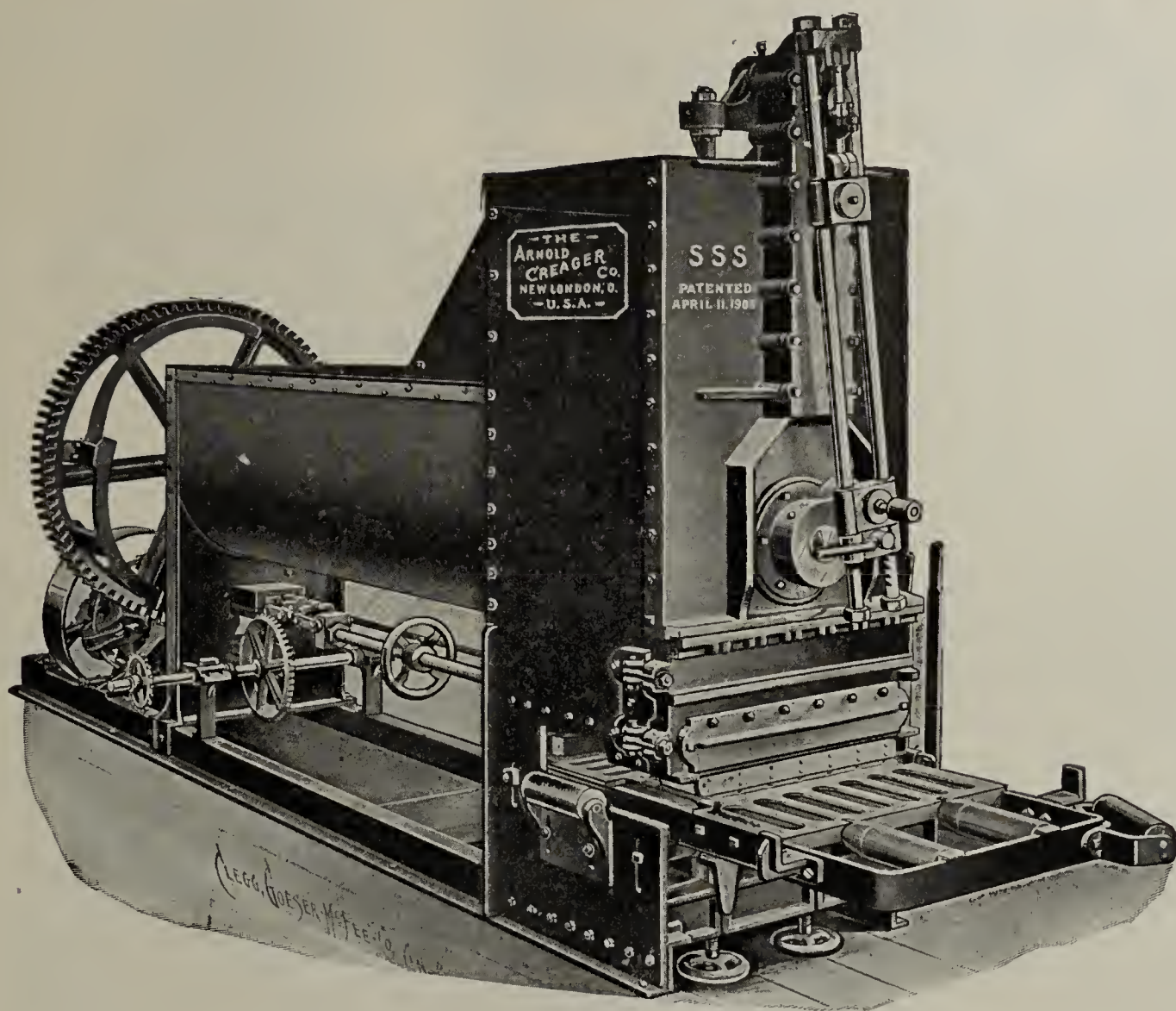
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Every Brickmaker should insure himself against loss through poor machinery by taking out a policy NOW with the Arnold-Creager Company, and adopting one of their S-S-S all-iron-and-steel Brick machines. A perfect combination of Simplicity and Strength. Few parts, and all Automatic. Inside Press, exerting tremendous pressure, easily regulated. Twelve feet of tempering capacity, and can easily run 16 moulds per minute. Solid construction enables the working of very stiff clay, making the ideal brick. Front of Press fitted with stone doors when desired. A strictly first-class machine at a small price.

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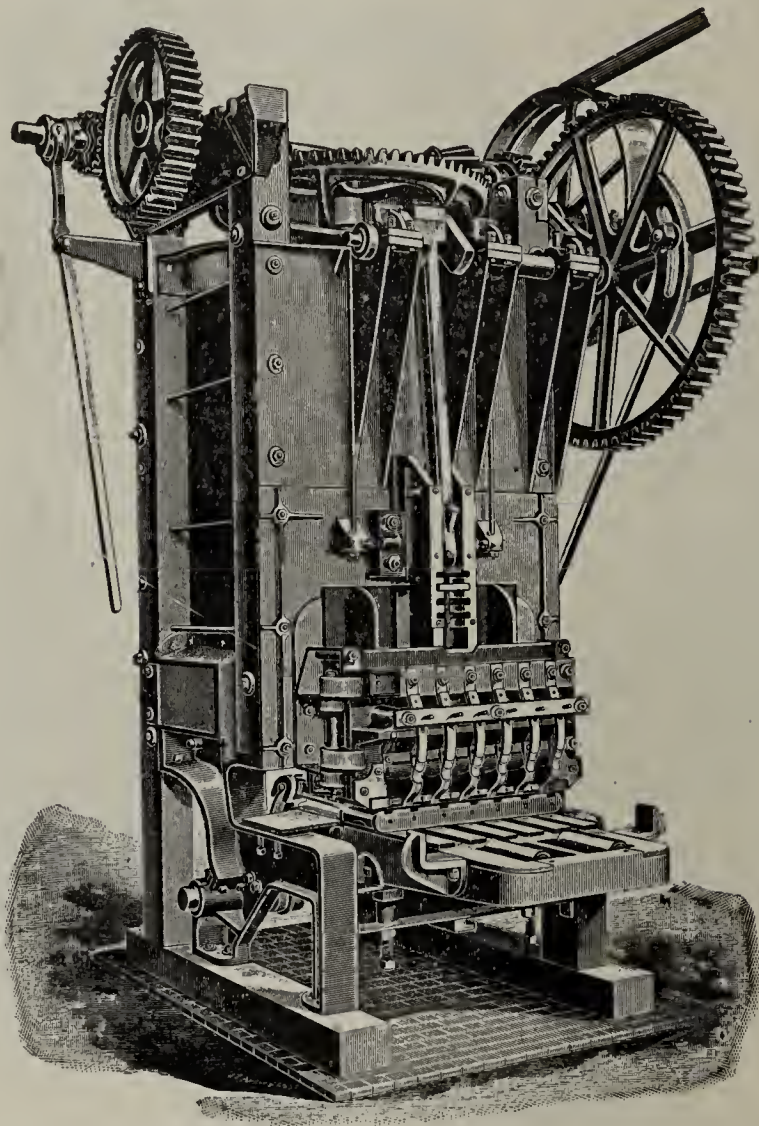
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CABLE "AUTOMATIC".

Mention The Clay-Worker.

GET YOUR MONEY'S WORTH.

NEW HAVEN BRICK MACHINES are by actual weight and measurement the heaviest soft clay brick machines on the market. They are thoroughly reliable and **all right**.



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Make a
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No one gives more for the money invested than we do.
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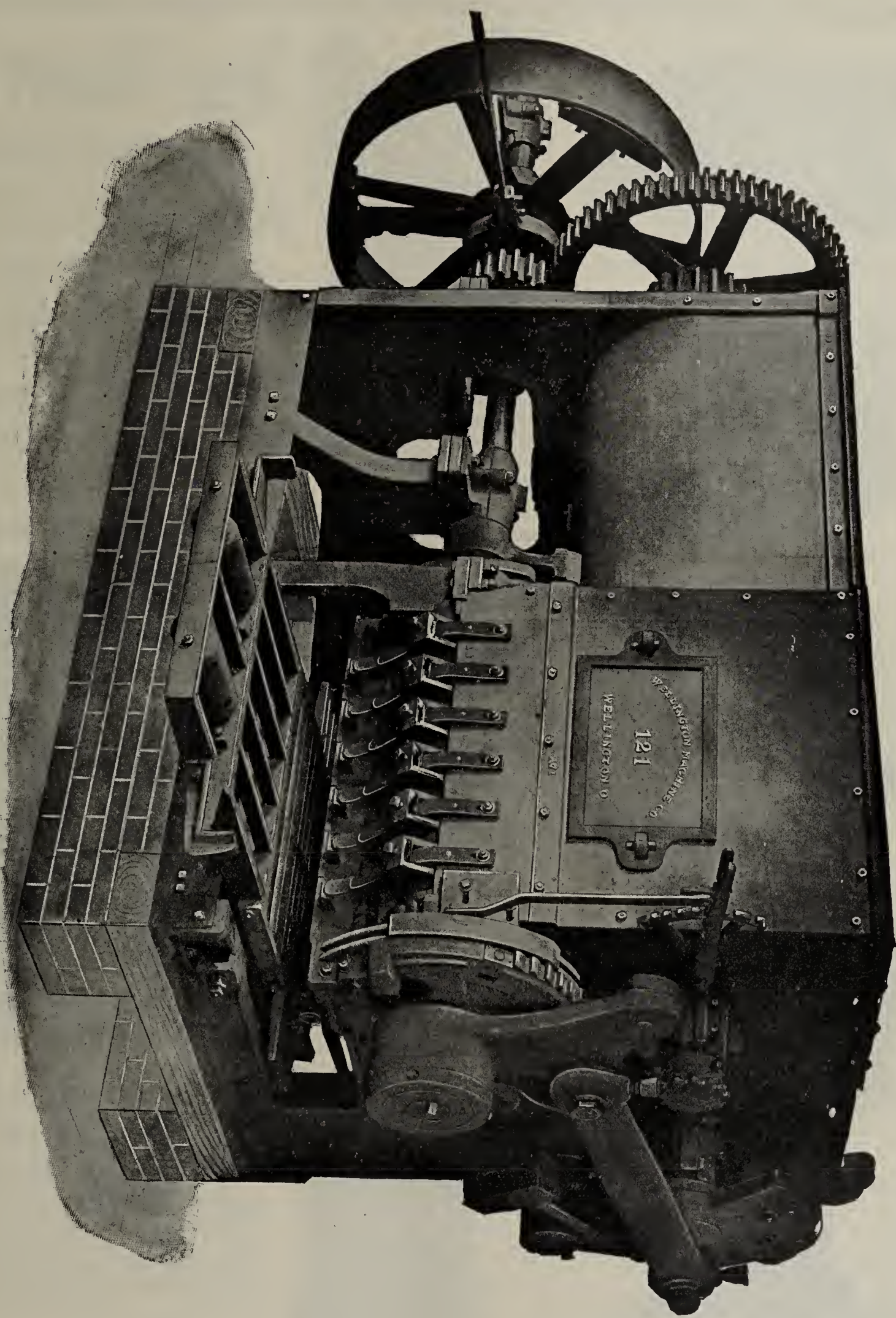
If you want a machine that will turn out first-class brick every day in
the week, every week in the month, every month in the year,
BUY OF US AND GET YOUR MONEY'S WORTH.

The EASTERN MACHINERY CO.,
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OVER
235
"Monarch"
Brick
Machines
in use.

OVER
565
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Machines
in use.

WRITE
to us
regarding
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grators,
Pug Mills,
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and all
kinds of
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Castings.



The Big "No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
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brick unless you
have our

ROLLER-BEARING
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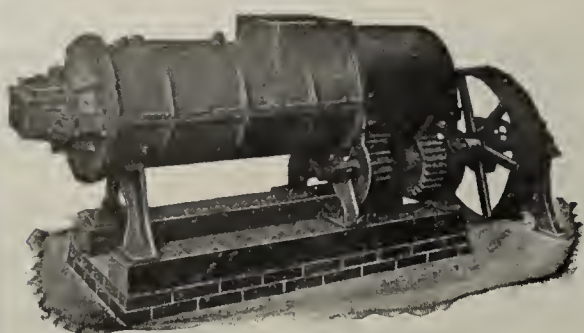
The Wellington Machine Co.,

WELLINGTON,

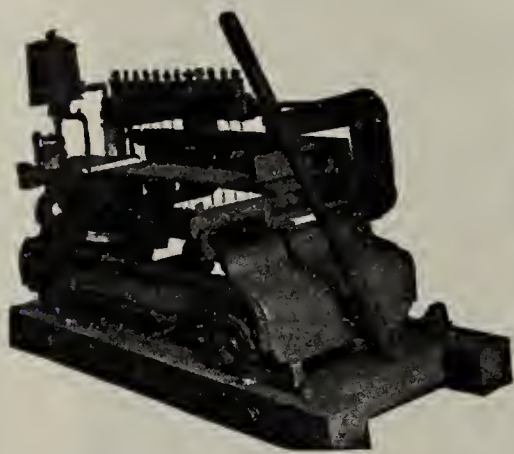
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Send for Catalogue.

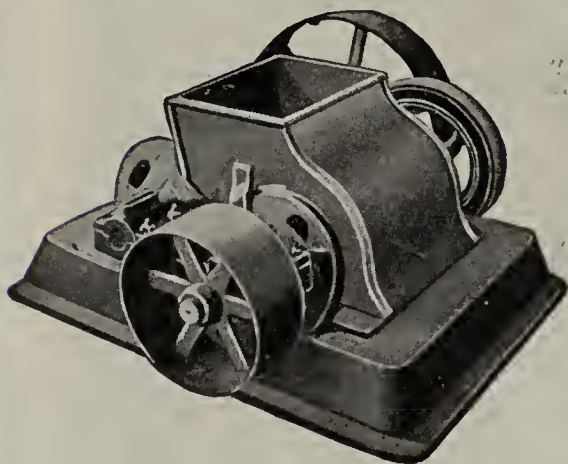
Mention the Clay-Worker.



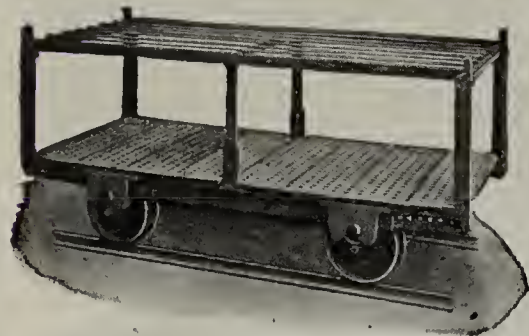
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HIGH-SPEED CRUSHER



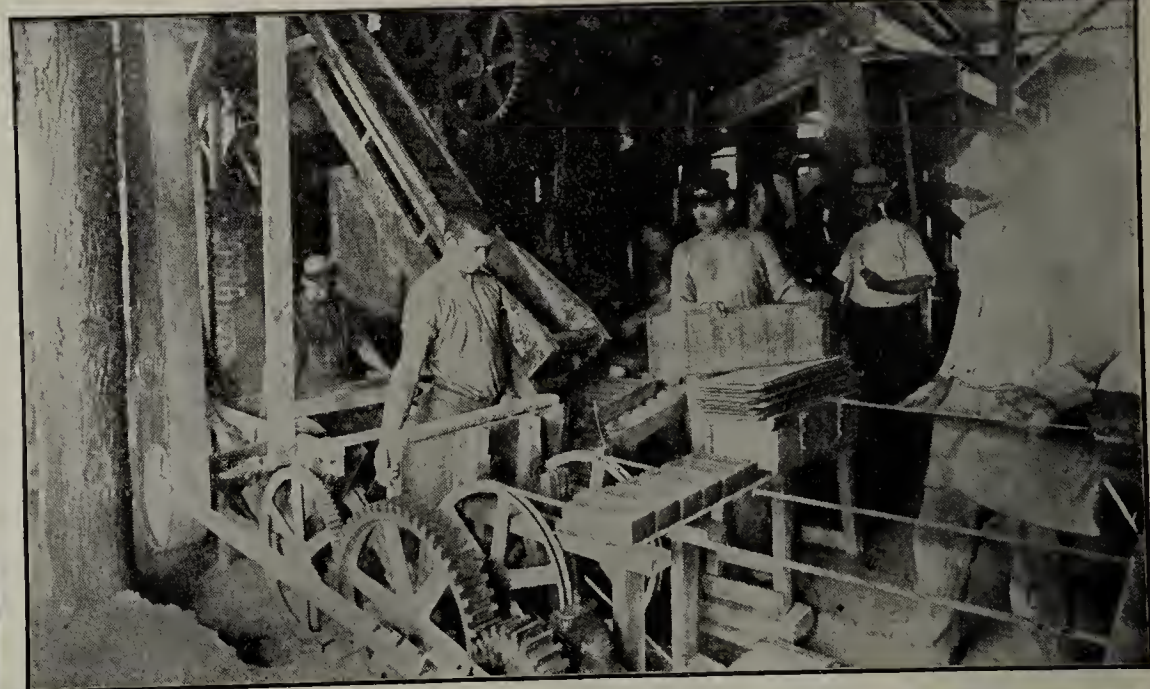
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STYLE "A" BRICK MACHINE



HANDLING BRICK FROM THE MACHINE TO THE DRYERS.



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THE "MARTIN"

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IS FULLY GUARANTEED

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LET US FURNISH
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LET US TALK OVER THE DRYER
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PRACTICALLY FIRE-PROOF.

WRITE FOR PARTICULARS
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BRICK DRYERS

ADAPTED FOR EITHER
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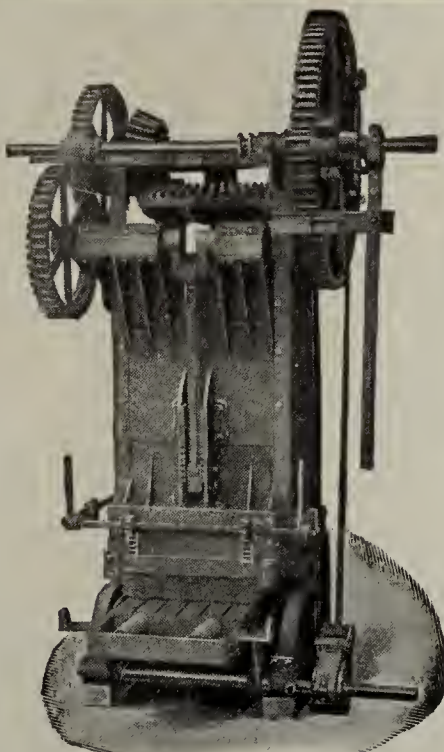
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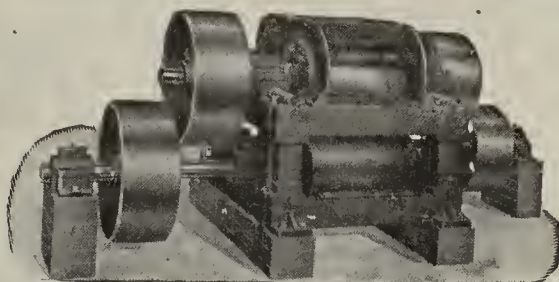
PATENTED

Feb. 22, 1898 - - 599509
Oct. 10, 1905 - - 95520
Nov. 14, 1905 - - 804489
May 26, 1908 - - 888831

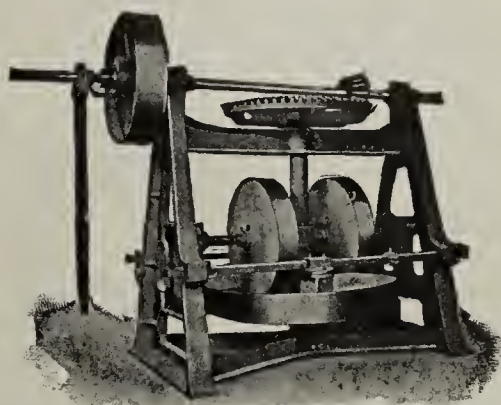
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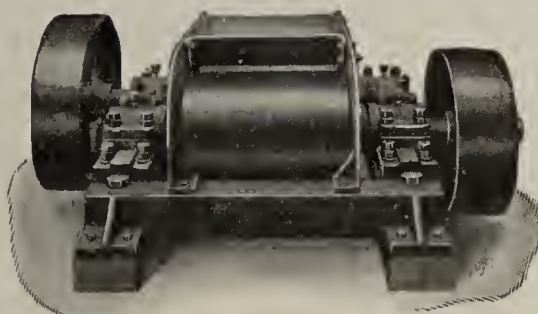
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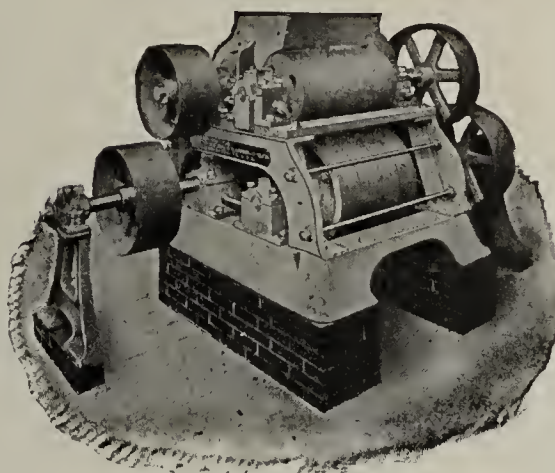
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DISINTEGRATOR



4-ROLL CRUSHER



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THE "MARTIN" COMPANY
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Own and Control These
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— NO ONE —

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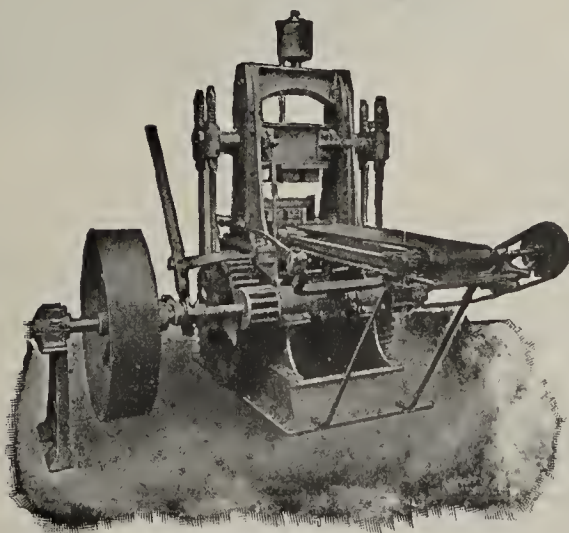
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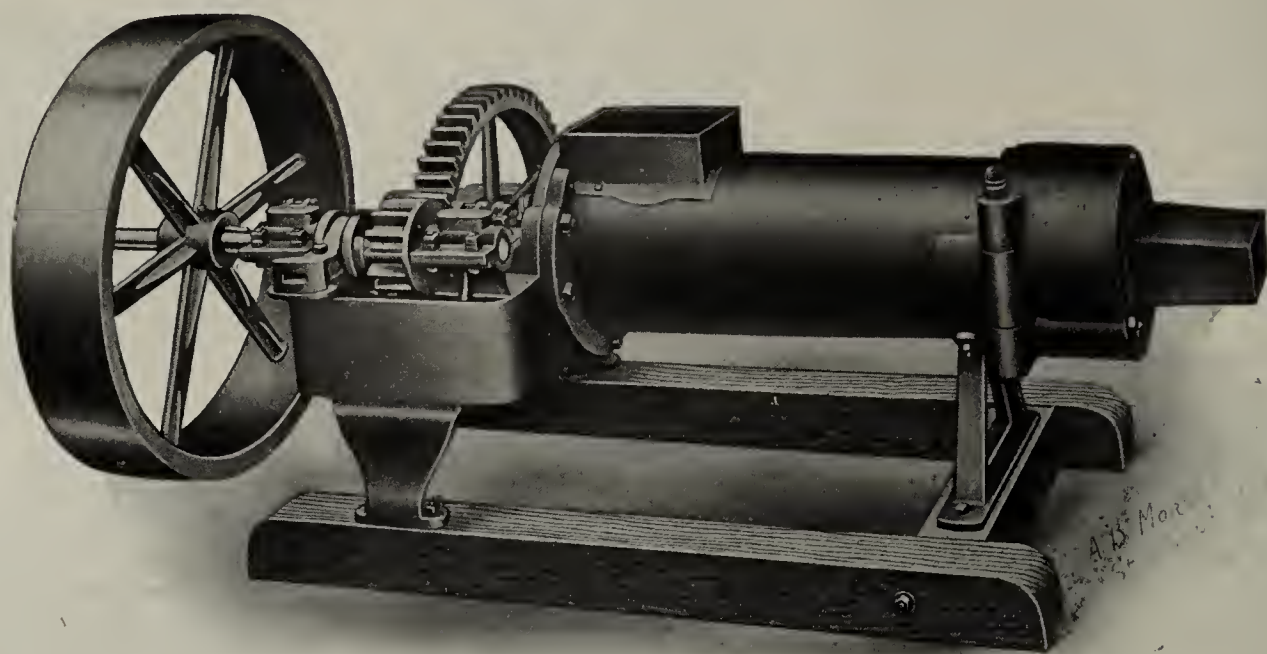
SAND DRYER



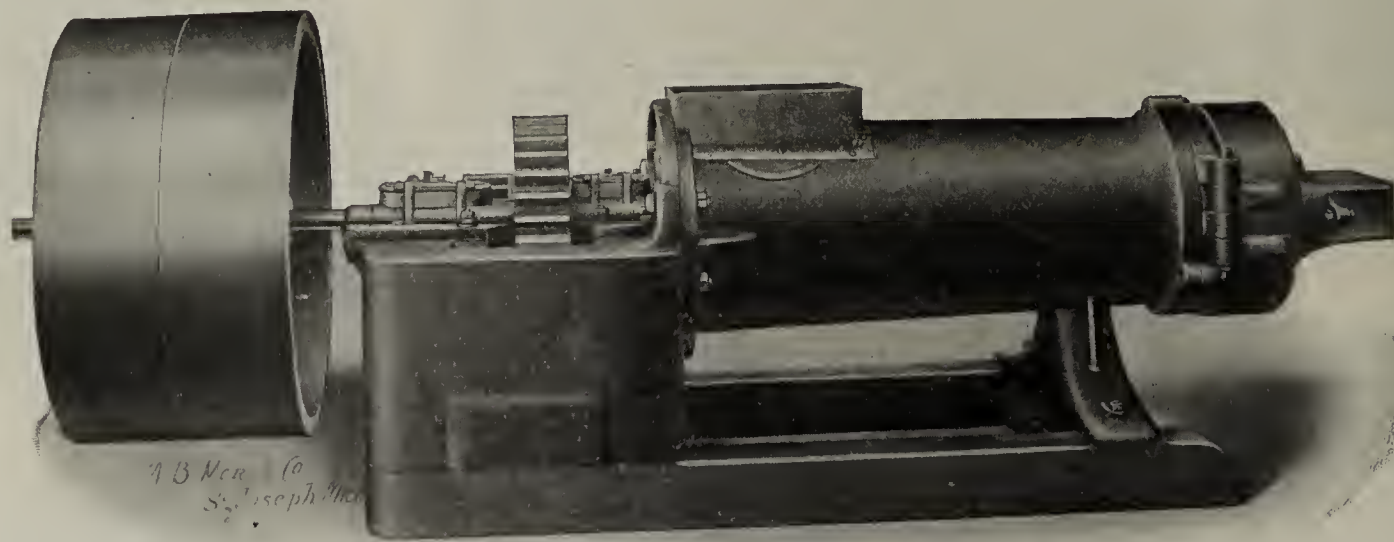
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TO MONEY SAVERS:

Here are two money-saving machines, both of moderate price.
Run light and are guaranteed against breakage.
Write us for full details.



No. 1A Brick and Tile Machine, With Square Hopper.
Capacity 15,000 brick or 5,000 to 8,000 4-inch tile or over, daily. Horse power required, 20.



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Capacity 12,000 brick or 5,000 to 8,000 3-inch tile or over daily. Horse power required, 10 to 12.

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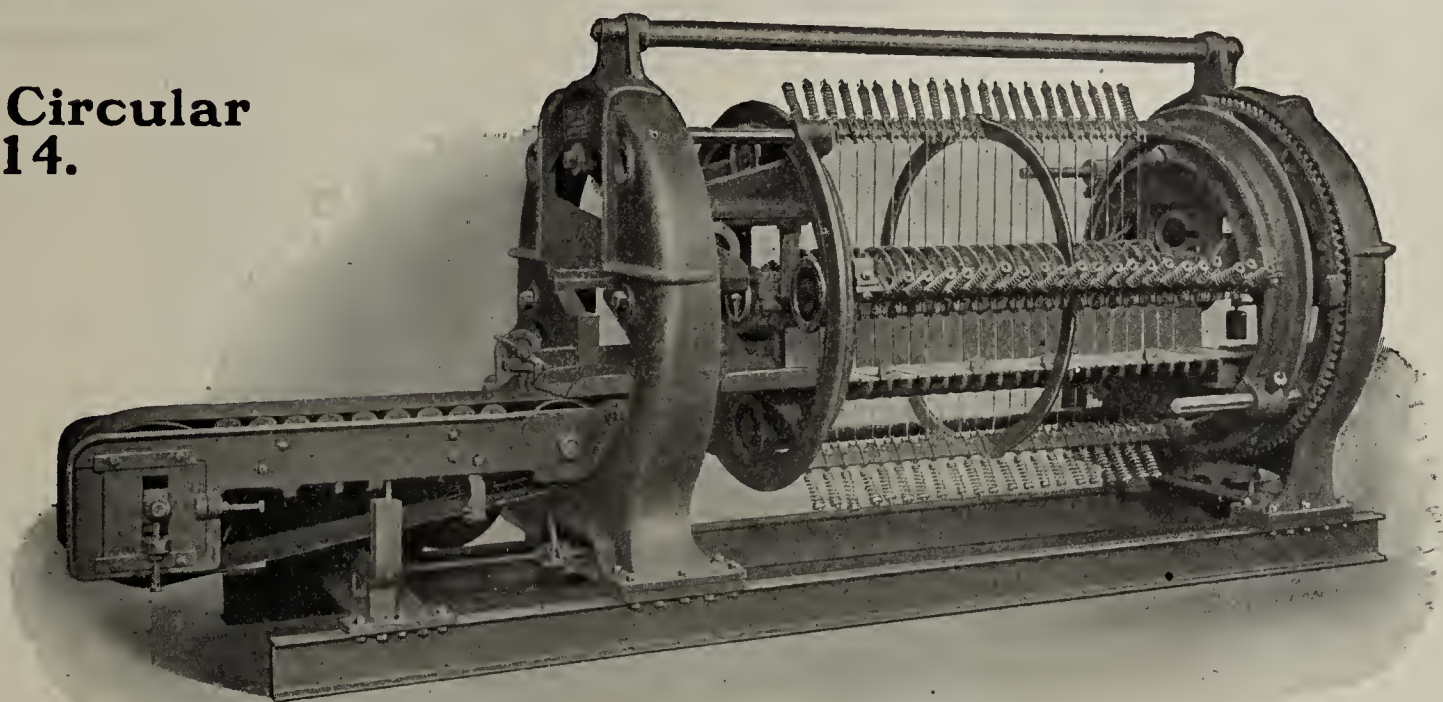
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COMPLETE STIFF-MUD EQUIPMENT.

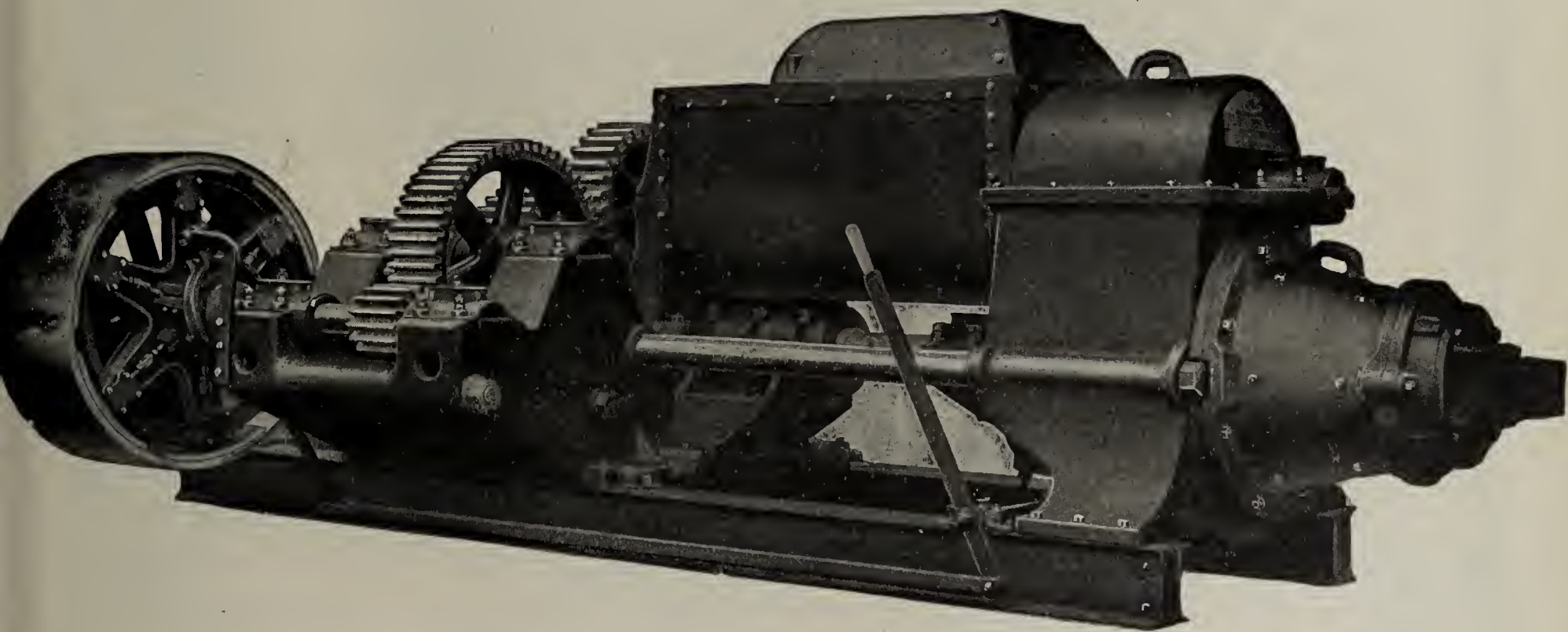
AUGER MACHINES WITH OR WITHOUT COMBINED PUG-MILL.

**Write for Circular
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Self-Contained.
Accessible.
Simple Cutting
Mechanism.
All wearing
parts above clay-
column and out
of dirt.
Capacity 100,000
Brick in 10 hours.
Cuts Brick with-
in 30 inches of
Brick Machine
Die.



ROTARY AUTOMATIC CUTTING TABLE.



"CANTON SPECIAL" BRICK MACHINE.

Thrust Bearing Rebabbited Without Dismantling Machine.
Cut Steel Gears. Heavy Shafting. Self Contained. Accessible.
Capacity, 150,000 brick per day.
Our Piano Wire Screens are doing excellent work.

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We have both spur-gearred and bevel-gearred patterns and two sizes of each. They are all high-grade and are built to stand up under hard work.



THE BREWER NO. 28

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If you have not our catalog you better get it.

If Marked

 It's Good.

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 It's Good.

The Steele Automatic Cutter.



Messrs. J. C. Steele & Sons, Statesville, N. C.:

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Gentlemen—It is pleasant and delightful work when operating your No. 3 machine with a 20 h.p. engine and making 3500 bricks per hour. Your rotary automatic cutter can't be beat; it cuts square and smooth, Messrs. Bowers Bros. of the Canon-Brick Yard, came to my plant at Royston, Ga. to see my machine work and of course were so pleased they ordered one of your machines. I have run two machines of other manufacture and they were both more complicated and expensive to keep repaired. I recommend your machines to anyone entering the business.

Very respectfully,
W. E. STEVENSON.

(Signed)

We build a complete line of clayworking machinery.

Write for further information.

J. C. STEELE & SONS,

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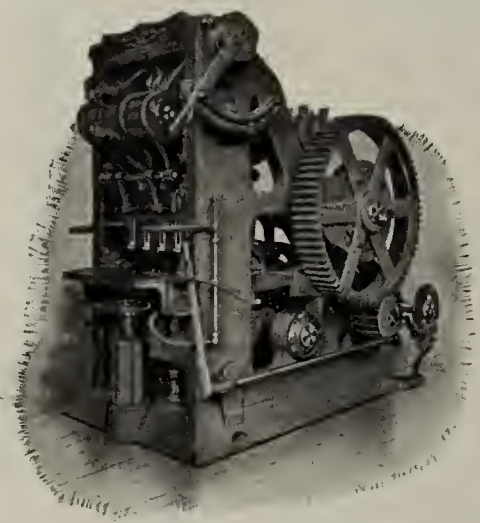
Mention The Clay-Worker.

STATESVILLE, N. C.

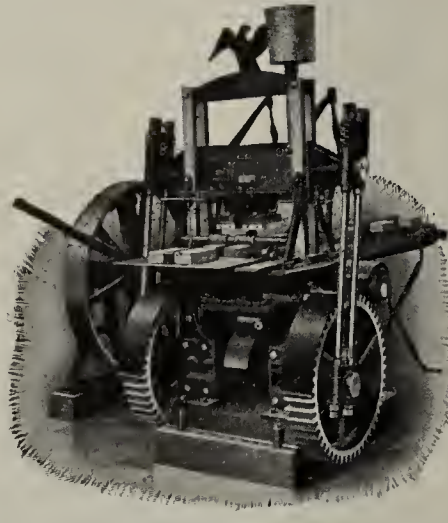
THE AMERICAN CLAY MACHINERY COMPANY

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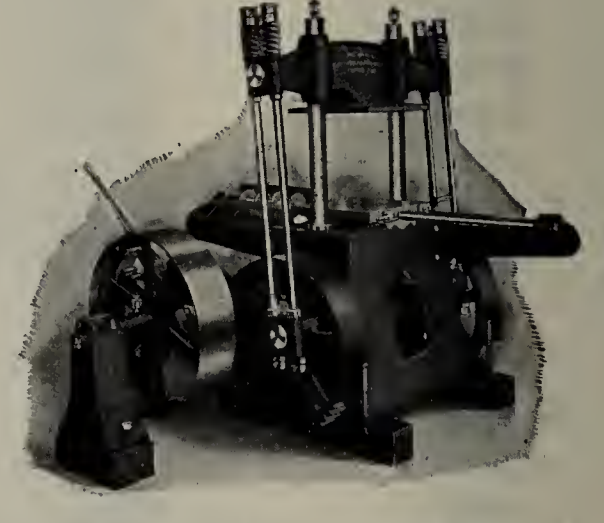
BUILT RIGHT
RUN RIGHT



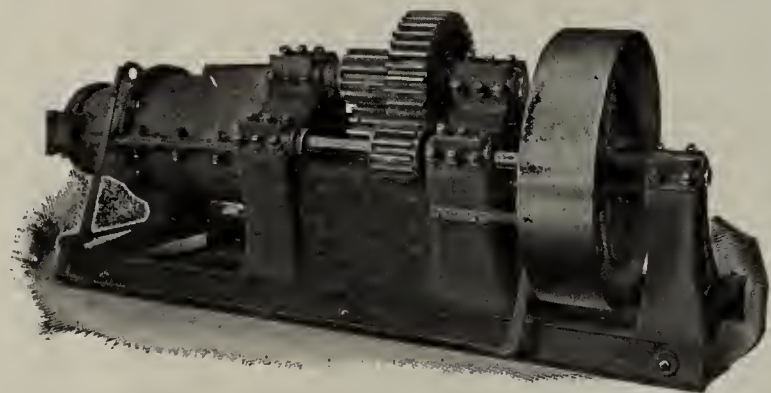
D-3 Dry Press



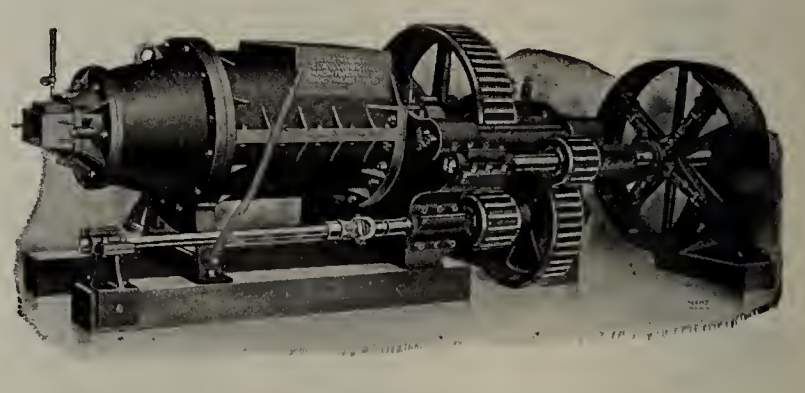
Eagle Re-press



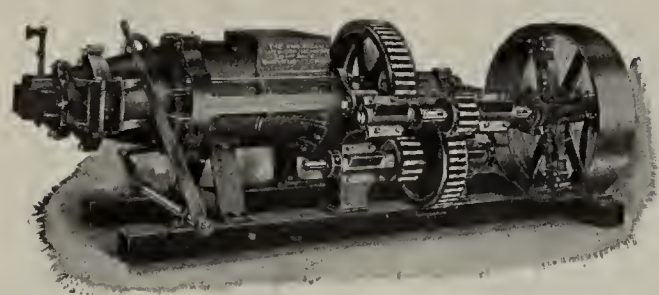
Roofing Tile Press



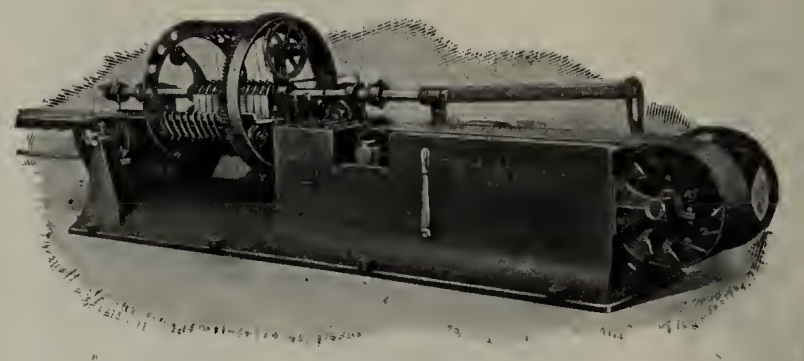
No. 65 Auger Brick Machine



Special Giant Brick Machine



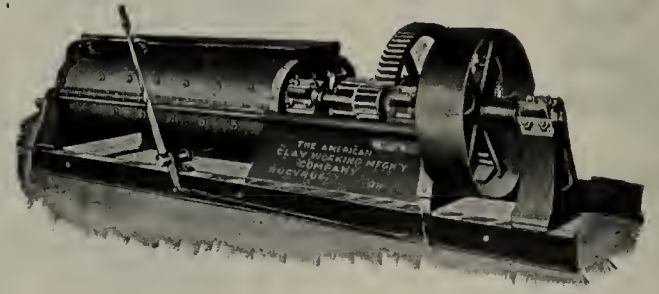
No. 2 Giant Brick Machine



No. 83 Automatic Cutter



No. 51 Electrical Driven Pug Mill



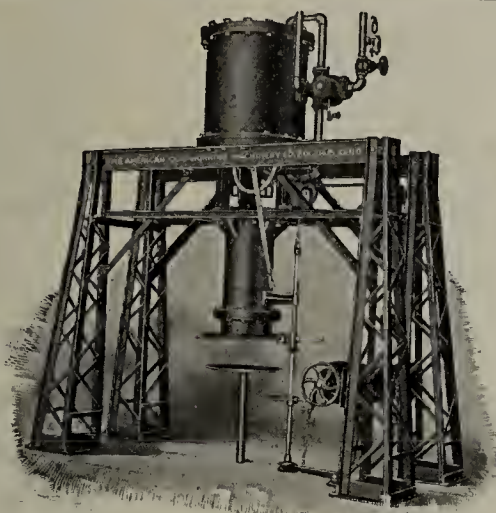
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We Build Every Machine and Every Appliance Needed for the Manufacture of Every Class of Clay Products by Every Process.

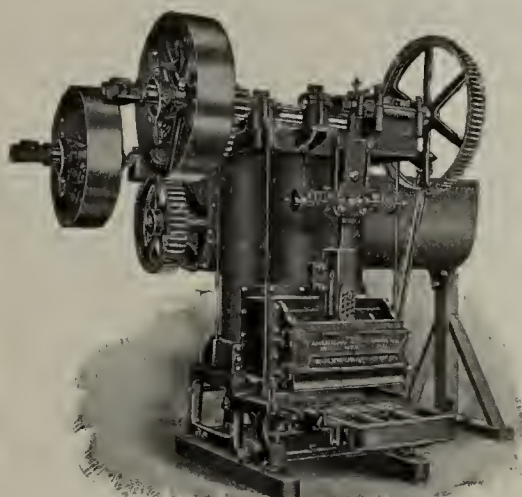
THE AMERICAN CLAY MACHINERY COMPANY

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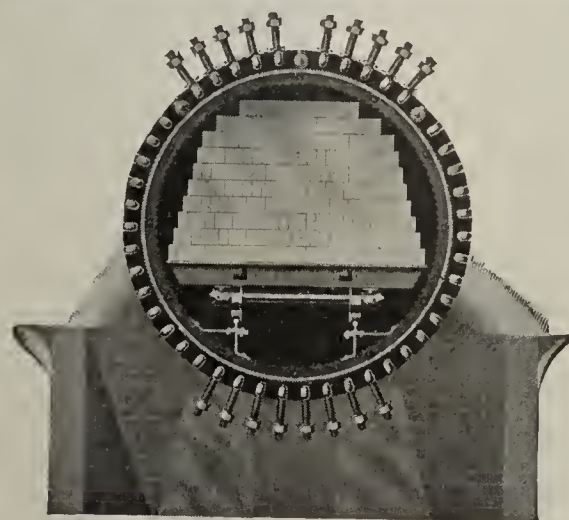
BUILT RIGHT RUN RIGHT



Sewer Pipe Machinery



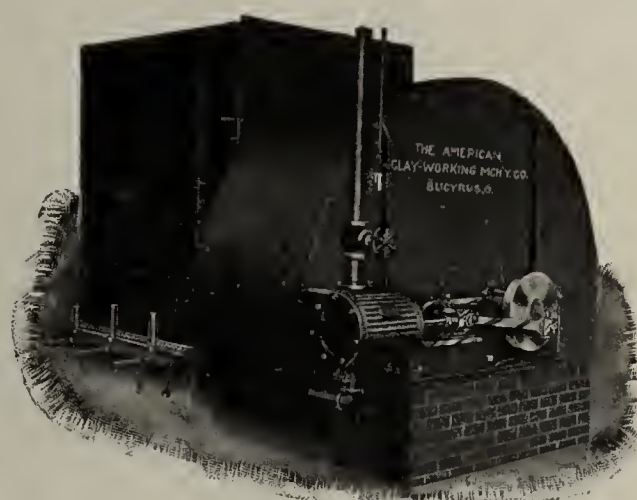
Upright Stock Brick Machine



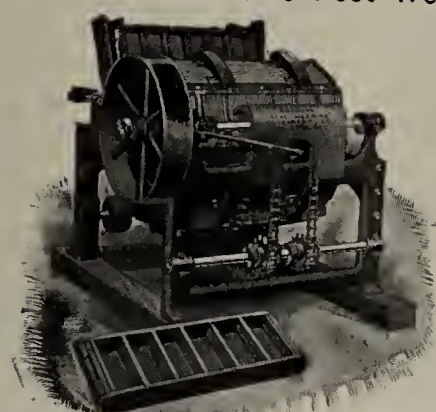
Sand-Lime Brick Machinery



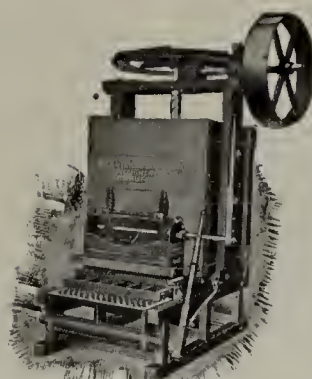
No. 64—9 Foot Wet Pan



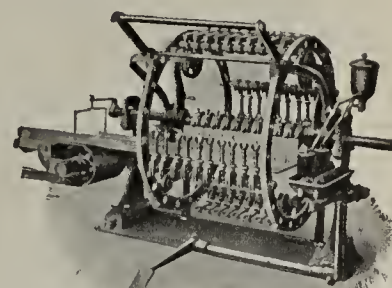
Blower Dryer Apparatus



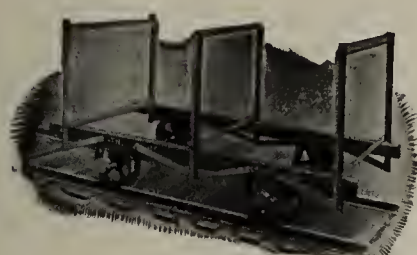
Mold Sander



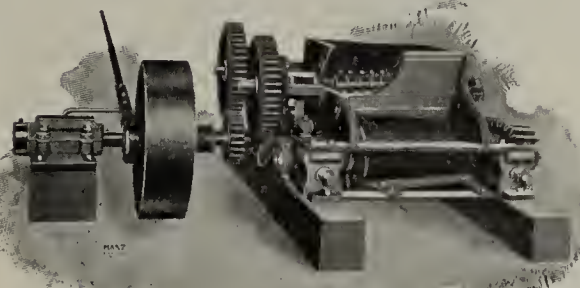
H. P. Brick Machine



No. 62 Hand Power Cutter



Dry Cars



No. 25 Smooth Roll Crusher

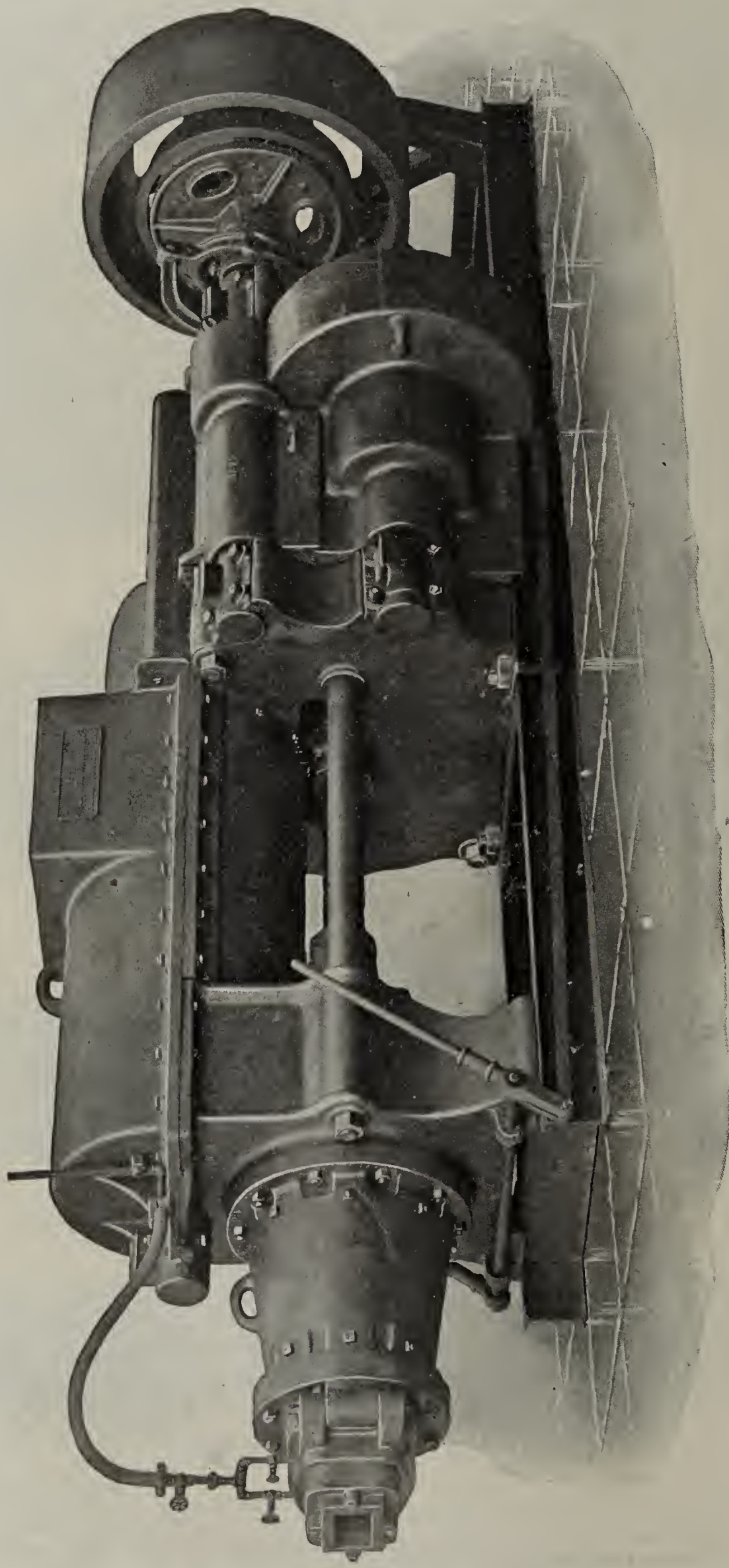


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We Are Much the Largest and Much the Most Extensive Manufacturers of Much the Best Clay-working Machinery in the World.

Mention The Clay-Worker.

Another Brick Machine.



This is a Brick Machine of massive proportions and of modern construction throughout, designed for large capacity and severe service. The gearing, shafting and other parts are very heavy. The gearing is protected by a removable dust and accident proof covering, hinged for convenient access to the interior. The feeding chamber is of ample diameter and length, and this result is obtained without excessive overhang of auger shaft. The auger shaft is supported by three journal bearings of sufficient distance apart to give it a substantial support. The part of the auger shaft in the clay chamber is about 4 feet in length, while the part outside is more than 9 feet long.

The machine is mounted on steel "I" beam sills between which are placed heavy cast iron spreaders with flanges, affording a substantial method of attaching the machine to its foundation. The outer end of the pulley shaft is supported by a rigid stand having an adjustable journal box.

Length of machine over all, 19 ft.

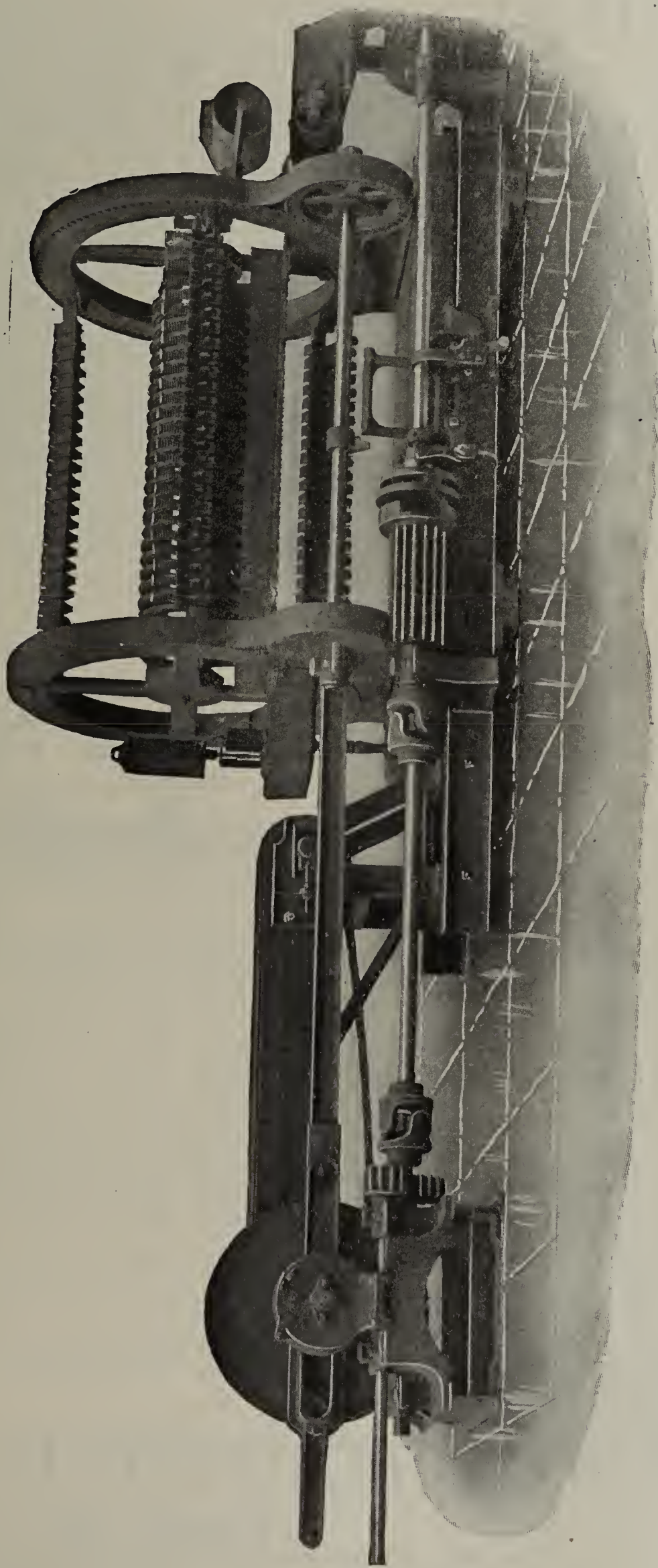
Height from floor to top of hopper, 5 ft. 8 in.

Size of hopper, 26-in. x 26-in. Weight of machine about 26,000 pounds.

E. M. FREESE & CO., Galion, Ohio.

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An Improved Rotating Automatic Cutter.



Our Rotating Automatic Cutters are the result of many years' constant hammering at a single type of Cutter. One of the three sizes we are building will suit your Stiff Mud Brick Machine.

We ship on trial—YOU say whether our guarantee of "satisfactory operation" is fulfilled. If desired a man will be sent to arrange details of installation. These Cutters will give you satisfaction when all others have failed.

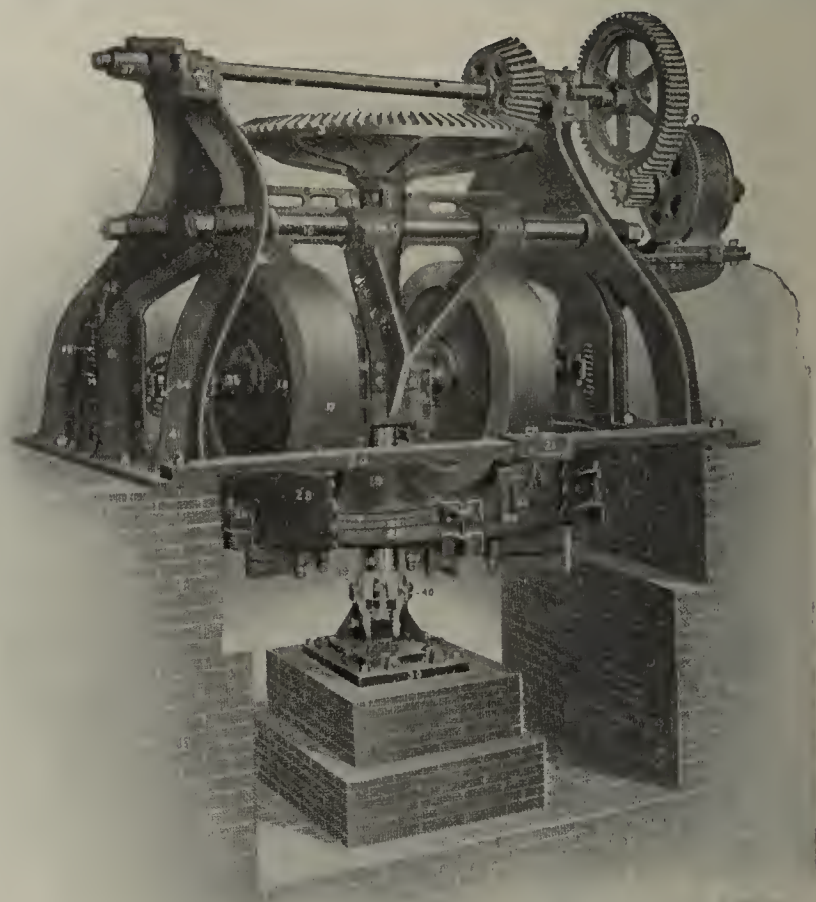
(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



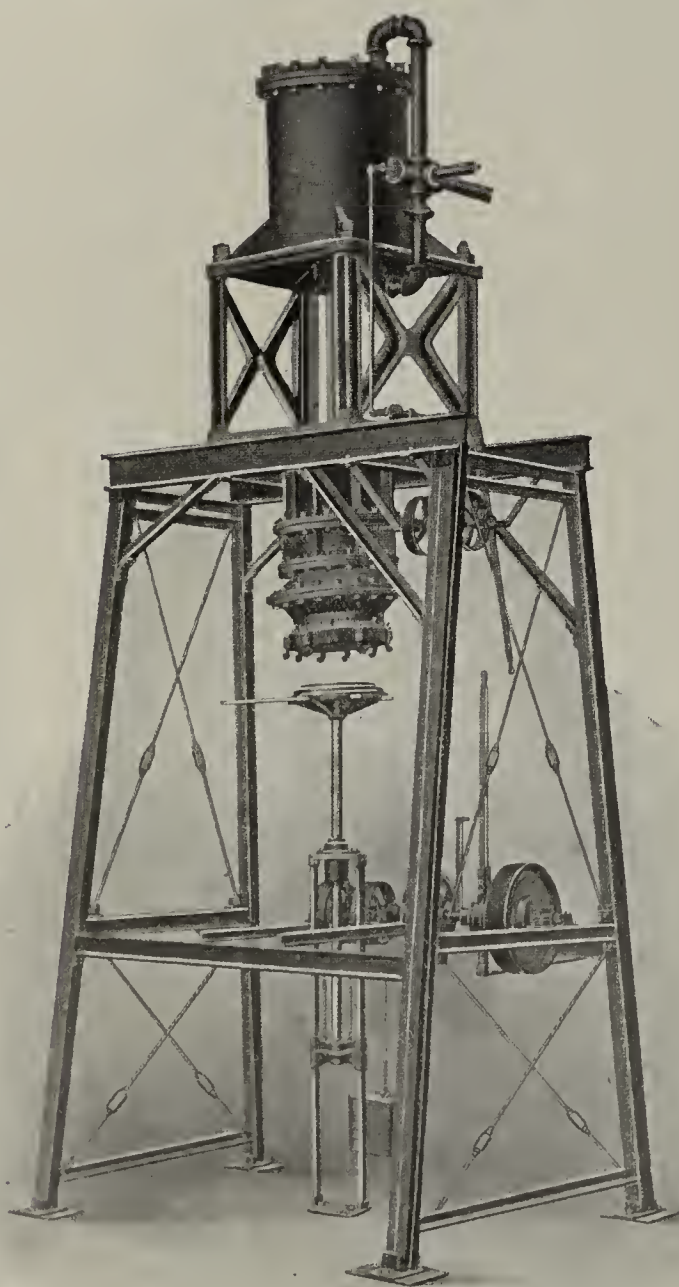
You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.



THE HARRINGTON AND KING PERFORATING CO.



PERFORATED STEEL FOR CLAY SCREENS.

Samples or blue prints with prices furnished on request.

For Chute or Gravity Screens, Shaking or Vibrating Screens, Revolving Screens, Dry Pan Screens.
For Cleaning and Grading Clay, Shale, Sand, Cement, Coal, Stone, Etc.
For Pallets or Trays, Car Bottoms, Drying Floors, Conveyor Bottoms, Separators, Etc.

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No. 231 North Union Street,
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JUST KEEP "A SHOVIN' 'N A PUSHIN'"

your cars of brick through the Dryer and that's all YOU'LL have to do IF your Dryer is a

Rodgers Waste Heat Dryer.

Shove your cars of wet brick in the Dryer any hour of the day and you can be sure of pushin' 'em out, twenty four hours later, full of "dry as a bone" brick, ready for burning.

You'll get the most satisfactory drying results in the least time, for the least money and with the least labor by putting in a Rodgers Dryer and just

"a shovin' 'n a pushin' "

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment
in the United States.

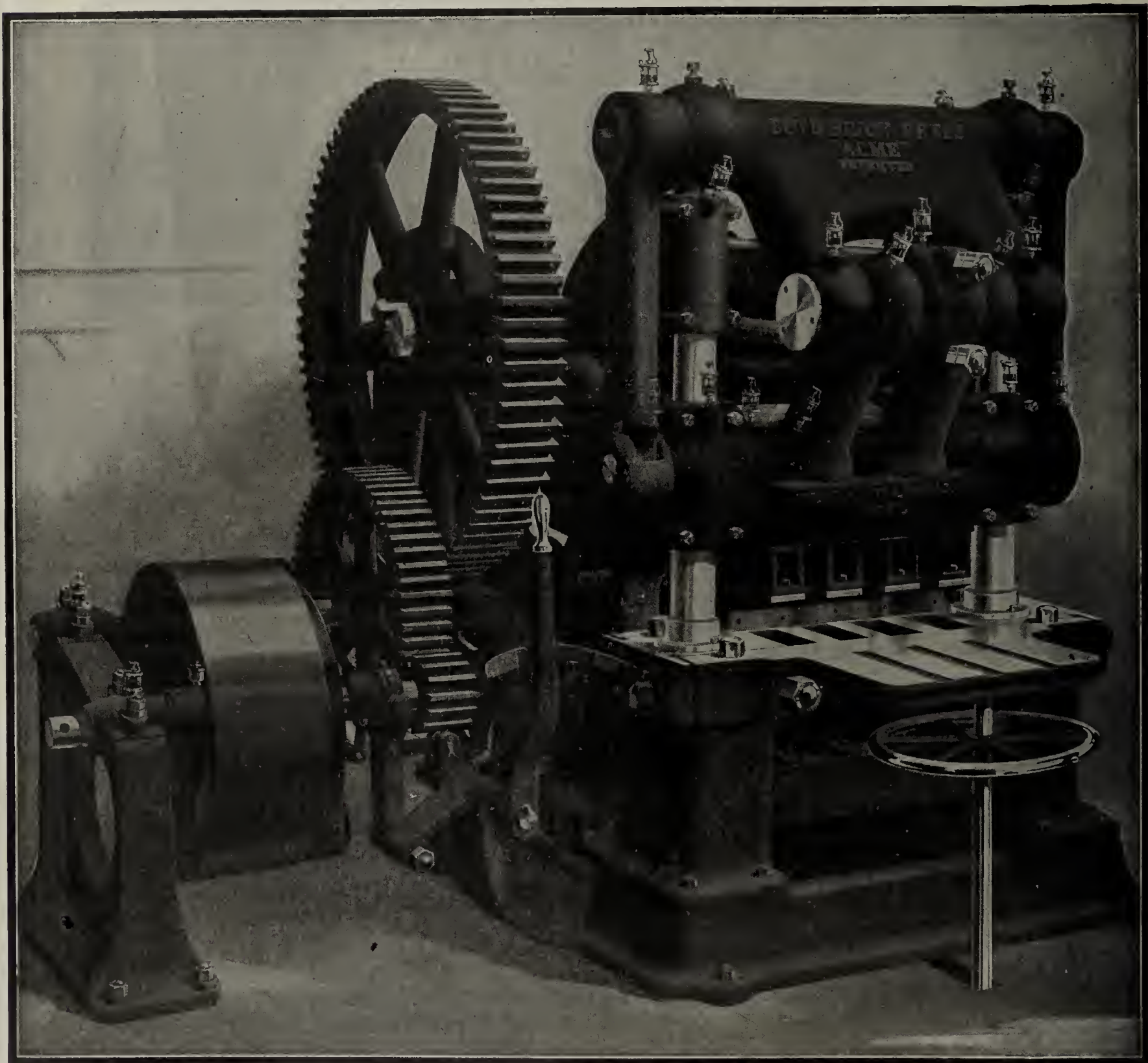
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The Boyd Brick Press

Four-Mold "Acme."



We have been building this type of machine for over ten years. It has all improvements to date and embodies all the special features of the original Boyd Press.

Detailed perfection, strength, endurance and quality of product have made THE BOYD the Brick Press by which all others are judged.

We will send to any responsible party a *Boyd Brick Press on trial* under the broadest and safest guarantee. We take the machine back if not satisfactory.

Chisholm, Boyd & White Company,

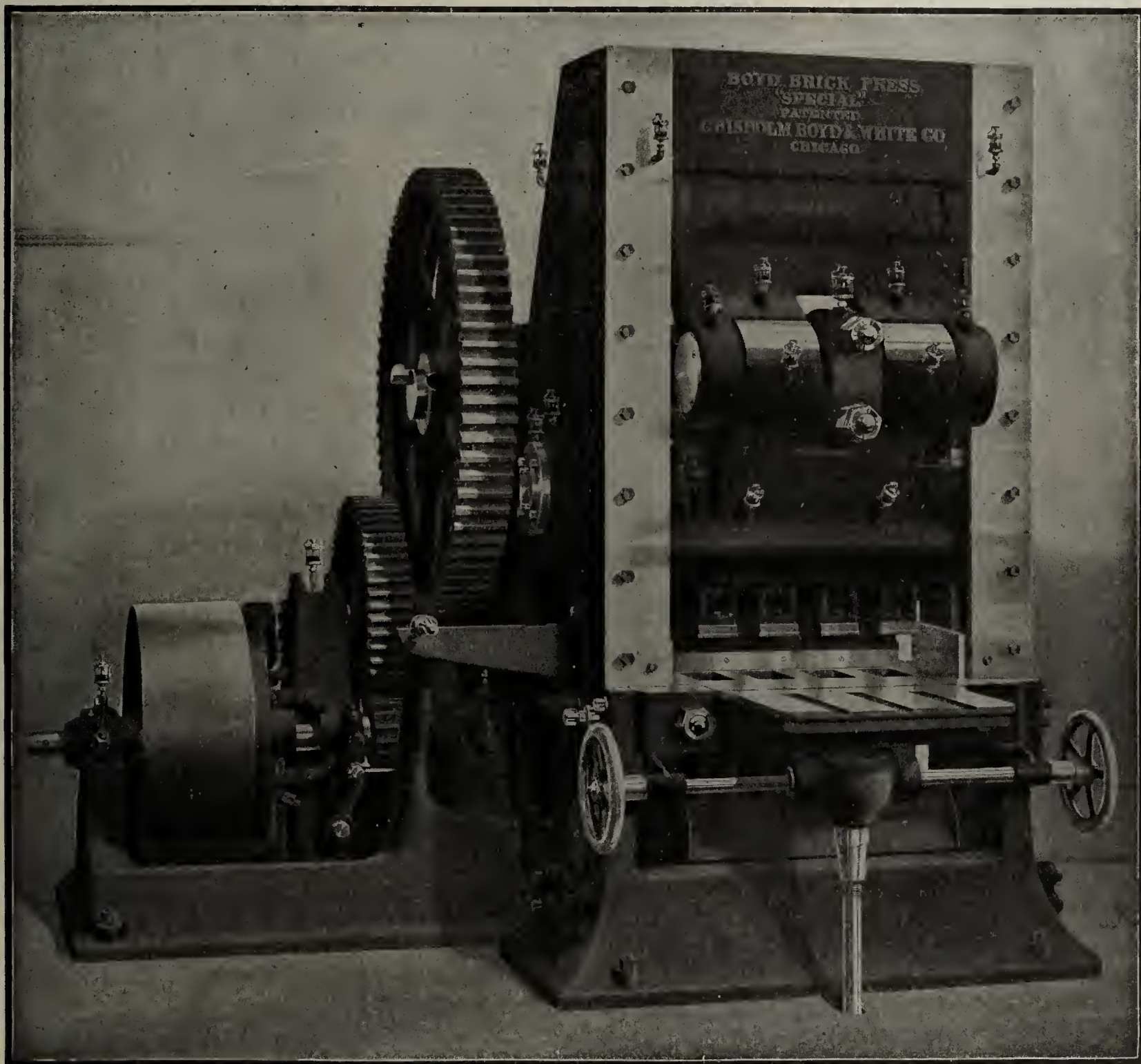
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The Boyd Brick Press

Built in Two, Four and Six-Mold Sizes.



FOUR-MOLD SPECIAL.

BRICK PLANTS designed and complete machinery equipment furnished. Machinery and product guaranteed.

More Boyd Presses in use than all other Press Brick Machines combined.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 19 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Grath Special Brick Press

Patented.

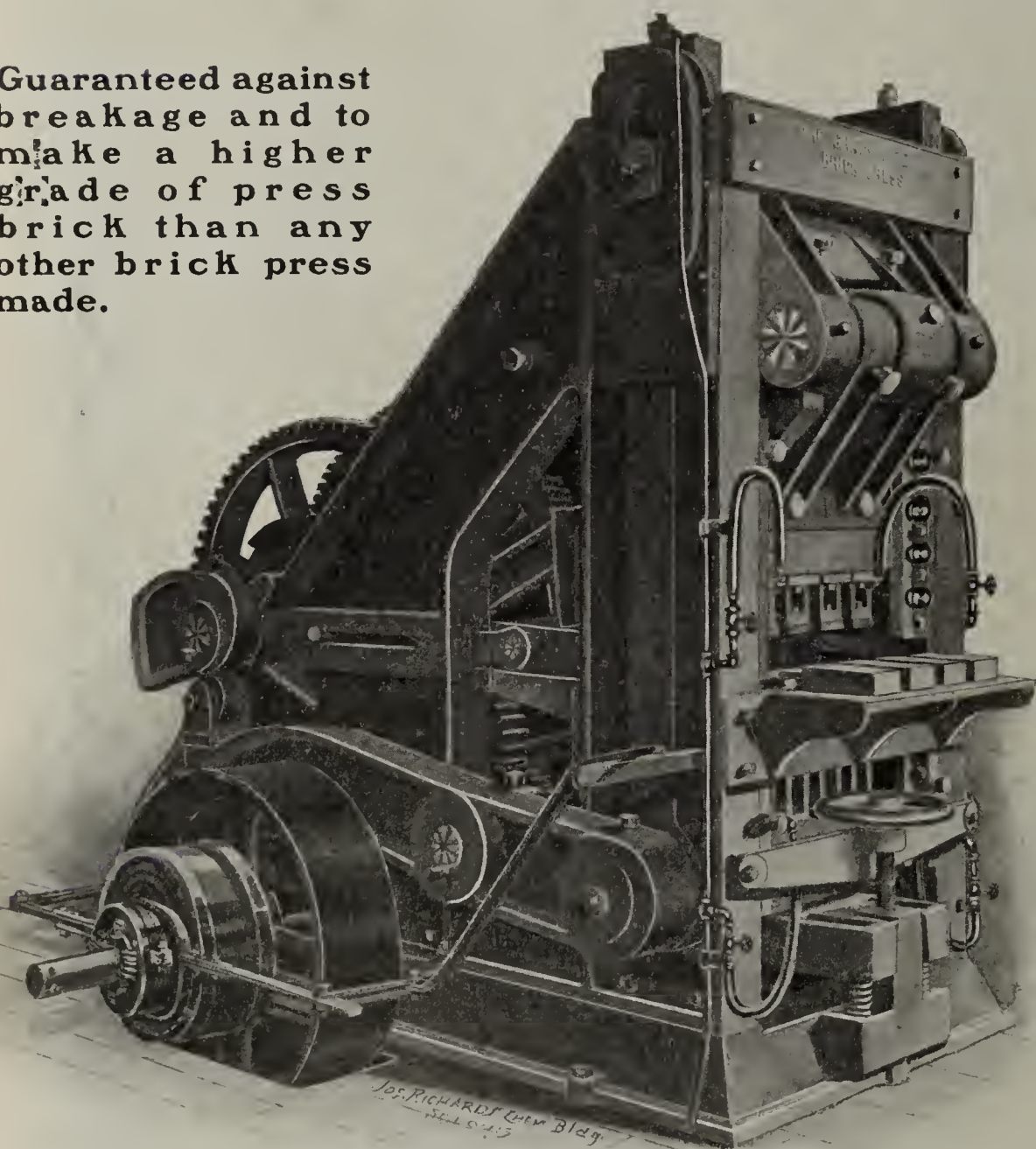
Made in Two, Three, Four and Five-Mold Sizes.

THE ONLY PERFECT BRICK PRESS

For SAND=LIME and DRY CLAY BRICK of Unequaled Quality.

FOUR MOLD MODEL.

Guaranteed against breakage and to make a higher grade of press brick than any other brick press made.



BRICKMAKERS

Do not buy Brick Presses every month or year.

When you **do** buy get a **modern** press. It costs no more than one which is **out of date**.

Unless the press is **double geared**, with gears between frames and bearings, which prevents all side strain and twisting of crank shaft, it is out of date and behind the times.

The above construction is contained in the **Grath Special** and is securely covered by patents. All infringements will be prosecuted.

THE PRESS OF TODAY.

THE ALBERTA PORTLAND CEMENT CO.

W. P. Grath, St. Louis, Mo.:

[Copy]

Sandstone, Alta., Sept. 26, 1907.

Dear Sir—Replying to your favor of recent date regarding Grath Special press purchased from you, would say that after working your press alongside another well-known make, your press has proved itself vastly superior in every way; it is stronger, simpler, easier of adjustment, makes more brick, and of much better quality.

After a long experience with presses, having operated five (5) different presses each of different makes, I consider yours "THE BEST YET," in short, "AN IDEAL PRESS."

Wishing you the success your press merits

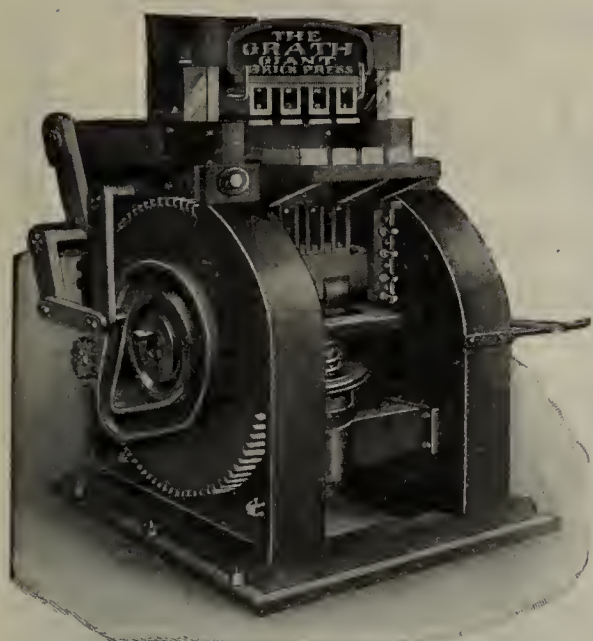
Yours truly, G. W. DELLER, SUPT.
Alberta Portland Cement Co., Limited.

Illinois Supply & Construction Co.,

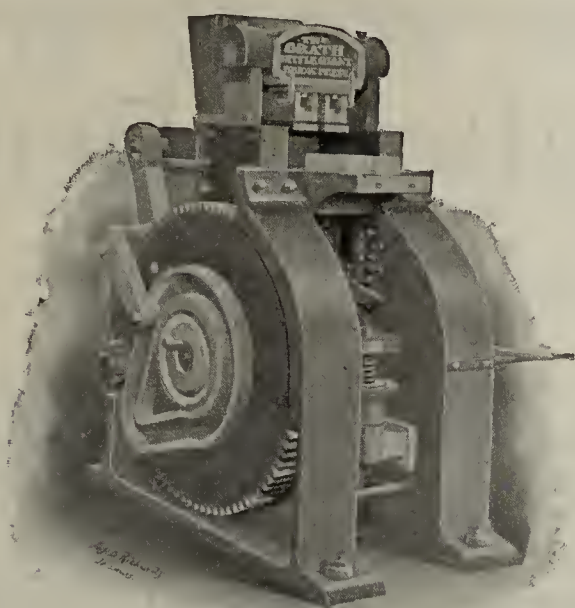
Suite 512 and 513 Holland Bldg.

St. Louis, Mo., U. S. A.

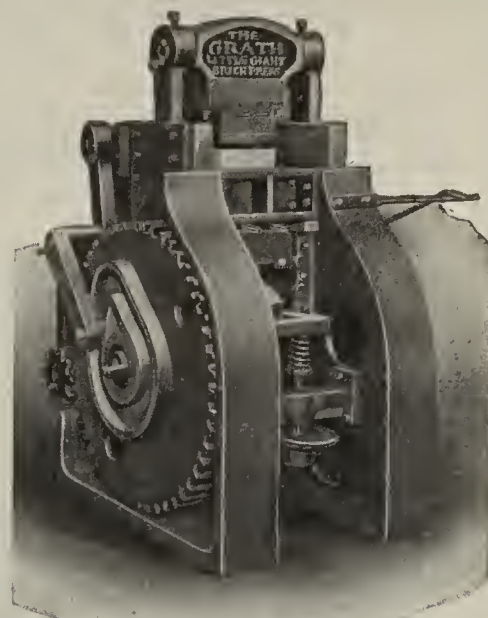
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**THE GRATH GIANT FOUR MOLD
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For Fine Press Brick
From Dry Clay or Sand-Lime.



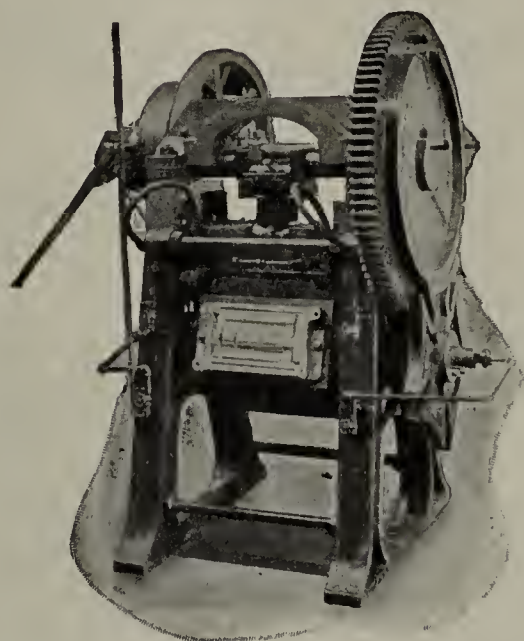
**THE GRATH LITTLE GIANT TWO
MOLD BRICK PRESS**
For Fine Dry Press Brick.



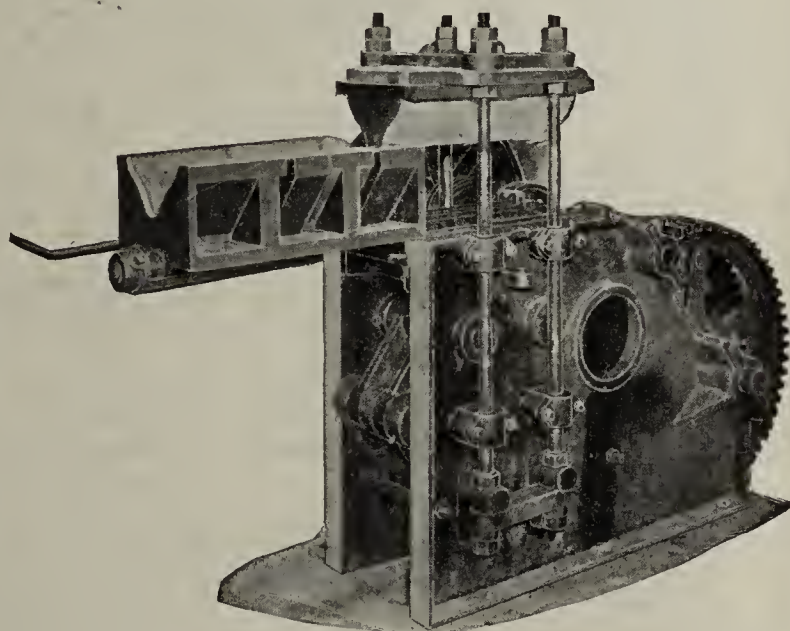
**THE GRATH LITTLE GIANT
ONE MOLD BRICK PRESS**
For Perfect Sand-Lime or
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**The Grath Special Hand-Power Brick
Press, for Plain and Ornamental
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From Dry or Semi-Dry Clay or Sand-Lime
Guaranteed against breakage.

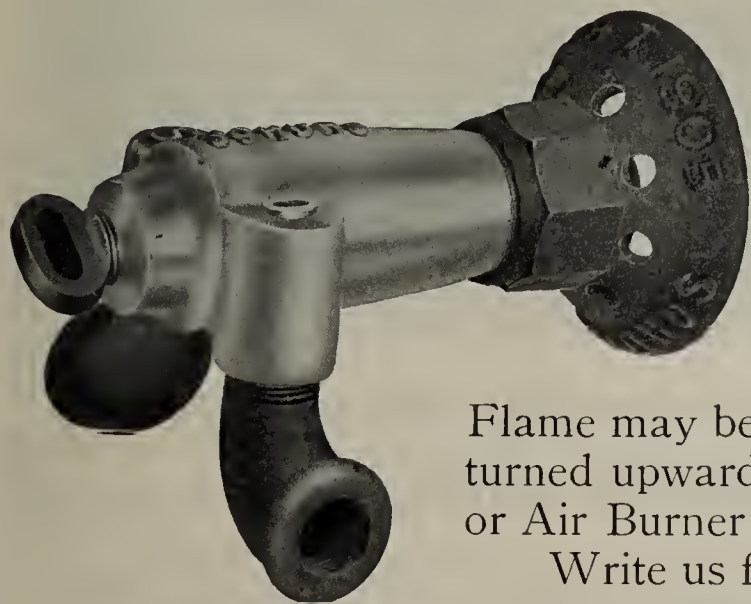


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No Roofing Tile Plant
Complete Without This Press.
For Plaster or Metal Dies.
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Especially designed for burning Brick, Tile, Terra
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Flame may be regulated as desired and to produce any heat, can be
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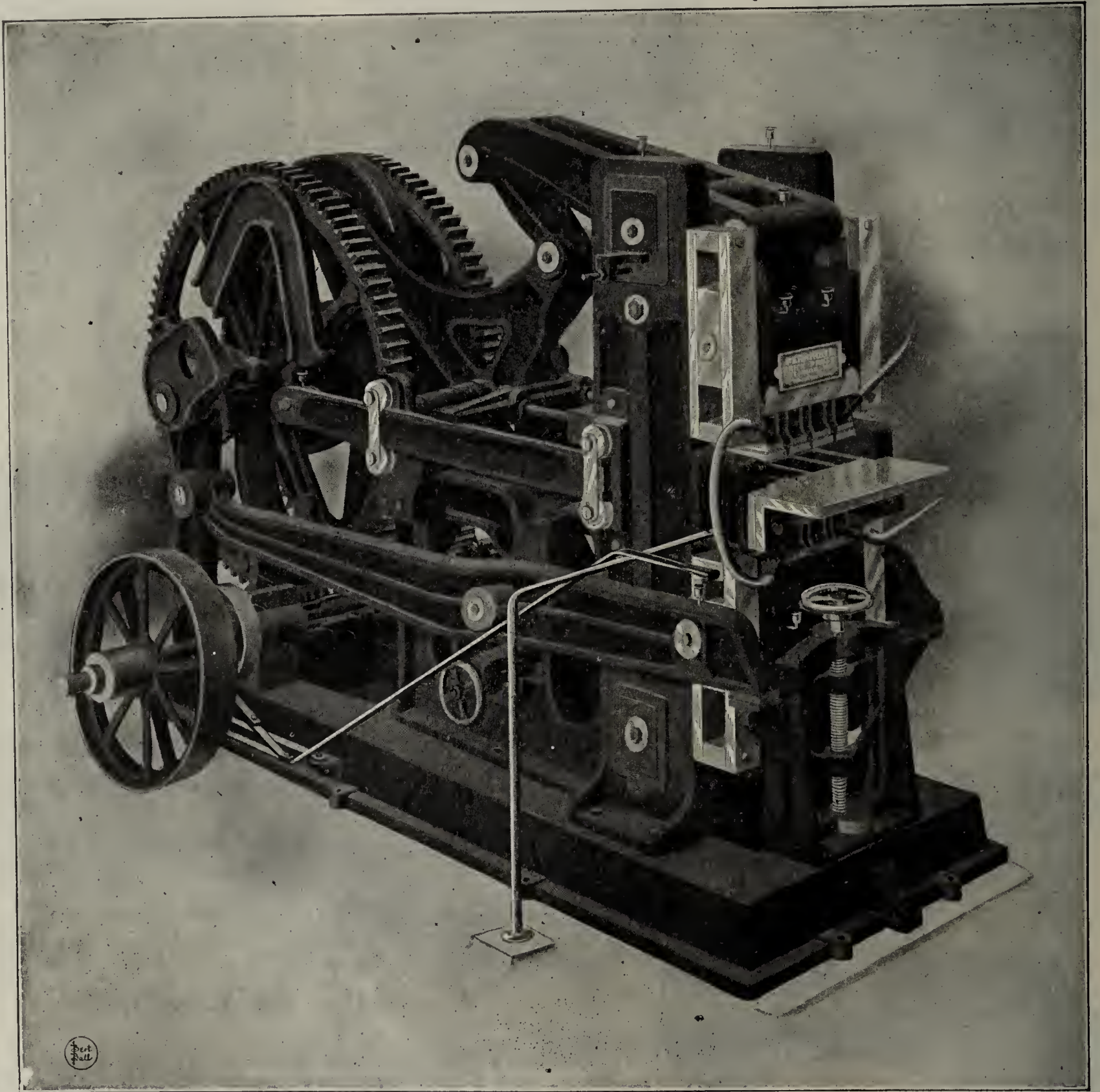
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GRATH, St. Louis.

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Long Distance
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The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

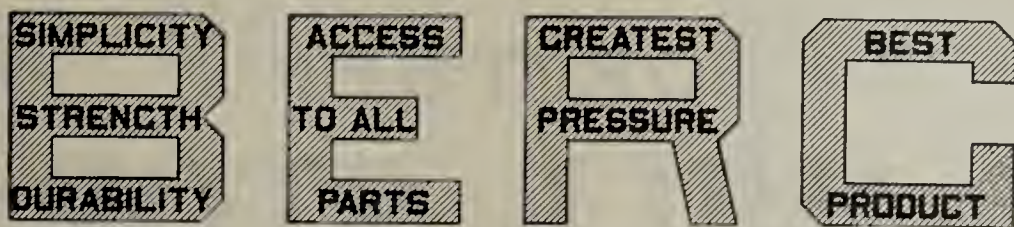


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

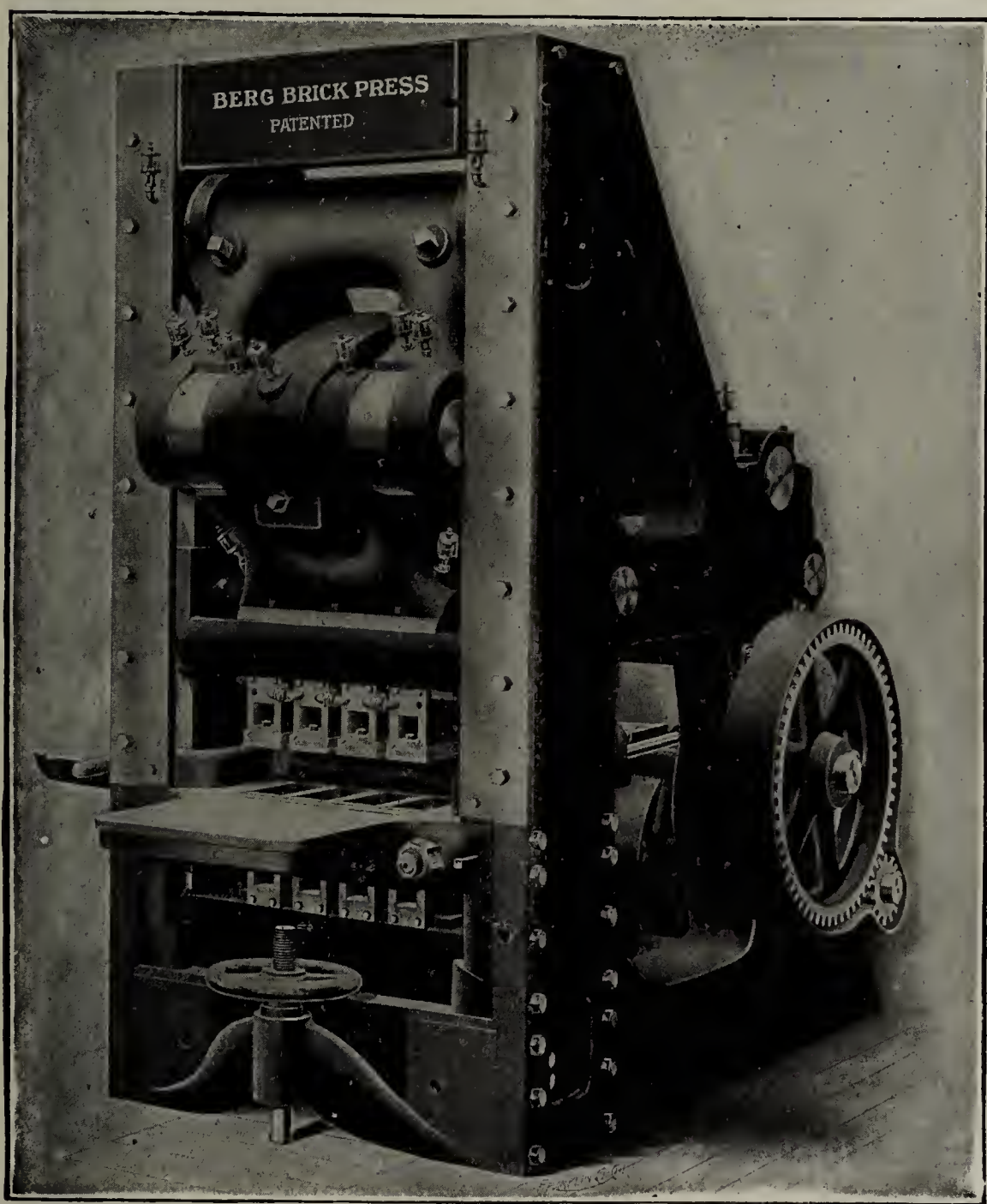
The Fernholtz Brick Machinery Co.,

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The "Berg Press" is The Highest Development in The Art of Brickmaking Machinery, so Pronounced by The U. S. Government.



IMPROVED BERG BRICK PRESS.

THE BERG PRESS EXCELS

for

Shale Pressed Brick.
Clay Pressed Brick.
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THE BERG PRESS

Gives THREE Distinct PRESSURES:

Result is,
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THE BERG PRESS

HAS ALL WORKING PARTS ABOVE
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All Sizes and Shapes
Can be Made.

Molds Can be Changed in a
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Owing to the
SIMPLE MECHANICAL
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Cut Gearing, and many other steps forward in *Improvements*, and built of the *Highest Grade of Material and Workmanship. Fully Guaranteed* as to its *Success*.

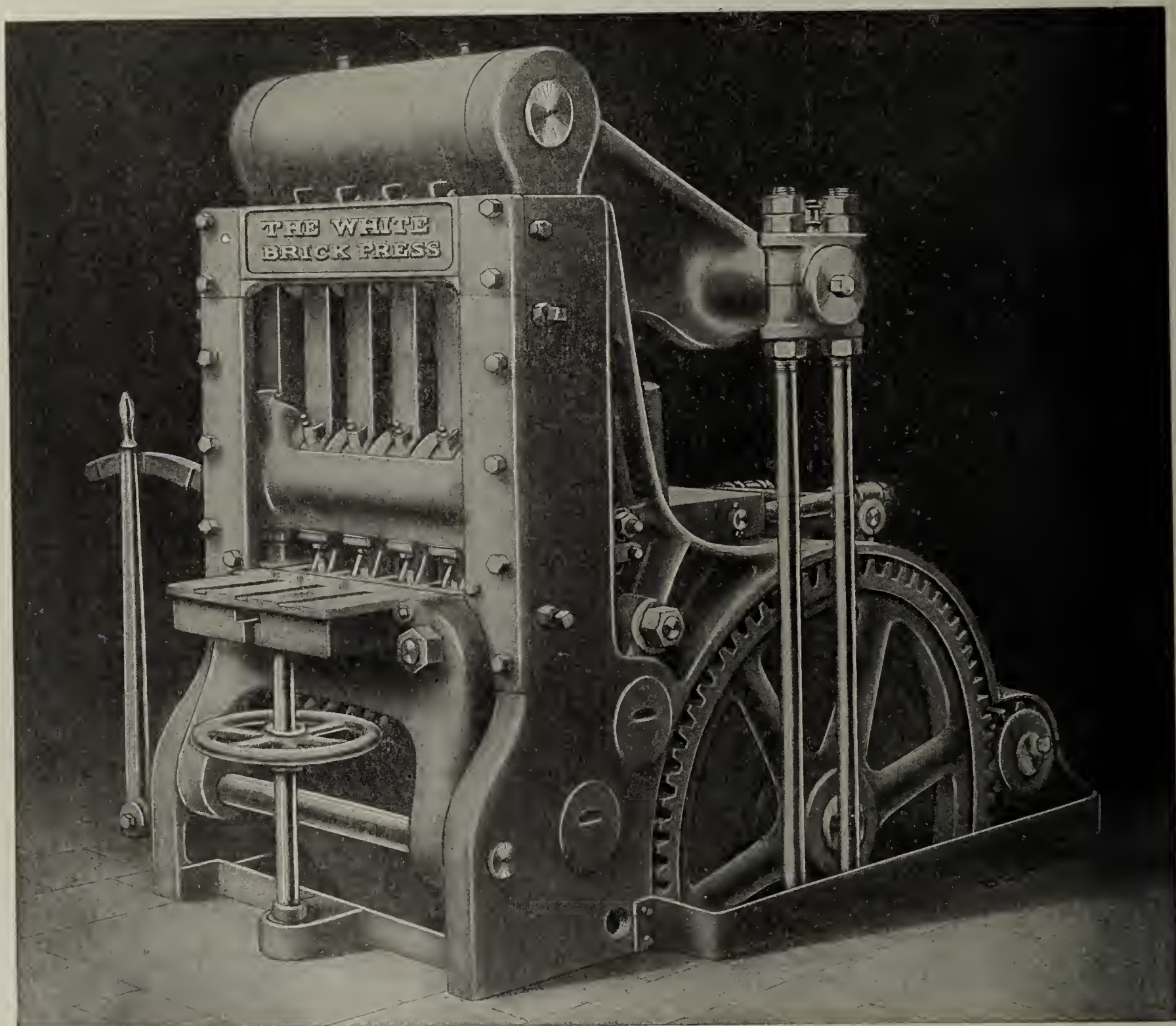
Manufactured by its Inventor in Toronto, Canada, exclusively. Also all equipments for Pressed Brick Plants to make *Sand-Lime Brick, Sand-Cement Brick, Shale Brick, Clay Brick* and *Fire Brick*. Correspondence solicited.

A. BERG & SONS,

Mention The Clay-Worker.

Manning Chambers, TORONTO, ONT., CAN.

STOP THE STOPS OR THE STOPS WILL STOP YOU.



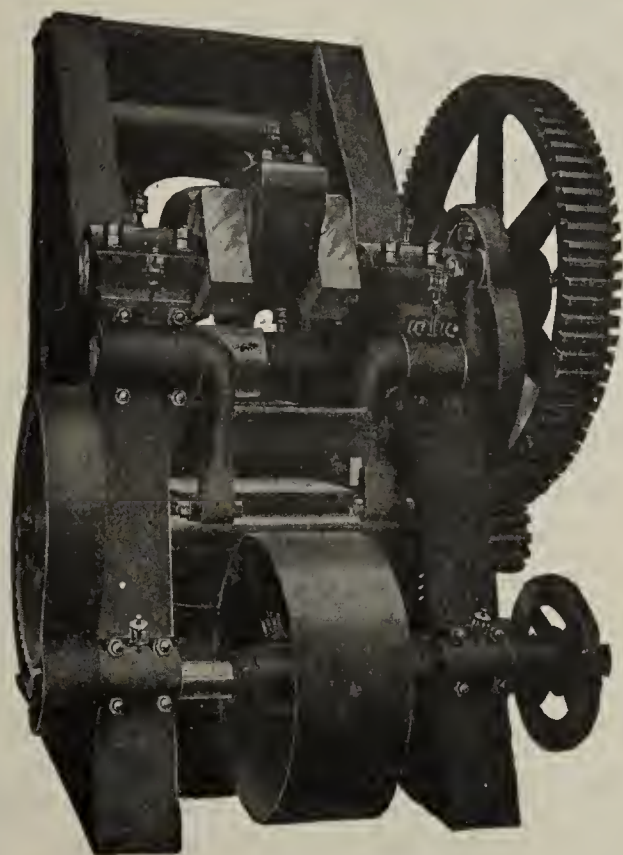
The **WHITE BRICK PRESS** will **STOP ALL THE STOPS** that can possibly be laid to the Press. Will turn out brick steadily Days, Nights and Sundays, as long as you send the clay to it. Write for catalog.

CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

Mention the Clay-Worker.

New Model Berg Brick Press



Back View.

Still in the
Lead
and
One Step
Further
Forward.

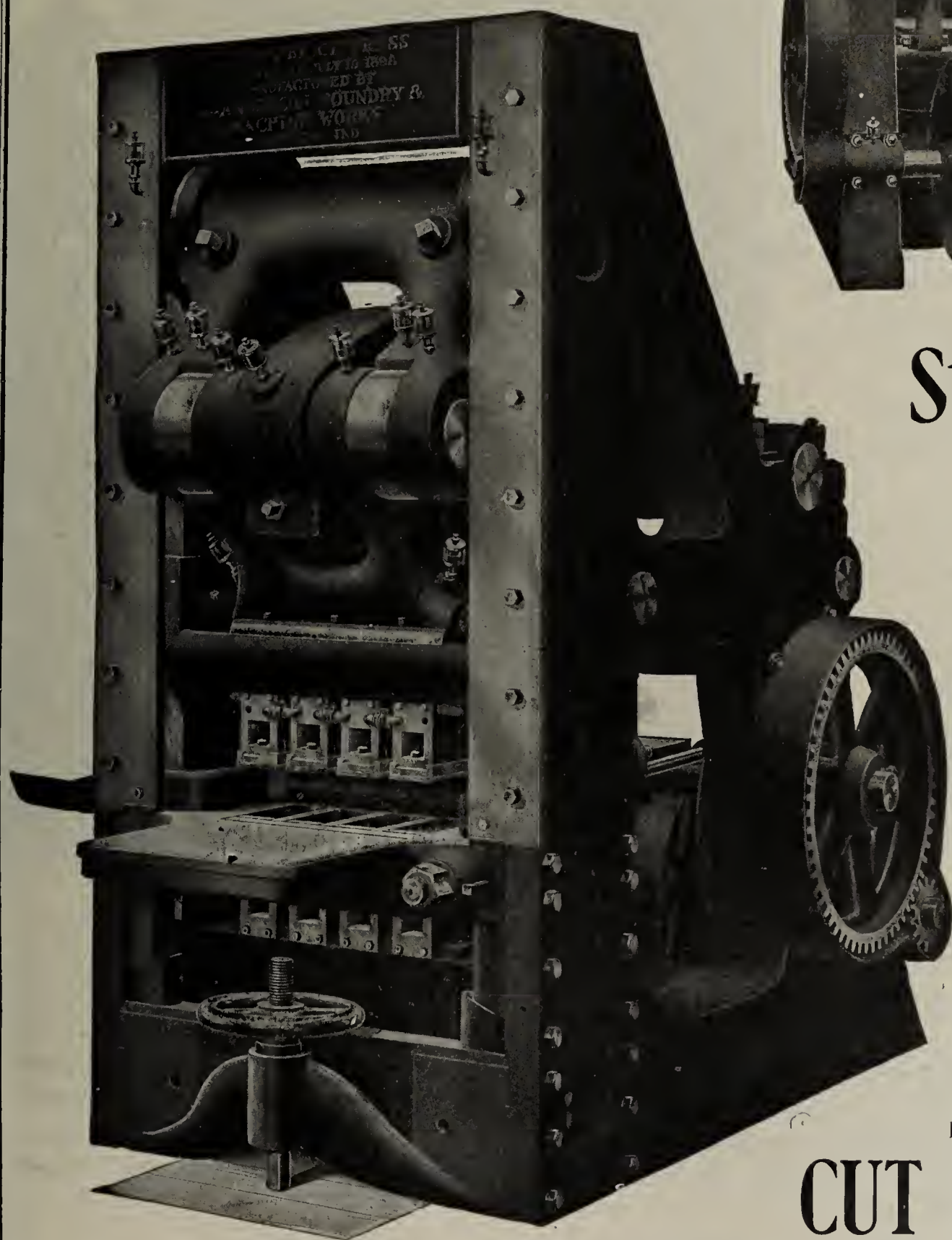
Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact, and

SHIPPED IN ONE
PIECE.

Provided with

CUT GEARING

of either iron or steel, if desired.



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Manufactured and Sold by

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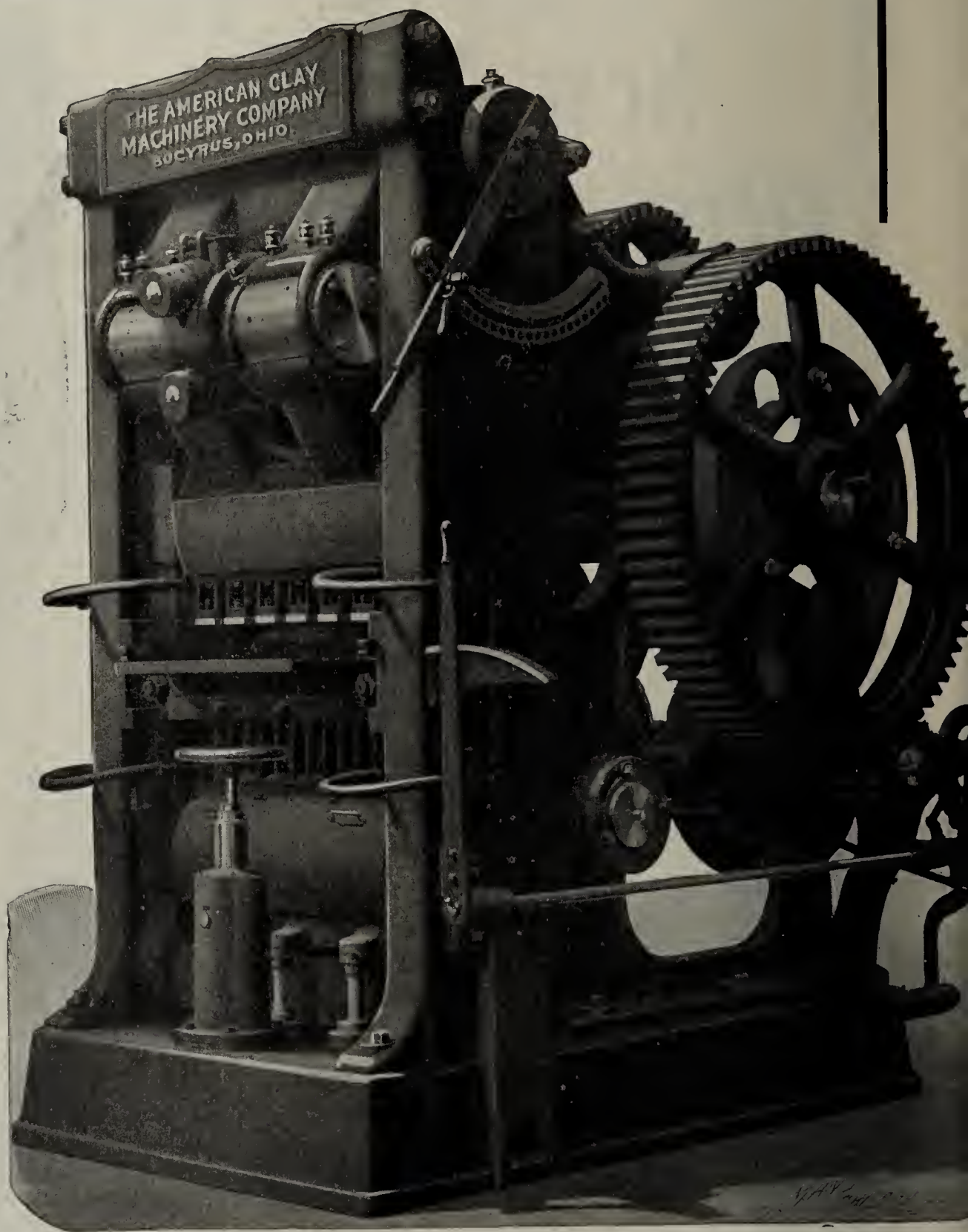
Six-Mold Dry Press Machine.

We Build the Most Ex-
tensive and Complete
Line of Presses on
the Market.

So complete is this line that we can exactly meet the needs of any plant without the necessity of overloading a press or without unnecessary investment in a capacity not needed.

Write for our New Catalogue describing and illustrating our complete line of Presses and other "Built Right Run Right" Clayworking Machinery.

Presses range from one mold to six.



The above illustration shows our **No. 515 Six Mold Dry Press**. In this press we have the highest type of Strength, Durability and Capacity. Although very heavy and massive in all its parts, nevertheless the 51,500 pounds of iron, steel and other metals entering into its construction, have been so proportionately distributed that none of the details are unnecessarily heavy, all have an ample factor of safety, and all movements are smooth and in good balance. All shafting and tension bars are made of high grade steel forgings of our own make, and all other parts which sustain the great strains of pressing the brick are of open hearth steel castings. Full description for the asking.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



See ad on page 225.

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These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryer, kilns, etc.

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With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors now in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

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This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

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The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

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A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.00.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

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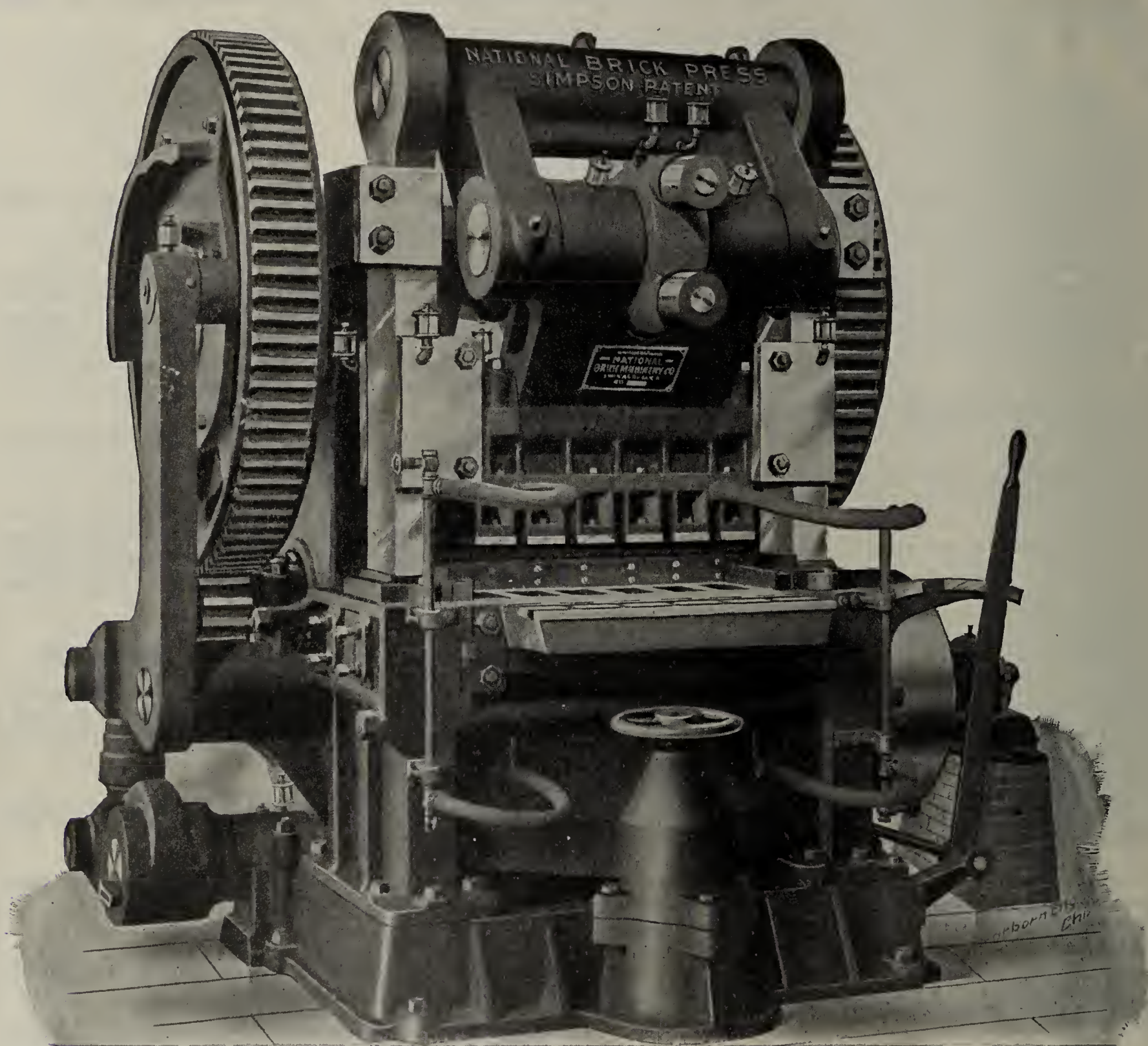
Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvements.

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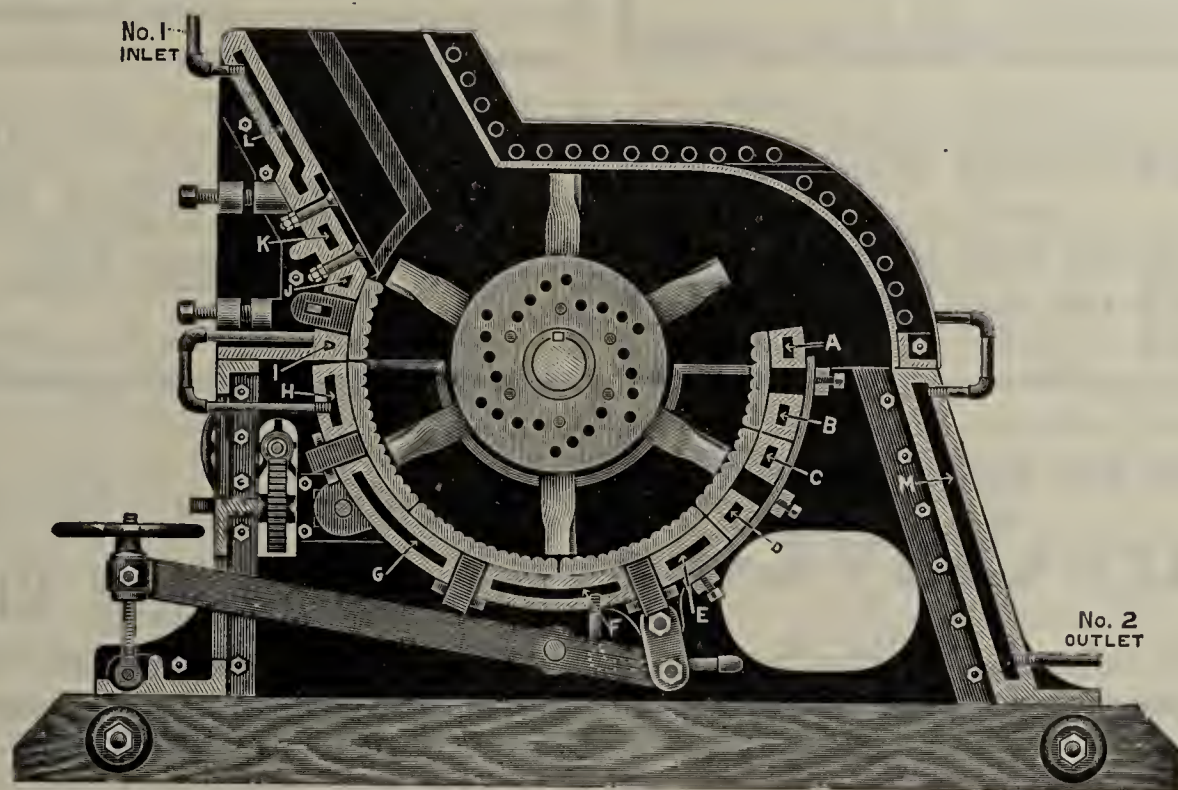
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Built in Four, Five and Six-Mold Sizes.
Send for our new Treatise on Dry Press Brickmaking.
Complete Outfits for Brick Plants.

National Brick Machinery Co.,
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JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

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Old Colony Building, Chicago.

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Will send you free, upon request, any or all of the following booklets:

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PRESTON BRICK COMPANY,
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SEWER AND HARD BUILDING BRICK.
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Vitrified Shale and Fire Clay Paving Bricks and Blocks.
Burned in Yates' Patent Kiln.

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VITRIFIED PAVING BLOCKS, CHOCOLATE-RED
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THE DECKMAN-DUTY BRICK CO.,

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Factories at Collinwood, Malvern and Carrollton, Ohio.

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Thurber Vitrified Paving Brick
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Made of the finest shale, absolutely free from lime.

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The Danville Brick Company,
Manufacturers of the Unsurpassed
Danville Paving Block.
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LET US QUOTE YOU PRICES.



The Best
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Made

SIX FACTORIES
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a complete set of

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Successors to
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MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS,
"SPECIALS," for crossings on macadam streets, GUTTER BLOCKS,
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Our material has for over fifteen years successfully stood the
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Samples furnished on application.

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Manufacturers of the Highest Quality of

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Which are offered to the municipalities of the Cen-
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Prices and samples sent on application.

Correspondence solicited.

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Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DE-
POSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kao-
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Have been in the business for TWENTY-FOUR
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Unsurpassed shipping facilities. Prices and samples free.

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MANUFACTURERS OF

BESSEMER BLOCK,

An unexcelled repressed shale paver.

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HAS the largest and best equipped plant in the United States for the manufacture
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second to none, and this Company points with pride to its record for quality of
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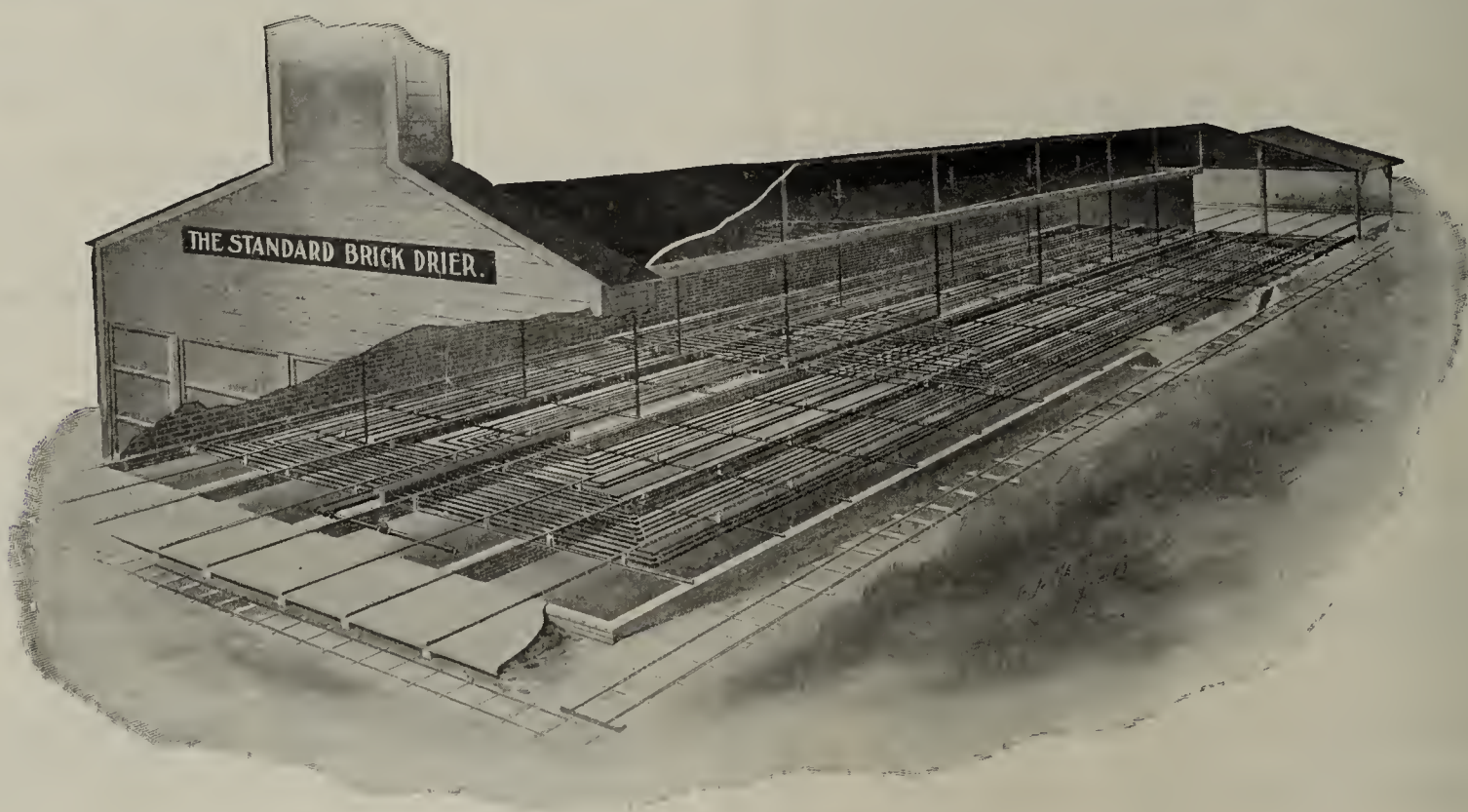
Correspondence respectfully solicited.

Are You in Business for Sentimental Reasons?

NO? Then the proportion of FRONT BRICK that you get from your Drier is vitally important to you. Because it means money IN or OUT of your pocket—according to which drying system you use.

We can give you the names of a number of brickmakers who, since they changed over from waste heat drying to The Standard Steam Drying System, have been getting

50% to 100% More Front Brick From the Drier!

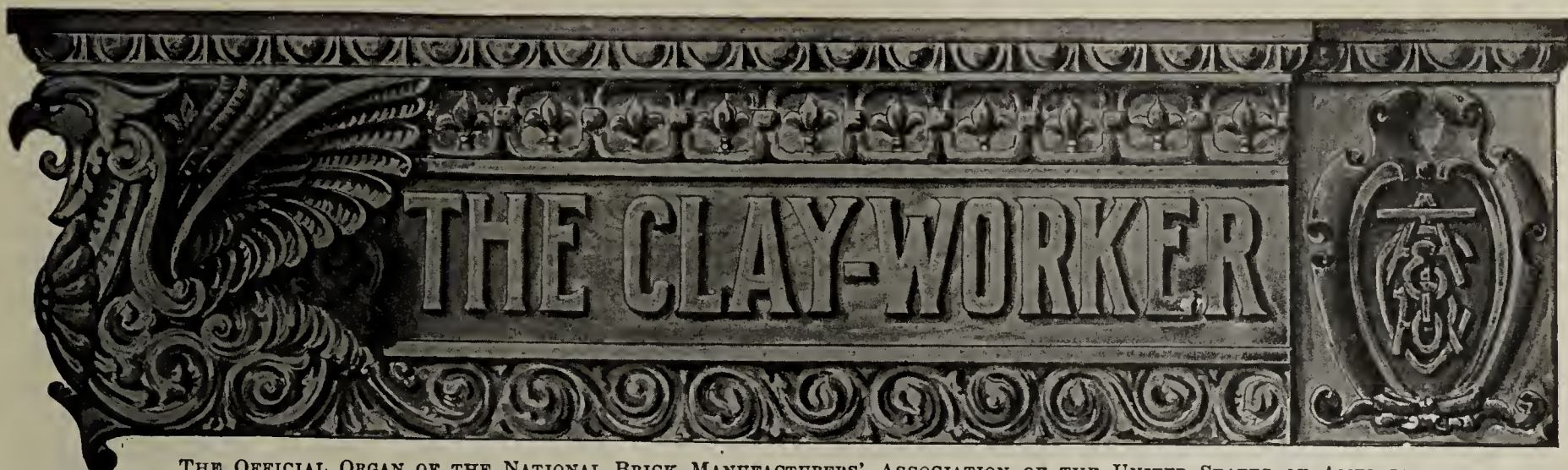


The Standard Steam Drier

increases the brickmaker's profits by increasing the value of his product. And it keeps the cost of the drying down to the lowest practical point. Write for our catalog and list of many users.

THE STANDARD DRY KILN CO.,

647 South Penn. St., INDIANAPOLIS, IND.



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. L.

INDIANAPOLIS, IND., AUGUST, 1908.

No. 2.

Written for THE CLAY-WORKER.

BRICK BUILT CHURCHES IN CHICAGO.

History of Brick Proves it the Best Building Material.

BRICKS HAVE BEEN associated with great religious movements for long centuries. The first record we have of this association, of course, is related in the chapters which bear on the captivity of the Israelites in the land of Egypt. During this period the Israelites made brick "without straw," and helped to put them into the temples then being erected to the strange gods of the Lotus land.

Perhaps they associated the brick with the strange and abhorred gods of the Egyptians and perhaps it was because the sight of brick brought back unpleasant memories of more strange and more abhorred toil, and perhaps these memories became a tradition and a racial instinct. At all events, we find no record that the Israelites constructed any temples of brick for many generations thereafter. Their tabernacle was of hewn wood and stone brought from

a great distance, long years after they finally ended their wanderings in the wilderness.

Times have greatly changed since those old days, however, and new houses of worship of all religions, denominations and creeds are built of this most useful building material. Year

by year the dignity of brick as a material qualified for use in the most stately temples increases, and still it remains at the same time the material best suited also to the more modest house of worship.

In fact, it may be truthfully said that the use of brick, as is understood today by architects and builders, yes, and by the dealers themselves, for many of them are possessed of no small amount of artistic taste and ingenuity, has made and is making a new era in the church architecture of Chicago. Brick is no longer considered a makeshift, since it no longer marks the structure of the poor or careful con-

gregation as opposed to the rich and flourishing church organization. It is a facile building material, easily adaptable to artistic purposes. Most of the early churches of brick perforce were built of the old fashioned red brick, and nothing is more familiar to the eye among the old churches of brick construction than the red walls, stained with the white salty efflorescence from the unvitriified surfaces, and becoming really attractive only when the ivy had massed its grace to hide the stains and angles of the walls.

Now, however, the builder is in no way circumscribed when he starts out to use brick as his chief

material, either in color or design or detail. The stone age has yielded to the brick age in this department of structural work as well as in others. Stone has long been the material for churches, especially for those of the cathedral class, the more imposing houses of worship. There was an immensity,



German Lutheran Church, Elgin, Ill. Built of Oriental Brick.

a ponderous dignity about that, and a mellowed air about old weathered walls that seemed to breathe of solemnity and almost of sanctity. That brick are being used to take the place of stone without jarring upon the sentimentality of the people, is surely the highest of all possible tributes that could be paid to the art of the modern brickmaker.

One of the most imposing structures in Chicago, and one of the most interesting buildings in the world, is St. Paul's Roman Catholic Church, at West Twenty-second Place and South Hoyne avenue, the huge church which is wrought wholly of brick and of terra cotta without a bit of structural iron or steel or of wood in its composition. Much has been written about it, for it was erected some years ago, but still it continues to be one of the points of interest of the city for those who are wise in such matters. Other large churches, though not so imposing, are also to be found in this same city, and all bear mute witness to the immense value of the clay product in producing highly desirable results at a minimum of cost.

But this article has to do chiefly with the average run of brick churches in and about Chicago, and not with the unusual structures on the one hand, nor yet with the extremely ordinary on the other.

Take, for example, the ecclesiastic structure of the type of the Fourth Church of Christ, Scientist, which stands at the northwest corner of Harvard avenue and West Sixty-seventh street. Here is a sort of temple-like structure, an effective blending of the Gothic and Doric, and altogether an architectural expression for which stone would have been thought necessary not so many years ago. A red or a buff color in the walls would be manifestly out of place. The desired quiet, chaste tint which would have been found in walls of stone, however, was most satisfactorily supplied by the Columbus Gray Norman brick, which harmonize perfectly with the stone in pillars and trimmings. S. S. Beman was the architect for this church. The brick were furnished by the S. S. Kimbell Pressed Brick Company. The same company also furnished the brick for St. Henry's Roman Catholic Church, away out on the north side, St. Sylvester's Roman Catholic Church on the northwest side and Ss. Peter and Paul's Polish Roman Catholic Church on the southwest side.

A little over an hour's ride outside of Chicago is a church which has attracted considerable attention both on account of its graceful quaint lines and because of the effective massing of the materials employed. It is the German Lutheran Church of Elgin, Ill. The dark Oriental brick was used in this building, and the soft tapestry-like effect of it in the mass as it appears on the walls, is set off and relieved by the white stone trimmings. In this particular structure, it is to be noted that not only is nothing lost in stern grandeur and dignity, which the use of stone could have imparted, but that a subdued mellowness and richness of tone is attained at the outset, which fine stone after long years of weathering would fail to show.

The brick for this work was furnished by the Bonner & Marshall Co., who hold the general agency. They have the contract for the same brick for another church job at Fifty-fourth street and Washington avenue, Chicago, and it is not unlikely that before they have finished with this new job that the triumph of brick over stone as a building material will have been declared, and a most complete and undeniable triumph at that. The church in question is the Methodist Episcopal Church of Hyde Park. Like many a growing, struggling congregation, it erected its chapel and Sunday School portion of the building first and used that as its house of worship for many years, leaving the bulk of its ground immediately upon the corner unimproved. The part of the church first erected is rather imposing, looking almost like a complete church in itself, except that the Washington avenue wall was left in common brick, with a slate wainscoting extending down a considerable distance below the eaves.

The front of the structure in Fifty-fourth street is finished in good looking granite. Now it develops that the main body of the church is to be built. Ground is already being broken. And it is to have an exterior of these same Oriental brick, instead of being finished in granite. The brick, of course, would tone in fairly well with the granite, but there is considerable talk of facing the granite of the older section over with Oriental brick. The surface which would thus be faced would not be extremely large, and the proposal has found some favor. Thus would the brick man put it over on the stone.

The dark reds and purples of the Purington Continental brick are used a great deal in local church buildings, and call forth favorable comment. St. Henry's Roman Catholic Church, at Ridge and Devon avenues, of which Henry J. Schlacks was the architect, shows off the use of the red Continental to good purpose, the lofty tower constituting a landmark in that territory of fresh air and vacant lots and a near-sky line. An example of the use of the purple Continentals is seen in Ss. Peter's and Paul's Polish Church, at



St. Peter's and Paul's Polish Church, Northeast Corner Thirty-Eighth and Paulina Streets, Chicago, Built of Purington Purple Continentals.

the northeast corner of Thirty-eighth and Paulina streets, which was designed by Robert C. Berlin.

The "pavers," with their dark shades and the impression of substantiality which they produce in the mass, have many devotees. In St. Sylvester's Roman Catholic Church, at the corner of Humboldt boulevard and Palmer Place, the Athens (Ohio) dark pavers have been used with telling effect. Egan & Prindiville were the architects.

Many other examples could be cited, for there is scarcely a brick dealer in Chicago that has not a number of churches to his credit, and very much to his credit, too, and the list of brick churches keeps growing all the time. In short, brick is an important element in all religions, if not precisely the foundation and corner stone of every creed. SCRIP.

Railroad corporations have no love for inland waterways, and to judge from past experience they have no love for anything except that which means dollars for themselves. The greatest love of the railroad corporations is for the almighty dollar, and the more of it they can get the more they want.

Written for THE CLAY-WORKER.

WHAT'S THE USE?

HERE ARE LOTS of things you all do," said the Colonel, "that are commendable for motive and purpose, but it is wasted ammunition just the same. It is much like going down to one of these here happy hunting grounds at a summer amusement resort and wasting ammunition on wooden ducks and tin jack rabbits. You don't get any game, you just have the fun of hearing the gun pop and smelling the powder. That's worth something, of course, but a fellow likes to bag a little game once in a while to keep him in spirit.

"How's that? You want my lingo translated and made into everyday hash so you can digest it. Well, Suh, that's easy. Take this question of jacking people up and telling them they ought to get busy and build. And while it is commendable and they ought to heed the advice and go

going off to town, and was very much distressed in mind when starting time came unless they would get into mischief, so she began cautioning them, told them not to disturb her setting hens, to keep away from the cherry tree, to not dare touch her work box and about forty other things that they probably wouldn't thought about. And then, after she had started off she came back because of some other wild thoughts that had occurred to her apprehensive mind of accidents that had happened and might happen again, and told those kids that whatever they d'd they shouldn't climb on top of the house and they shouldn't put any beans up their nose. Of course, when she came back home she found that they had done everything she told them not to do, but what she didn't understand was that the majority of these things wouldn't have been thought of had she not brought them to their mind by cautioning them not to do it.

"Now, then, you all tell a man not to bother with cement for this purpose and for that purpose, for example. It is generally good advice all right, but about nine men out of ten want to go ahead and do the very things you tell them not to do just to satisfy themselves as to whether or not the things will happen you say will. Of course, they find out the truth in the end, but the first effect is to stimulate them in some measure to do the very things they ought not to do.

"It is the same thing when you tell people to cheer up, put on a bold front and help push the wheels of industry, and tell people to get busy and build now, because, as the preacher says, 'this is the accepted time.' It is good advice, but it is not taken without question. Some may think there are axes being ground and some may think one thing and some another, but all of them will be actuated by the spirit of perversity to leave undone the very things they ought to go on and do, at least, for a while until they investigate for themselves and imagine that they have discovered that they ought to do so and so.

"How's that? If you can't do these things and they don't have the desired effect, what ought you to do to stimulate the industrial world to proper activity?

"Well, suh, that's sort of like the question some fellow asked one of the presidential possibilities, Taft, wasn't it? And he answered something like, 'God knows.' That's the way it is anyhow. It takes more than a common man to know just what to say and what to do sometimes to get people to do what they ought to have already been doing. I hain't solving that question, it is beyond me. I am just telling you what's the trouble with some of the good work you are trying to perform and how it is you are wasting some good ammunition and not bringing down as much game as you ought to."

WHAT A GOOD TRADE PAPER DOES.

"I want to express my great appreciation of the good trade paper and the splendid work it does for its readers and advertisers. There is a most decided want to be filled; and it fills it. Business could not go on properly without it.

"The manufacturer looks to it to talk to just the people he wants to reach; practically no waste circulation. The subscriber looks to it for advice in his purchasing and selling, the arrangement of his stock, the management of his store, and the keeping of his accounts; the good trade paper gives him all these things.

"The merchant and the manufacturer should count it among their greatest blessings that there is today at least one good and indispensable trade paper in practically every field. The manufacturer who overlooks his trade paper, the merchant who fails to take one or more, are deliberately handicapping themselves on the road to success."—C. R. Redfield, Advertising Manager of Yale & Towne Mfg. Co.



St. Henry's Roman Catholic Church, Chicago. Purington's Red Continentals Were Used in This Structure.

ahead and follow it, for that very reason and for the natural perversity of mankind they won't do it.

"If you had been a boy and had to get hogs out of the field you would know how blamed nigh impossible it is to drive them through a gap in the fence that you had made so they could get out easily, and it is the same thing if you want to drive them in, they will go everywhere else but where you want them. But let them alone and pretend like you don't want them in and they will find some hole in the fence, and the more you stop up that hole the more holes they will find and the more they will keep getting in.

"Of course, humanity isn't all hog, but sometimes it acts like it is pretty near all perversity. Every human being from the time it is a kid likes to do the thing it is told not to do and don't like to do the thing it is told to do. Don't you remember that old story about the good old mother in the country who had a great flock of children and was

Written for THE CLAY-WORKER.

A PROSPEROUS WHITEWARE MANUFACTORY.

Crooksville China Company One of the Leading Potteries in Central Ohio.



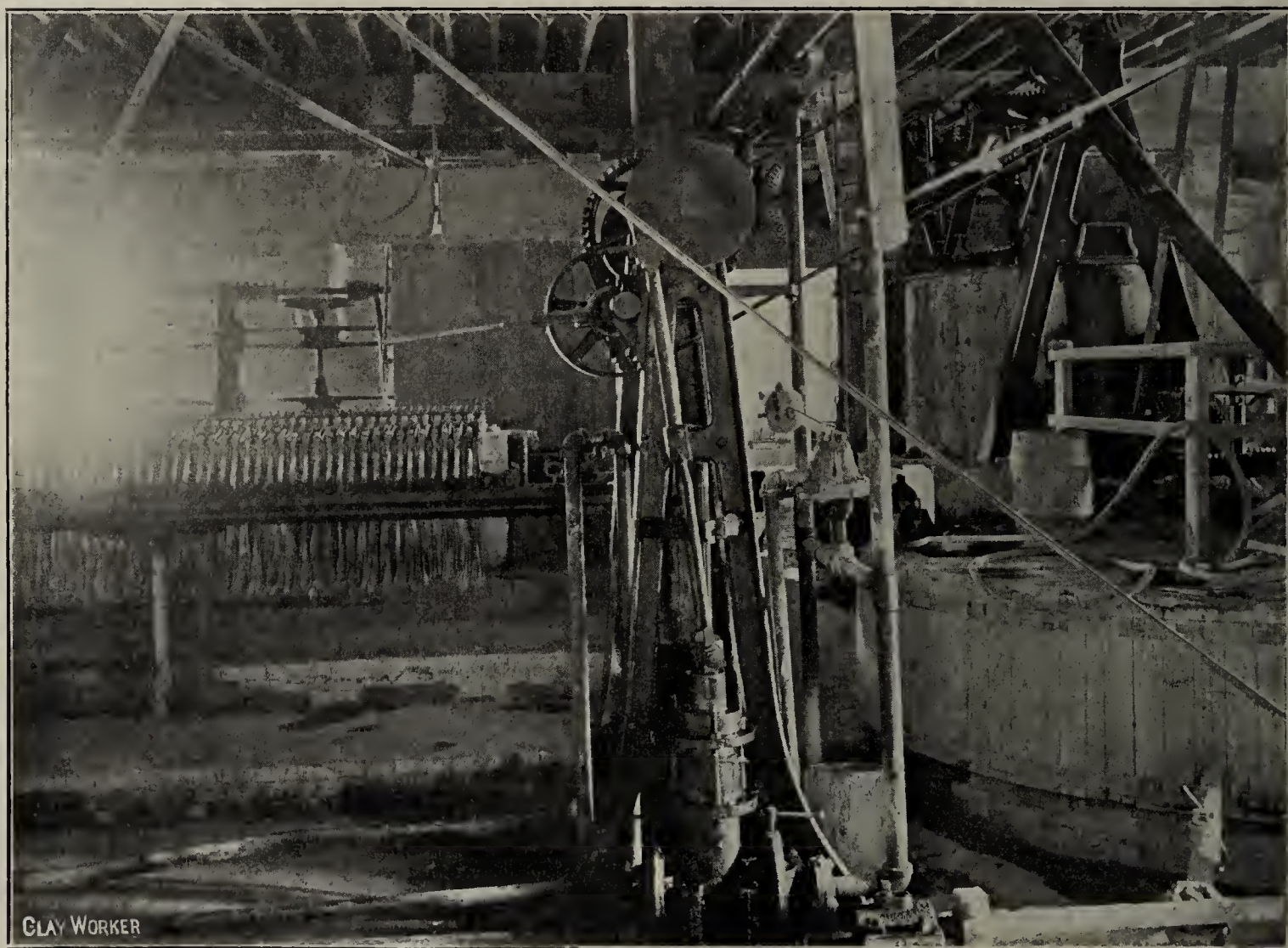
THE CROOKSVILLE, OHIO, fifteen miles from Zanesville, is located the flourishing pottery of the Crooksville China Company. This company manufactures lines of high grade dinner and toilet sets and specialty ware. The company was incorporated January 20, 1902, at which time the name of the old plant was changed from the Crooksville Art Pottery Company to its present name.

Previous to the time of incorporation, they had spent all their time and energy in manufacturing stoneware and art-ware, as the Zanesville district is given over almost entirely

regulated paths. As in all other businesses, system is an important feature in the success of a pottery. While handling a large force of men and girls, and manufacturing an enormous amount of ware daily, it is absolutely essential that the raw materials be shipped in at one end and put through a direct process that will do away with the re-tracing of steps, thus causing confusion and loss of time.

Every section of the building is set aside for one specific purpose, and the workmen are so skilled that the work is carried on year in and year out with scarcely a change in the systematic order of the manufacture.

The raw materials are dumped direct from the cars into their individual bins at one end of the factory. The clays are mixed as needed in proper proportions and ground and screened and delivered to the iron blungers and agitators in the slip room, which is well equipped with all the necessary clay washing and mixing machinery for thorough pugging and preparation for the pressing rooms. From a pug mill the



A View of the Slip House Showing Large Filter Press and Blungers.

to these industries. Seeing, however, an opening and good market for white ware, the company turned from their old field and began producing several styles of chinaware, only as a side line at first, and finally making it its principal product.

The location of the factory is ideal, situated as it is in a pottery district, and with the best of railroad facilities. The Pennsylvania, Zanesville and Western Railroads, and the Southeastern Ohio Traction line pass its very doors. The factory proper is confined within a large one and two-story brick building, which is 131 feet wide and 364 feet long. The manufacturing proper is done mostly on the ground floor. The company does not employ any of the local clays, but purchases the raw materials from many different points in the east and south and abroad.

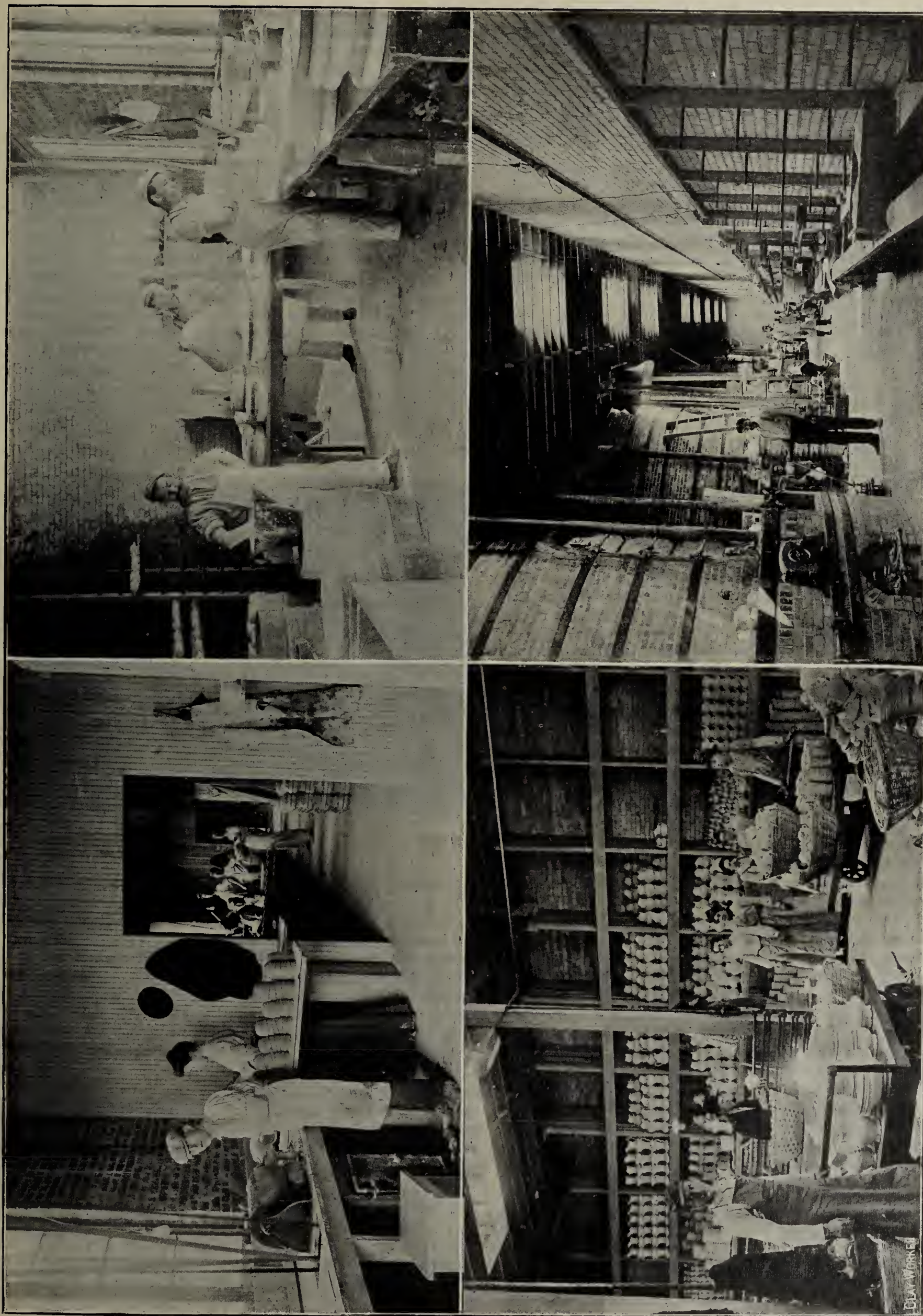
The factory is well arranged, so that the clays and green ware advance in their preparation for the market in well-

pugged clay is elevated to the clay shops on the second floor, while the clay slips are taken to the pressing rooms ready for the plaster molds.

The clay shops are equipped with the usual iron jollies and turning lathes, which stand on benches extending the whole length of the building. It is interesting to watch the workmen here throwing ware, turning out hundreds of pieces daily.

The pressing and drying department covers the most space in the factory, the pressing benches lining the walls under the windows in the pressing room, while the drying racks cover all the floor except for a strip around the benches for the men to conveniently press and walk back and forth carrying the pallets of ware to their places on the racks. All the ware is dried by steam, several thousand feet of piping being used.

The decorating room is furnished with all modern conveniences for fine decorating work. It is large and well



VIEWS TAKEN AT THE CROOKSVILLE CHINA COMPANY'S POTTERY, CROOKSVILLE, OHIO.
 (1) A Corner of the Clay Shed. (2) View of Mold Room. (3) Sorting for Shipment in Stock Room. (4) View of Large Kiln Shed.

lighted and ventilated, and gives the workmen every possible opportunity for excellent work.

In the glaze room the best machinery is used, including glaze pans of drag stone mill type, testing apparatus, etc.

The kiln house is large and cleanly kept. Here are six large bisque kilns, and three small decorating kilns. The green ware is taken from the drying racks by hand and carried to the kilns, in which they are placed in large saggars.

The ware manufactured is for the most part semi-porcelain. The plain white, decorated and fancy art china goods have found a ready market. The company is doing a large business, apparently unaffected by the panic, which has caused many of the potteries to close down. The ware is shipped to all parts of the United States. They employ 175 to 180 men and girls.

The officers of the company are: President, J. L. Bennett; vice-president, W. H. Brown, and secretary and treasurer, Guy E. Crooks.

Written for THE CLAY-WORKER.

THE MANUFACTURE OF ENAMELED BRICK.*



MANUFACTURE OF ENAMELED BRICK is one of the branches of the clayworking industry around which has been thrown a mantle of mystery and secrecy, and although science has made great inroads into this holy of holies, the veil of the temple has not been wholly rent in twain, and the so-called secrets are just

as carefully guarded and protected as in former times. But this is an enlightened age, and the secrets are no longer secrets, except as regards the knowledge and experience necessary to use them aright. A formula of any kind is useless to anyone if they have no knowledge of the matter contained therein and the effect one substance may have upon another under the condition in which they have to be used. Success may come for a time, but it will not last long. So that it is not secret formulas that are doing the work today so much as the knowledge and experience to use them aright. A great many failures in the enameled brick industry may be traced to the reliance that has been placed on so-called secret formulas that have worked well for a time, but, under changing conditions, such as different clay, coal or material out of which the glaze and body are mixed, failure has come and the knowledge to locate the trouble was not there.

Enameled brickmaking is, comparatively speaking, a new industry. It was not until 1893 that this class of ware was made with any great amount of success. Efforts had been made prior to this to make enameled brick, but had either failed completely, or the product had not been of such quality as to meet with much favor from the users. All or nearly all the enameled brick used in this country up to this time had been imported, and the high price prohibited their use in any large quantities. The demand for a brick that could be bought at a reasonable figure had grown to such extent that the home brickmakers became interested, and efforts were made to find a clay that would be suitable. The result was that the fall of 1893 saw the last imported brick used in the city of Chicago. It had to be clearly demonstrated that the home product was as good as the imported, and to do this they were subjected to different tests, the principal ones being the freezing and crushing tests. The body of the brick gave out in a few cases, but the enamel could not be moved.

From that time the business has slowly but steadily

grown. Larger quantities are being made each year, but the business is nowhere near as large yet as it is in the old countries, the output of the Leeds district alone being nearly, if not altogether as large, as the output of all the factories in this country put together. Up to 1898 the enameled brick industry was not considered of sufficient importance to be classified in the statistics of the clayworking industry put out by the United States Geological Survey, but it had grown large enough at this time to deserve special attention. In the year 1898 the output was valued at \$279,993. In 1899 these figures were increased to \$329,969, but in 1900 there was a decrease of about \$6,600. However, the following year showed the largest increase of any year, the figures being \$463,709, an increase of \$140,079. There was an increase up to 1904, when there was a slight decrease again, but it was steadily increased, the figures for 1906 being \$773,104. I should not be surprised to see it close to the million mark for the year just closed. Their use is becoming more common and the demand is increasing. The quality of the brick is better than ever, and the price is lower. They are unexcelled where light and cleanliness are necessary. For light courts, engine rooms and power plants, for swimming pools and depots they can be used to advantage. They may be made in all colors and shades and beau-



A Scene in the Pressing Room, Crooksville China Company.

tiful effects obtained. They are high priced, and this, I think, is the only thing that prevents their more general use.

The state producing the most is probably New Jersey, this state having most of the factories. There is at this writing five yards given up entirely to the manufacture of enameled brick. There is another now building in California, which will bring the total up to six. Other factories make them, but only in small quantities, their principal output being pressed brick. These five factories have been running for ten years or more. Other factories have started, but have failed for one reason or another.

Your secretary asked me to give you a short history of the industry, with a few details of the manufacture. To go fully into every detail would require more time than I have at my disposal this morning. It is like any other branch of the clay business; it has its "ups and downs." And the "downs" generally come when least expected. But it has its bright side, too. And so I thought that I would give you some idea of the different processes used. It is very true that with all clay goods the finer they are, the more careful we have to be of the clay out of which they are made. So it is with enameled brick; the first great care is the clay. If this is not right it would be useless to start; and the clays suitable for these brick are not found in abundant

*Paper by Ernest Hardy read before the Illinois ClayWorkers' Association, January 15, 1908.

qualities. Upon the kind of clay you have will depend altogether the process you use, whether you make it dry pressed or plastic, the kind of glaze you use, whether you set open or closed. In fact, therefore, the first thing to do is to learn all there is to know about the clay you have before doing anything else.

The processes generally used are known as the one-burn and two-burn process. I have known them to be made by the three-burn process, but the cost of manufacture is too high, and the best reason of all, it is altogether unnecessary. These may again be subdivided into the high-fire and low-fire process, the open and closed setting and so on. Anyone of these may be chosen, or a part of all of them. All the English brick, or nearly so, are made by the high-fire process, and the makers there claim that a good brick, one that will stand up under any and every condition, can not be made by any other process, and point to the excellence of their brick as proof.

If there is a high and low-fire process, there must be a dividing line between the two. If this was not true, the terms would have no meaning. The line comes between cone 02 and cone 1. That is, all temperatures below cone 02 would be low fire and all above cone 1 high fire. If we consider first the clays that can be used at high fire temperatures, we shall at once see that nearly all red burn-



Sagger-Making Department, Crooksville China Company.

ing clays would be ruled out, and rightly, too, for red clay is the poorest material out of which enameled brick have ever been made. It is altogether unsuitable and ought never to be considered. Brick have been made of red clays, but have always been considered of poor quality. They have generally been covered with a tin glaze and could not be made any other way. For the manufacture of enameled brick, then, the only clays worth considering are of a buff or a cream shade. There are plenty of these clays that may be used in the low-fire process, but to make them this way the glaze will have to be either a raw lead glaze or a fritted glaze; the objection to the lead glazes is that it is a poison and must be handled very carefully. Lead poisoning became so general in the potteries and brick works of the old countries that it became necessary to make laws prohibiting its use in raw glazes. This made it necessary to frit. Boracic acid may be used, but as this is a soluble compound, it must be got in an insoluble form before it can be used. This is true also of the compounds of Na and K. Fritting is the only way. This all adds expense onto the glaze. Another thing about these low-fire glazes is the fact that they are more apt to craze and flake off than the raw feldspar glazes. The only thing I can see in favor of the low-fire process is small saving in fuel.

Without the use of lead or some of the soluble fluxes, it would be impossible to make a glaze that would mature under cone 1. Seger, in Vol. 1, page 430, says that lead

should not be used in a glaze maturing above cone 1, and gives as his reasons that "above this heat it is not possible to work with a lead glaze, as lead has the great disadvantage of volatilizing easily under the influence of fire gases. Through this peculiarity the glaze grows constantly, more acid making it more difficultly fusible, and hence fails to come up bright. So it can readily be seen that to make a glazed brick with a raw glaze that we shall have to have a clay that will vitrify above cone 1. This clay must be looked for among the No. 2 fire clays, and not all, or nearly all, of these are satisfactory.

The clay that makes a good enamel brick will not be easily found. I know this from experience, for I have tested a large number of clays from different parts of this and neighboring states, and have not found very many that I considered satisfactory. One way of getting around this is to mix two or more clays together in varying proportions until the desired mix is obtained. One clay would be too "fat," another too "lean," but by mixing together something might be found that would be satisfactory. Again, mixing grog with some clays will help. If the process was the two-burn, this would be one way of getting rid of the spoilt biscuit brick. Some clays work better dry pressed than plastic; some better plastic than dry pressed, and this brings us to a comparison of the two methods or processes used. The two principal processes of making enameled brick are known as the one and two-burn process. These terms explain themselves. The one-burn process consists of putting body and glaze on the unburnt brick and then firing them and finishing them at one burn. They will have to be made of either the stiff mud or soft mud, stiff mud preferred, and repressed. The glaze and body may be put on while they are soft, or the brick may be dried bone-dry and then dipped, or the body may be put on while the brick is soft, then dried, and the glaze put on just before going to the kiln. The one objection to dipping the brick while they are soft is that they can not be handled without leaving finger marks on them. Another reason is that the glaze, or body, remains soft so long that it is liable to be covered with dust and then when burned it shows black spots.

The plastic brick may also be used in the two-burn process. We have no choice with the dry pressed. These must be made two-burn. If dipped in the clay state, the expansion caused by the addition of so much water causes the face to crack and fall away from the dryer portion of the brick. The process is the same for any pressed brick up to the time that the enamel is put on. If made plastic, the brick may be set straight from the dryer, or the body may be put on and burnt in the first burning. Then the glaze would be all that would have to be put on for the second burn.

In considering the advantages of one process over another, the first thing that we shall have to look at will be the difference, if any, in cost. This is certainly in favor of the one-burn, but not to such a great extent. The extra expense of setting, burning and drawing, labor and fuel considered, would not cost over \$5.00 per thousand at the outside. If we get 10 per cent. more good brick by this process than by the other, it would pay to do it. It is claimed by some makers that a bigger percentage of first class brick can be got from making them by the two-burn. You can, if you figure the brick in the finished kiln alone. But if you consider the brick made from the machine as a basis, it appears different. If we make 1,000 brick at the machines and biscuit them, we would probably lose 10 to 15 per cent. in the extra handling and burning. Then, if we got 85 per cent. first quality brick from the finished kiln, we would only be getting 85 per cent. of 950 to 900 brick, not 1,000. So we would be doing just as well if we got 75 per cent. by the one-burn process. I have mentioned the loss by biscuiting. We all know that the more we handle brick the more spoiled ones we get. But where the clay needs grog, this is one way to get it.

One of the conditions on which we sometimes get orders is the time of delivery. If we are running at full capacity and selling all we make, there is no chance to stock brick. Therefore, it makes a difference whether we can deliver in two weeks or four. The one-burn has the advantage here,

for if we cut out the time needed to biscuit the brick, we cut down the time from the clay bank to the stock shed from one-third to one-half. But it must not be thought that all the advantage is with the one-burn brick. A brick that has been biscuited has had some part of the shrinkage taken out of it and all the organic matter burnt out. It may also be burnt up to the point of vitrification, and a body and glaze that matures at a lower temperature than is needed for the burning of the brick. If this is not intended, it is not necessary to burn the biscuit brick so hard. If half the shrinkage is taken out, it will be enough. But they ought to be burned up to this point, or they will be very soft and hard to handle without making rough edges and broken corners. When burned to this point they will absorb moisture very readily and can be taken to the enameling rooms, dipped, knifed and set at once. It would be impossible to do this with plastic brick, as they absorb the water from the glaze and body very slowly. The face becomes soft and they have to be partly dried before brushing and setting. In one other respect the dry pressed brick has the advantage. This is in the finish. A repressed stiff mud brick can never be made with the same perfect face as the dry pressed brick. All repressed brick has more or less of a wavy face. This is not so noticeable on a facing brick, but when the same brick is covered with a bright glaze these imperfections are shown up in no unmistakable way. With a dry pressed brick, properly dipped, there is none of this waviness. This applies to the plastic brick, whether burned once or twice. The greatest advantage the one-burn has over the two is in the cost of equipment. Under the two-burn process, more kilns would be needed to handle the same output than under one burn. A kiln holding 45,000 to 50,000 English size biscuit brick would hold 25,000 to 30,000 of the same sized brick when set as finished ware. These brick might be set in saggars, when the same kiln would only hold 7,500 to 10,000. (Brick are made this way sometimes, but where the profit comes in I have never been able to find out). So we should need about two biscuit kilns to three finished burn kilns, and as kilns cost considerable, what has been said certainly seems to favor the one-burn process, and this is the cheapest way oftentimes. But when ail has been said and done, the way they are made will not always be the way you want to, but the way you can, and this way will depend entirely on the clay you have. I could go on and tell you just what kind of a clay is needed, and you may be able to find just such a clay, which, when tested, will be just what you don't want. What I am going to say is only in a general way. A clay to be near right must burn to a light color, with a shrinkage of not over 1 inch to the foot, less would be better. It should be free from iron, for if it has too much, it is liable to burn out and show through the face, giving the brick a mottled appearance. Too much lime is bad. If made by the stiff mud process, it should be free from laminations. The amount of alumina to silica should be about one to three. It should be able to stand up and keep its shape at a higher temperature than the point of vitrification, that is, the range of temperature should be wide between the point of vitrification and fusion.

CITY OF ST. LOUIS ENJOINED FROM OPENING STREET WHICH WOULD NECESSITATE THE TEARING DOWN OF A KILN.

The Laclede-Christy Clay Products Company won a fight with the city of St. Louis recently, when the courts perpetually enjoined the city from interfering with them in the possession of a strip of ground 30 feet wide running from Manchester avenue south to Wilson avenue, in continuation of Sulphur avenue. The city wished to lay a 36-inch water main on the strip of land and the Laclede-Christy Company, which had a brick kiln erected on it, refused permission unless the company was protected from damage. The city found the strip in question had once been set aside for a public road, and ordered the City Marshal to tear down the kiln. The Laclede-Christy Company got a temporary injunction. Recently the court made the injunction permanent. The court cited the statute which provided, "Nonuser by the public for a period of ten years continuously of any public road shall be deemed an abandonment of the same." It declared that the testimony showed that the street had not been used by the public since 1883 or 1884.



Lead Question in France.—According to a new law just put in effect on April 23 last in France, in all industries where lead is used, very strict hygienic measures have been ordered. The potteries which are using lead exclusively will have to make many changes in their sanitary conditions before they can operate under the new law.—*Moniteur de la Ceramique*, No. 10, 1908.

Clay Beds in Egypt.—Extensive clay beds have been discovered in Egypt. The new clay beds are supposed to be far more extensive, not only in quality, but also in quantity than the clay beds of the city of Keneh, which is well known for its extensive clayworking establishments, and located in Upper Egypt. English parties have taken hold of the proposition, and the clay can be used not only for the manufacture of fire brick and sewer pipe, but also for the manufacture of pottery and terra cotta.—*Tonwaaren fabrikant* No. 13, 1908.

Building Operations in Berlin.—The building operations for the year 1907 in Berlin were much lower than in 1906. In 1906 there were issued 3,461 permits, while in 1907 only 2,730 permits were issued, which shows a decline of 731 permits or nearly 20 per cent. than the year before. The brick manufacturers are noticing this decrease considerably, and on account of the fact that they do not have a mutual understanding as far as prices are concerned, brick is sold cheaper today than at any time in the last few years.—*Deut. Topf & Z. Z.*, No. 43, 1908.

Ceramic School of Bunzlau.—The ceramic school in Bunzlau gives a course every spring for foremen and managers which lasts one week for the teaching of the different principles of the pottery industry. This year about forty-four parties took part in this course, and has been proven beyond doubt that this method of teaching is not what it ought to be. It has been suggested to make parties of six only, and teach them every thing, which would give better results. The first day the party is shown how to operate wheels, jiggers and pressing. The second day, the methods of plaster and moulding, also the making of tools and shoes is shown. The other days are occupied by the other different processes. The suggestions will possibly be carried out next year, and the results will be more gratifying.—*Tonind. Z. Z.*, No. 57, 1908.

Brick Industry in Holland.—The principal brickmakers of Holland are composed of the members of the Association of Netherland Brick Manufacturers. The association publishes every year statistics regarding the production. One hundred and fifty-five brick yards reported a total production of 717,806,500 brick. Along the river Waal we find forty brick yards, while on the river Rhine we find thirty-two brick yards. The business throughout the year was very poor. The yards are all stocked with brick, and the building operations are very poor. The yards were opened very late on account of the high stages of the rivers throughout the spring. The prices remained the same, but the general conditions among the brickyard people are not very encouraging. The pottery industries of Holland have been good, and all factories are well supplied with orders. The clay pipe in-

dustry for which Holland is so well known has held its own. The city of Gouda is still the center of the pipe industry. The total production was 10,800,000 clay pipes. Twenty per cent. of the total exportation of pottery belongs to the pipe industry.—Keramische Rundschau No. 22, 1908.

Stamping of Name on Bricks.—When the bricks are made on machine it is rather an easy matter to stamp them with the brand of the particular brick. A small arm to which is attached either a plaster of paris stamp or a brass stamp attached to the machine, which is in such position that it will move over the column of clay and stamp each brick. This will give the impression all right, and stamps the bricks before they leave the cutting table. For hand mould brick a little hand roller to which is attached the name of the particular brand is sufficient to get the name pressed on in good shape.—Tonind. Z. Z., No. 62, 1908.

Testing of Building Materials.—The Technical Trade Museum in Vienna has installed a laboratory where building materials are tested. Among the materials tested was a sample of sand, which was supposed to be very good for mortar and cement mixing. The chemical analysis showed that it only contained 0.19 per cent. of silica, and that the balance for the greater part was composed of lime and magnesium carbonate, and the sample, which was put on the market by one of the largest building material supply houses of Vienna, showed to be ground limestone. Among the samples sent in in connection with the clay industry, there were three tests for clay, six for opinions regarding material suitable for grog purpose, and the balance were tests regarding the fusibilities and fire resisting qualities of burnt materials.—Baukeramik, No. 22, 1908.

The Use of Face Brick.—At the annual convention of the German Association of Face Brick and Terra Cotta Manufacturers Prof. Michel read a very interesting paper of how it would be possible to increase the use of face brick for building purposes. He proposes a much closer relationship between brick manufacturers and architects, and advises the formation of a "Ceramic Club" of national character in which both builders and brickmakers could be members. He also points out that artistic catalogues showing the possibilities of brick buildings with suitable face brick would be a good point. He pointed with pride to a catalogue of an American brickmaking concern, which has issued such an artistic catalogue, showing in all its details the use and feasibility of face brick fronts. By making competitive designs for large buildings, the use of face brick will be more and more resorted to, and ultimately results will be produced.—Deut. Topf & Z. Z., No. 44, 1908.

Saving of Coal in Burning Kilns.—At the annual meeting of the Material Purchasing Association for Ceramic Industries Dr. H. Roesler read a paper regarding the saving of coal in burning kilns. According to statistics it has been established that the total coal consumption of a pottery is 10 per cent. of the total cost of production. It is therefore very important that the fuel question should be carefully studied in order to procure substantial savings. This can be accomplished by two ways, first, by careful firing, and careful use of coal; and second by the mixing of cheaper grades of coal with a proper selection of the very best materials on the market. In order to save coal properly we should have the right kiln construction. Up-draft kilns are very great coal consumers, the down-draft kilns work more economical, and the new continuous systems of Faugeron and Werne are still more economical. By careful firing, Dr. Roesler brought the coal consumption of his boiler down from 417 to 387 tons per year, a saving of thirty tons.

In firing his biscuit kilns to cone 9, he uses the following methods:

In dry firing, every half hour firing, lignite coal for nine hours; in heating up, every quarter-hour firing, half lignite and half bituminous coal for four hours; further, two-thirds bituminous coal and one-third lignite, firing every quarter-hour, for three hours; full fire, bituminous coal only, every

quarter-hour firing, two and one-half hours. Total duration of the firing, eighteen and one-half hours.

The consumption of coal per kiln was on an average of 5.49 tons of bituminous coal, and 2.82 tons of lignite coal. This was a saving of over half a ton of coal over the previous year per kiln. In figuring the contents of the kiln, Dr. Roesler used as standard, a kiln with a diameter of 15 feet, and a height to the spring of the arch of 11.6 feet, and a total height of 14.80 feet. The total cubic contents of this kiln, as far as available space was concerned, is 2,380 feet. In keeping a close count of the saggars used in this kiln, it was found that the total cubic contents of all saggars in this kiln was only 522 cubic feet, so that only 22 per cent. of the total available space of the kiln was in use.

In figuring further the great difference between the coal consumption per cubic feet of kiln space and actual space, it was found that 1 cubic foot of kiln space takes only 245 pounds of coal, while 1 cubic foot of actual sagger space will take 1,123 pounds of coal. It can be readily seen that by such calculation the cost of coal and its saving per kiln can be figured to a very close margin, and is essential in close competition.—Sprechsaal No. 14, 1908.

THE COST OF PREVENTING BOILER SCALE.

Some time since, Mr. Arthur D. Little, chemist of Boston, was called upon by one of his clients controlling a considerable number of boiler plants, to study the conditions therein, with a view of standardizing the methods of preventing boiler scale and reducing the expense therefor. Obviously his report can not be made public in its complete form, but devoid of specific references, the following general abstract will doubtless prove helpful to boiler owners and operators.

In seven mills Mr. Little found soda ash and kerosene in use, either alone or in combination with each other, while in three mills a zinc compound was employed. The price of the latter was 10 cents per pound, its approximate composition being

Water	28 per cent.
Insoluble Matter	9 per cent.
Sodium Carbonate	43 per cent.
Sodium Phosphate	13 per cent.
Organic Matter (Tannin).....	7 per cent.

Another mill was using a special compound, costing only 2¾ cents per pound, with an approximate composition of

Alkali	14 per cent.
Insoluble Matter	5 per cent.
Water and Organic Matter.....	81 per cent.

Still another mill was using a compound at 6 cents per pound. composed of

Water	10 per cent.
Soda Ash	53 per cent.
Common Salt	33 per cent.
Organic Matter	4 per cent.

It was found that all the mills in the combination which used special compounds were expending nearly \$1,300 per year for boiler compounds. Those which were using only soda ash and kerosene were expending very much less per horse power, although practically the same water supply was provided.

The method of applying the soda ash was investigated, and it was found that in the case of a number of mills there was a mistaken idea of the use of a boiler compound. The methods employed in these mills, while differing somewhat in details, were to add the soda ash once a week and clean the boiler. The true method was shown to be to add the soda ash in small quantity and continuously, and then keep the boiler in a condition so that by frequent blowing off it is kept clean.

It was shown by Mr. Little that a considerable saving could be made and a better result secured, not only by reducing the cost of the compounds themselves, but by keeping the boilers in first class condition and preventing the formation of scale, thereby reducing the amount of coal required to produce the desired amount of steam.

Written for THE CLAY-WORKER.

TO POPULARIZE BRICK PAVEMENTS.

By A. S. Atkinson.



HERE IS NOTHING, probably, which is of greater interest to manufacturers of brick than the popularizing of town and city pavements made of these materials. and nearly every convention of clay manufacturers makes some attempt to discuss at least some feature of this work. The paving of our streets and avenues is going through a good deal of the experimental stages, and almost everything from wooden blocks to asphalt and granite blocks are being tried. Engineers are apparently unsettled in their views, and many of them differ as to the relative merits of the various materials.

This much, however, may be taken as representing the best engineering practice. The method of street paving must be improved so that the past enormous waste can be cut down, and to accomplish this better engineering practices must be observed. In the past so much graft, political pulls and inferior work has been done that many towns have been almost bankrupt in trying to pave their streets, and, as a result, they are dragging along with broken and inferior pavements in the hope some day of finding a more satisfactory solution to the problem.

First, as to the materials. It requires no extended comparison of figures to show that brick make an ideal paving material, and that they hold their own with any other on the market. It has been said that the only real rival of brick for paving purposes is asphalt. But asphalt pavement costs from one-fourth to one-third more than brick pavements in the original work, and give no better results. Indeed, in warm states, where the long summers are very hot, asphalt is not a good pavement. The heat renders the surface soft and pliable, so that it does not make a good, firm surface, and it becomes so hot that it actually burns the hand or foot if placed on it. In Washington, where probably more asphalt has been used than in any other city, the heat is frequently almost unbearable in summer, and the amount of heat radiating from the pavements increases the temperature of the surrounding atmosphere nearly 10 per cent. This has been demonstrated by statistics. Streets paved with asphalt in the capital have shown a steady summer temperature of several degrees higher than adjoining streets paved with brick.

The lifetime of a pavement must also be carefully considered. The repairs after the first few years may become a most important item. Asphalt is notoriously a material that requires constant attention. Within two or three years holes and depressions appear, and the repairs must thenceforth be carried on almost annually at considerable expense. The experiences of cities show that it costs from ten to fifteen times as much for repairs on asphalt pavements than for brick. The difference in cost may thus, within fifteen or twenty years, prove a most formidable matter. Then, too, the price of asphalt has steadily advanced, and, as the supply of the raw material is limited, it is bound to go higher and fall into the controlling hands of a few big corporations. Already in New York City, the control of the asphalt has become so centralized that the city has refused to accept the high bids offered. These bids have jumped from 75 cents per square yard two years ago to \$1.48 per yard, the latest bids rejected by the city.

In its extremity the city of New York has tried wooden

blocks for pavements, brick, Belgian blocks, and many patent concerns, and the solution of the paving of the future is one that rests uncertain. No recent active work has ever been conducted in New York for paving its streets with brick, and the reason for this may be plainly indicated in the opposition to brick caused by the early failure of such pavements before engineers had developed their work to its present standard.

Way back twenty and thirty years, there were a number of miles of brick pavements laid down in New York. They proved unsatisfactory for the reason that very cheap brick were used, and the contractors performed very inferior jobs. The foundation simply dropped away and the brick cracked and fell apart. As a result of this early experience, brick have never been popular in the metropolis. To some of its inhabitants it seems like returning to primitive conditions.

But so would the adoption of wooden block, and yet a number of miles of wooden blocks were put down in some of the most prominent streets of the city. This was accomplished in the face of prejudice and opposition. The manufacturers of the wooden blocks, after claiming great improvements in their method of work, secured permission to construct experimental pavements at their expense for the city. They built several blocks of wooden pavement and left it for the city authorities to judge the results. The company took particular care to make a perfect foundation of concrete, and then laid their blocks scientifically on end and sprinkled the surface with fine sand to work between any open joints. It was by this work that the wooden block company obtained contracts for paving other streets at good prices.

The wooden block pavement is an experiment, and the final test of it can not be determined until the cost of repairs for fifteen or twenty years can be computed. Time alone will demonstrate the virtues or weakness of this paving material. But here is a point for brick manufacturers. In the present uncertain condition of paving, would it not pay brick-makers to give demonstration examples of their best creations in a city like New York, where the paving question is passing through such evolutionary changes?

This brings up the second part of the problem of paving, viz.: the method of construction. The brick furnish one of the best materials for paving purposes; this can not be disputed. But so much depends upon the construction of a good pavement that the best material may be easily ruined. Right here it may be stated that more poor brick pavements have been laid by ignorant or irresponsible contractors than of any other material. The reason for it is easily discovered. The contractor is not a brick manufacturer, and he has no particular interest in proving the special virtues of brick for pavements. So he is not interested in furthering the cause of brick for pavements. He is trying to get contracts, and if his pavement proves inferior after a year or two, or the repairs run up alarmingly, he can easily shift the blame to the brickmakers, and claim that the material was not good.

This is the story of many a failure of brick pavements. A contractor has bid too low for a contract and skimps his work in order to save a loss, or he has had to stand in with some local political power and divide the profits. He has not skimped on the brick or their quality, for the cheapest paving brick will prove their worth if properly laid. But he has skimped on the method of construction. An inferior

foundation means a collapse sooner or later, and when that begin to sink the brick fall all out of position. The whole disruption of the pavement is then merely a matter of a short time. Some contractors have the audacity to follow the practice of laying brick pavements that was in vogue fifteen and twenty years ago, and then expect that the job will compare favorably with asphalt, Belgian blocks, or other material laid on good cement concrete foundations. The laying of brick pavements on a layer of gravel or sand may have answered a dozen years ago, but today the foundation should be made of more permanent character. A 6-inch concrete foundation, 2-inch sand cushion, with one to one cement filler, and good expansion joints, give to brick pavements a lifetime of wear that make them the cheapest of any material ever used.

It is on the foundation work that contractors can best skimp their work and where it is usually done. Cement costs money, and to economize in its use means inferior work. For the sake of saving a few barrels of cement, many

uncertainty. Local conditions and methods of work must alter the figures tremendously. The old paving brick laid years ago were very inferior in quality compared to those manufactured today, and the trade has reached a point of development where contractors can be assured of certain definite results so long as the foundation and laying and construction is good. Of course, there are some inferior brick made today and offered for brick paving, and some towns in their efforts to have the work done cheaply use this material. In small towns where the traffic is comparatively light, and the taxpayers are anxious to keep down the cost, there may be some excuse for using inferior brick, but in towns and cities of heavy traffic such policy is always suicidal. The best brick and the best sort of foundations are essential for the good name and reputation of this kind of pavement.

The repairing of brick pavements is also an important consideration, if one is anxious to secure good results to show the value of this material. A good many slipshod repairs are made by inexperienced contractors or city work-



Euclid Road, Cuyahoga County, Ohio—Brick Pavement on Concrete Foundation. 2.3 Miles Long, 28 Feet Wide. Stone Curb. Cement Filler. Completed 1905. Photographed 1908.

a contractor has given a severe blow to the whole brick pavement question. It is to the interest of manufacturers of brick pavements to look this question fairly in the face and make some effort to settle it. It would prove of the greatest value to the whole business of brick pavements if manufacturers entered directly or indirectly into the paving business. With their own engineers or contractors, they could lay pavements in the most approved manner, which would establish a good reputation for their product. Or, in the event of not wishing to undertake this outside work, to back up some responsible contractor who would do his work according to the best specifications drawn for this kind of work. Follow the N. B. M. A. specifications; they have been tried hundreds of times and never found wanting.

The need for such standard workmanship is very urgent today. Practice differs so materially in various parts of the country that figuring upon the life of brick pavements and the relative cost of upkeep is always more or less of an

men, and, as a result, the whole pavement begins to sag. An instance of this kind came to the writer's notice in a small eastern city. The original pavement was laid on a good concrete foundation, and for ten years there were no repairs needed. Then, owing to an accident, part of the pavement had to be removed for correcting a defect in a sewer. The repairs were made by inexperienced workmen, who laid a very inferior foundation of gravel, with a thin coating of concrete on top. This foundation lasted one winter and then began to crack and carried the brick down with it. Not only this, but the water got under the old foundation and carried the dirt away, so that the surrounding concrete failed and fell down.

The result of this was that the repairing had to be done over again over a wider extent of surface, and as this was performed in the same slipshod manner, the cracking was repeated the next year. In that city brick paving was given a bad name. It was pronounced unsatisfactory and the

demand was made for repaving. The city authorities agreed that the brick paving was all right for ten years, but that was too short a life to pay. If the repairs had been made in the same kind of manner as the original work, it is safe to say that the brick pavement would have been good for another ten years at least.

The tearing up of the brick pavements by the telephone, telegraph and gas companies is another work that calls for urgent investigation. In nine cases out of ten these companies make the mistake of putting the bricks back on a poor foundation, and the bricks begin soon to sag and drop near the curb. This is so notoriously true that some cities, employing their own engineers, permit outside companies to tear up the pavements, but do not permit them to relay them. This is done by the city engineering department, and the cost is charged to the telegraph or telephone companies. This is the only way to secure good repair work. It is of no interest to the outside companies to put the brick down on a good foundation, and their chief object is to have the work done as cheaply as possible. They leave the pavement with a good surface appearance, but with a very poor foundation. The terms of the permit allowing the companies to tear up the streets enjoin upon them the necessity of replacing the bricks in as good condition as beforehand, but how many times is this done?

There is in fact an urgent need of a complete reorganization of the method of laying and repairing street paving bricks. The manufacturers would do well to make their demands heard. They should join in every locality to see that in the first instance every pavement is properly laid, and then secure some oversight of all repairs. Rigid specifications of what constitutes a good foundation and paving should likewise be made a matter of general concern. Brick paving must depend for its popularity upon good workmanship, and in the present state of the business the manufacturers could prove an important factor in extending the life and cost of the work. In the management of city affairs no question is more agitated than street paving, and no question involves more expense to the community. Towns and cities are striving to find the cheapest and simplest way to solve the problem, but cheapness and poor workmanship is the most costly in the end. This fact must be borne in mind and impressed upon those responsible for the spending of municipal funds for street improvements. Brick pavements are the most durable, sanitary and economical of all pavements. With good workmanship and careful supervision on the part of the contractor, and the employment of a good grade of brick, laid on a 2-inch sand cushion, over a 6-inch cement gravel and stone concrete foundation, with the most essential feature, a one and one cement filler and expansion joints, a pavement is made which is without equal.

TAKING A CHEERFUL VIEW.

There is one thing that it behooves every man to forget, and that is the habit some have fallen into of comparing the amount of business this year with that of last. The wise man will let the past take care of itself, reserving only so much of the memory or experience as will help him in the present or future. But if any comparison is to be drawn between this year's business and that of any other year, that comparison should not be drawn with last or the year before. It is an injustice to the showing of the present year of grace to expect any such showing in any line as was recorded in 1907 or 1906. Both of those years were phenomenal—way above the average. It is necessary to go back to 1905 to find a normal condition, and when you do that, 1908 is not so bad after all. So in justice to yourself, and as an aid in taking a better view of things, forget 1907 and 1906, with their freakishness, and with 1905 to draw conclusions from, you will be more cheerful.—Exchange.

FIRE PREVENTION.*

By F. W. Fitzpatrick.

Executive Officer International Society of State and Municipal Commissioners and Inspectors.

BUT A FEW YEARS AGO a doctor was called in only in case of illness and then was invariably expected to give medicine. And the nastier the medicine, the greater was the chance of recovery. At least so thought the average layman. Today our doctors are expected to, and actually do, a great deal to keep people well, and the best of them give mighty little medicine, prescribing, rather, sane and hygienic living and diet. So with fire; twenty years ago our fire departments existed solely to put out fires when they occurred, and the more water that could be thrown on, in spite of the damage it did, the more effective was considered the department. Today our people look to the fire departments not only for fire extinguishing, but for advice and help in the prevention of fire, the minimizing of its dangers. Why, the very titles of the papers that have been and are to be read to you during this meeting and the subjects that are up for discussion tell the whole story of the wonderful progress, the modernizing of the methods, the widening of the scope and the marvelous efficiency of your several departments.

No one in this organization has the idea that the fire department is of minor importance in a city's affairs, but some of you perhaps have an inadequate idea of what fire means in the aggregate to the country. Only the biggest of figures can tell the story. Think of it, just one conflagration in San Francisco wiped \$320,000,000 out of existence; another meant devastation to the tune of \$90,000,000, and the conflagrations, or even individual fires of a million or two, are, alas, far from uncommon. Six hundred thousand dollars a day is our average. Last year, one in which there were no extraordinary fires, \$215,000,000 was our total. This year, in January, we allowed \$24,000,000 of property to burn. That amount represented more by far than was done in the way of new buildings and repairs in the same period, for this work during the entire month only totaled \$16,000,000. A destruction of more than is produced means that, if unchecked, ultimate bankruptcy stares us in the face. Over and above what fire costs us in actual combustion, remember that your departments, the installation of high pressure water service and all that sort of thing, the incidentals of fire, as it were, costs us another \$300,000,000 a year. Then, plus all that, we go to work and spend \$195,000,000 in buying insurance, an alleged protection that pays us back barely \$95,000,000 of that amount in adjusted losses per year. In fine, the aggregate of fire's actual havoc and of what we spend in fire fighting amounts to just about \$600,000,000 per year. It may not be amiss to add that the biggest year of our building history shows a record of about \$600,000,000 expended in new buildings and repairs! Eliminating all the incidentals, our actual fire loss is about \$2.30 per capita per year—a pretty heavy tax—while the same tax in the average of European countries is less than 33 cents per capita.

Over 99 per cent. of the fires you are called upon to preside at occur in buildings. They, then, are the great basis of trouble. We have pretty nearly 12,000,000 of them, and their value is approximately \$15,000,000,000. The very minimum of value of their contents is another \$150,000,000,000. Those two sums represent the total property value entrusted to your care! A responsibility that is blamable for many of your gray hairs. They tell us that we number 80,000,000, and we are safe in saying that every one of those people occupy building for many hours in the day. All those lives

*To be read before the Convention of Fire Chiefs, Columbus, Ohio, August 26, 1908.

are, therefore, in your care, too. Work as you may and expose your lives as you will, and in spite of the heroism of your subordinates we pay the toll in blood as well as in money for our folly in the continued use of inflammable construction. Seven thousand human lives have been wiped out of existence by fire in this country in one year's time.

Build up your departments as you may, the fire loss is increasing at a ratio away ahead of the increase of population, or of the increase in buildings added, and what help are you receiving from the people in any effort you or any of us can make at fire prevention? After all, as Artemus Ward said, "To prevent, you have to prevent," and as the main cause of fire lies in buildings, the only thing to do with buildings is to make them so that they will not burn. When you do that, then, and only then, will there be a real prevention. All the "slow burning," "semi-fireproof," and those other makeshifts are fond illusions. There is just one thing that will prevent fire, and that is fireproof construction. The people are beginning to know it, but they are going so slowly about it that of all the 12,000,000 buildings we have mentioned before there are scant 8,000 in which any effort at all has been made at fireproofness, and of those 8,000 I doubt if there are more than six buildings in the entire country that can be termed fully and absolutely fireproof!

And the folly of it all is that the initial cost of such construction is only a trifle more than that of ordinary, combustible methods. In no case would fireproofing a building cost a man more than the sum necessary to produce in annual interest the premium for insurance that he has to pay upon his alleged "economical," ordinarily constructed building. There is positively no reason for combustible building today. It is an extravagance, national and individual, an insane, criminal extravagance, one indulged in simply because of the unthinking habit people have gotten into of so building.

You need no one to tell you what a fireproof building is, and what are the materials best suited to withstand the fiercest attack of the demon fire. You have too often seen granite and marble and stone and iron distorted and disintegrated to have to be told that those materials withstand heat and flame but little better than wood. You know that steel work has to be properly encased and protected, and preferably in fireproofing tile; you know that brick and terra cotta external walls best stand the fiercest heat; you know that enclosed stairways and elevator shafts mean the confining of fire to some one floor in a building and that it is always easy to handle it there, and that the smaller the units of space in a building the less chance there is for fire to spread, and that wire glass or other sufficient protection to windows means the salvation of many a building. For you also know, of course, that fully 44 per cent. of our entire fire loss is traceable to the window route. All this constitutes what has been termed "standard fireproof construction." You know, too, that many substitute schemes have been tried and most of them found wanting. Few among you chiefs have not been called upon to extricate workmen from the debris of collapsed reinforced concrete constructions, and therefore are you well qualified to go before your city authorities and demand extra precautions and safeguards to be thrown around such experimental and hazardous modes of construction, if they are to be permitted at all.

But your principal work lies, and will lie for many years, in spite of all our efforts, among the old and inflammable buildings of our cities. Many of them are hopeless, and when they go, if no loss of life accompanies the going, we may well sing "hallelujah." But in many of them much could be done towards fire prevention. The direction of new construction rightfully belongs to the members of my society, but the control of the old buildings, I submit, should be entirely in your hands and you should clamor for drastic regulations anent their improvement. It is a crime for your cities to allow people to live in those buildings, to tolerate them in the community and to expect you to endanger your lives fighting the fires that are bound to occur in them. Those old structures should have their windows protected and have their stairs and elevators enclosed, should have the

maximum of fire appliances and automatic alarms about them and everything done that modern science can devise to lessen the awful danger they represent.

In those old, as well as in all new buildings, little dependence should be placed upon the so-called "fire escape." Most devices under that name are delusions and snares, and you know it.

The one sane thing to do is to have the main stairway of every building, the one commonly used by people for ingress and egress daily, made absolutely fireproof in itself, served by self-closing doors at every story and opening directly upon the street. Then you have a real fire escape that will always be safe and to which people will instinctively go in case of danger.

There are a few other things that we, the Building Inspectors' Society, are clamoring for, and in which clamor you should join. We need your co-operation and there is every reason in the world why you should give it to us. People pay infinitely more attention to what you say about fire than to any one else in your city. Others can be called theorists, but your people know that you have practical experience in fires. Every day we see fresh signs of the tendency there is to place more and more responsibility upon your departments. It is meet and just that you should have that responsibility. There may even be a time when the fire department and building department will be so closely knit as to be under one head. But in the meantime, and since they are separated, let us work in unison and for the single purpose of benefitting our cities.

Stricter building regulations are a prime essential in every city. At least in the downtown business district no half way measures should be permitted, and only absolutely fireproof buildings allowed.

As things are today, the man who does build fireproof is taxed extra for the privilege! He actually pays a tax upon the additional tax he imposes upon himself. This should not be. Property taxes should be graduated so that the owners of first class buildings, requiring the minimum of fire protection, pay the lowest possible rate, while the owners of fire traps, for whom your expensive fire departments are maintained, should be compelled to pay the maximum. This is but equitable and sensible!

Architects and builders should have to pass an examination and be licensed before allowed to build or practice. Few of them know much and care less about fireproof construction. And the infraction by them of any of the building regulations should mean a revocation of the license.

Every building hereafter erected should be under the supervision of an inspector licensed by, and reporting to the city, though paid by the owner of that building. He should, of course, take care of the interests of that owner, but his duty is first to the city. He would be a city official virtually loaned to the owner to carry out that work, and any wrong-doing on his part or connivance at infraction of the building regulations should mean his debarment from superintendence in that or any other city.

Today any man can, and many do, advertise and announce this and that building as being "absolutely fireproof." Owners of theaters and hotels are particularly inclined to do this, and most of those buildings so advertised are little better than match boxes. The layman who is not over-discriminating believes this and tenants are obtained under false pretenses, and many lives and much property are thus endangered. The building department should be called upon to label every building in the business district, and certainly every other building of a more or less public nature should be labeled "fire-resisting," "ordinary," and "dangerous." This would make the building departments rather keen in not having their labels proven wrong, and it should be made a grave misdemeanor for anyone to advertise his building as belonging to a class superior to that in which it is labeled. In building a hotel, for instance, if a man knew beforehand that his structure was going to be called "dangerous" he would think twice before starting out on the proposed basis, and the chances are, a hundred to one, that he would build fireproof. No one greater step could be taken toward fire prevention than this very one of labeling the buildings.

You have done magnificent work, spectacular and heroic deeds in extinguishing fires; the great men of old established their greatness upon the battlefield. Today there is a new order of things. The battlefield is a thing of the past. Statesmen and nations settle their differences by peaceful means, and peace is the watchword of our era. So with you, gentlemen. For a long time yet you will have to face the grim task of fighting fires, but you should keep steadily before your gaze another and paramount purpose, a greater one, too, that of doing all in your power to PREVENT fires!

Written for THE CLAY-WORKER.

ATLANTIC CITY, ITS PROSPERITY AND BRICK PLANTS.

A City Buildded On the Sand Will Endure Because Buildded of Brick.



FEW AMONG THE MANY thousands who, on pleasure bent, visit Atlantic City and revel on that matchless stretch of sandy beach, give even a passing thought to the fact that behind that beach with its famous board walk and countless hotels and amusement places, there is a great municipality that directs and governs the vast throng of visitors in a manner to insure the safety and welfare of every individual. Yet this is done, and done so well and so quietly that the throngs do not realize that there is any governing or need of it. That this is no mean task may be realized when one remembers that every Saturday during the summer months from two to four hundred thousand pleasure seekers pour into the city and spill themselves along the beach which for six miles is lined with amusement halls, cafes and hotels. Back of these is a prosperous city of nearly 50,000 permanent residents with all the commercial

was replaced by soft mud machinery. a steam dryer was built and since then the plant has been run the year round, turning out from 50,000 to 80,000 building brick per day, according to the demand of the local market.

The present equipment consists of two Martin machines with Potts' mold sander for each. The brick are dumped on wooden pallets and taken to the dryer on rack cars, and thence to common up-draft kilns which are lined along the railroad siding. Of recent years, trouble of an unusual sort has occurred. When the kilns are burned, oftentimes the smoke, instead of ascending skyward, as it should, seems to find an affinity in Mother Earth, and hugs closely to her with the result, some of the neighbor farmers claim, that the vegetation is killed. Whether this is due to the sulphur in the soft coal, or to vegetable matter in the clay is a disputed question. Probably it is a combination of both of these undesirable elements. Be that as it may, damage suits have resulted and the end is not yet.

Perhaps a continuous kiln would prove a panacea for this trouble, and the attention of Doctors Youngren, Haigh, et al., is called to the case. It is a very singular case of history repeating itself, for many years ago the grandfather of the Somers Brothers was a brickmaker in old England, and was at one time confronted with the same smoke nuisance diffi-

The Country Club.



In the Good Old Summer Time.



Club Entrance.

Atlantic City, N. J.



Hubert Somers Makes a Bluff.

and industrial interests found in up-to-date American cities. including a number of sky-scrapers that we are glad to observe are mostly of brick and terra cotta construction.

Until recent years frame or wooden buildings were the rule here. A conflagration or two emphasized the danger of such structures, and now most of the buildings that are going up are of brick and the old adage that a city buildded upon the sand shall not stand is likely to be refuted, for Atlantic City is destined to be a city of beautiful permanent homes and hostelryes.

Realizing that ultimately brick would supplant lumber to a great extent, the Somers Brothers, dealers in lumber, several years ago made a thorough search for suitable clay and located extensive deposits some eight miles from the city on the line of the Pennsylvania Railroad.

The Usual Brickyard Experience.

The clay was tested by experienced parties and declared suitable for the stiff clay process, so a well equipped plant of that type was erected, but strange to relate it was found in actual practice that a mistake had been made, that the clay could not be worked satisfactorily by that process and after considerable loss and vexation. the stiff clay machinery

culty, but with what result is not now remembered. We are sure it cannot be considered a family trait, but merely a coincidence.

The Clay Bank.

The gathering of the clay presents some unusual conditions and difficulties. Nearly all of the surface deposit is usable and ranges from seven to twelve feet in depth. Beneath this is a vein of water, which if penetrated is likely to give much trouble. There is at best a large flow of water to be controlled and the current is toward the clay pit. A drainage canal extends along one side of the pits and the water is pumped from this at the lower end. Mr. Somers has thought some of using a steam shovel but he has never been able to convince himself that under the conditions a shovel would really prove more economical than the present method. The clay is shoveled into large side dump cars and hauled by cable in trains of three to six cars. The cable is the longest the writer has ever seen in use on a clay plant. The grade is not sufficient to cause the cars to run back the entire distance to the pits, so a team is necessary to place the cars, but the cable does all the hauling after the cars are filled.

Speaking from our own experience, we advise all mem-



General Office of the Somers Brick and Lumber Company.
Mr. Hubert Somers in Foreground.



Mr. Warren Somers and Party of Brickyard Visitors at Plant of Somers Brick Company.



Clay Bank Where the Cars are Loaded by Hand.



Hauling Empty Cars From Foot of Incline to Clay Pits.



Superintendent Elton Braddock in Brickyard Uniform.



Coal Cars on Siding Near Kilns.

SCENES AROUND THE PLANT OF SOMERS BROS.' CO.

bers of the N. B. M. A. who visit Atlantic City to be sure and call on the Somers Brothers and accept the invitation that is sure to be extended, to visit the plant, not alone because it is an interesting plant, but as well because it means a delightful spin over as fine a stretch of macadam road as one may care to see. Both Hubert and Warren Somers are expert autoists, and think nothing of making the eight mile run to and from the plant in twelve or fifteen minutes, provided, of course, no stop is made at the Country Club. In the latter event, more time and things will be consumed, but then one does not begrudge the time under such happy conditions.

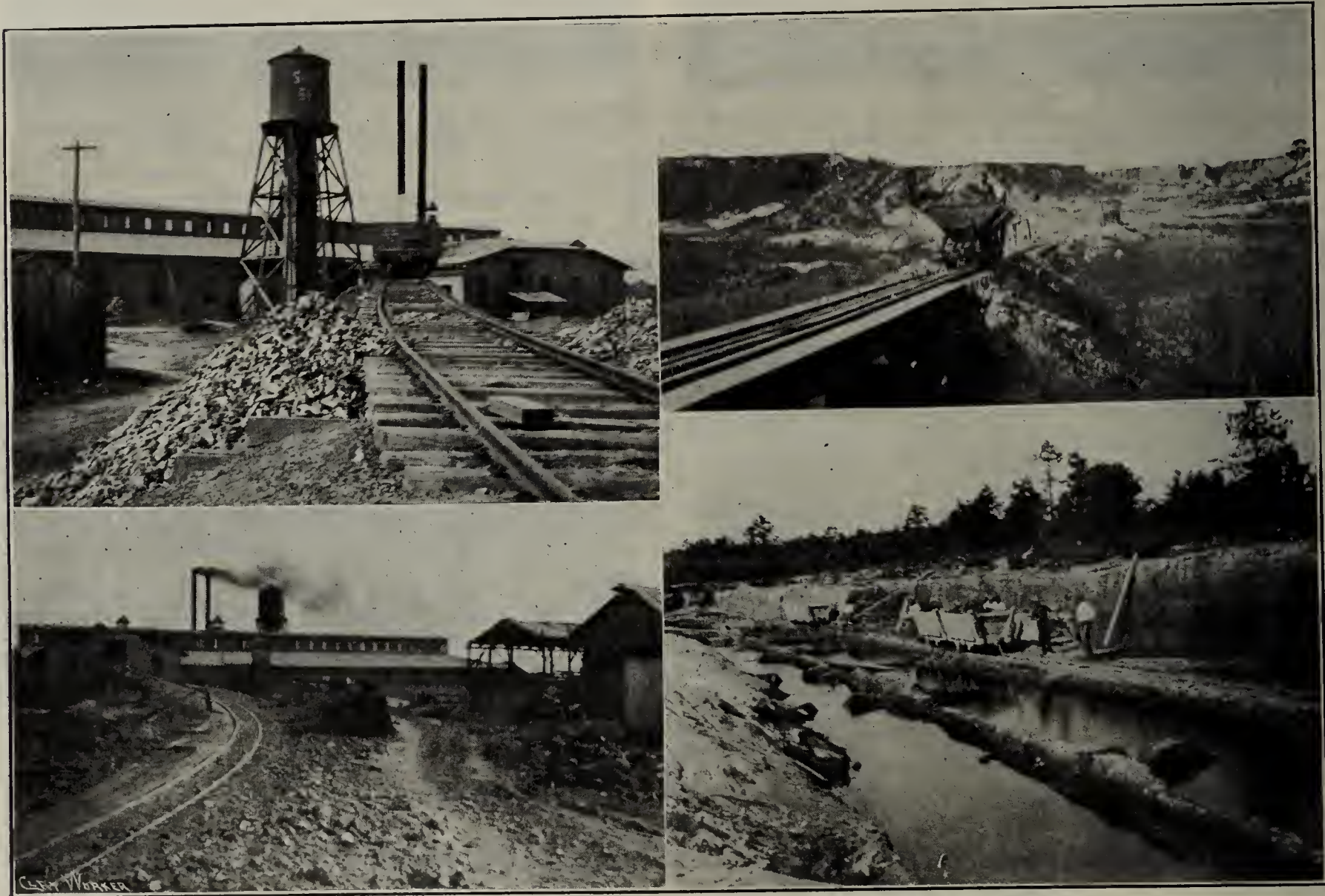
The streets of Atlantic City, too, are fine driveways, there being some nineteen miles of paved streets, a goodly portion of which are brick. These ought to be inspected personally each year by every clayworker in the land, especially by those

a strictly first class equipment was installed, but up to date the success hoped for has not been realized. At the time of our visit, the plant was shut down that a new tube mill might be built. The perseverance of the owners deserves success, and perhaps they may yet achieve it. We hope they will.

T. F. S.

"THE ORIGINAL COMMERCIAL SIN."

Under the above striking title, C. C. Hanch, in "American Industries" for June, says that he believes that to the evil of watering stocks can very largely be traced all kinds of graft, both public and private, also the great financial upheavals which come as a result of business depression. It is apparently his idea to convey the impression that this desire of getting something for nothing by watering stock



Snap Shots of the Brick Plant of Somers Brothers' Company, Atlantic City, N. J.

who are feeling depressed. The air of prosperity which pervades this great resort is very reassuring and cheering.

The Sand-Lime Plant.

Perhaps it may occur to the reader that Atlantic City is an ideal location for a sand-lime brick plant. In fact, such has not proven true. There is an endless supply of sand all right, but it is not sharp enough to work well. Some years ago a local company was formed for the purpose of making sand cement brick. The promoters were very enthusiastic and having ample capital, a plant was erected, but it was not successful. Though \$200,000 were spent in the attempt, the product was not acceptable to the local builders and the plant was sold for \$20,000, subject to an indebtedness of \$30,000. The purchasers reorganized and under the name of the Ventnor Brick Company, undertook to make sand-lime brick. The necessary changes were made in the plant and

is the original commercial sin, for he mentions also that since the beginning of recorded history it has been regarded as immoral to attempt to get something for nothing. This, he claims, is true whether the attempt be in the form of petty larceny, burglary, highway robbery, or some of the more subtle forms of stealing, such as selling gold bricks and forcing onto the public devices and worthless stock of one kind and another. It is all right, we don't object to his giving the stock jobbers a rap on the knuckles or a punch in the jaw, but we really think that it is possible to go even back of this and find that the desire to get the almighty dollar in this country, or the love of money throughout the civilized world, while possibly not the root of all evil is certainly the original commercial sin, when indulged in to the extent of taking up questionable methods to attain wealth, and without this love for riches there would not be this criminal indulgence, so it is the desire for wealth that furnishes the real origin of commercial sin.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE PACIFIC COAST brick business is comparatively quiet, and especially so in the neighborhood of San Francisco. More work is being done at the yards, and deliveries on the whole are heavier than a few months ago, but the summer is now well advanced, and the results are not altogether satisfactory. While the accumulations, which were very heavy at some of the yards, have been considerably reduced, there are still liberal supplies of most stock varieties on hand, and few companies in this part of the State are taking enough orders to keep them working full time. Conditions in the city are much the same as they have been all summer. The total valuation of buildings for which permits were issued during the past month shows a still further decline, though it is holding up fairly well. Local brickmakers say that they have a lot of good business in sight, but the majority of building projects of late do not seem to get much farther than plans and figures.

In other parts of the coast there is somewhat more activity. A number of manufacturing enterprises are being developed in the North, and good-sized deliveries are being made on various buildings between here and Los Angeles. Improvements are actively going on in the country towns of the interior, where money is becoming plentiful again as the returns on the crops come in.

Prices show very little change. Common brick remains about as weak as ever, though there is hardly as much pressure to sell as formerly. Prices on glazed and face brick are fairly well maintained at the figures quoted before, though the movement is not up to the capacity of the plants.

The Carnegie Brick and Pottery Company has just moved its San Francisco offices from the old Montgomery block, 628 Montgomery street, where it has been located since the fire, to the new Thomas Clunie building, at the southwest corner of California and Montgomery streets. The company is making some good-sized deliveries of terra cotta for the Court House of Sonoma County, in Santa Rosa, Cal.

The California Brick and Pottery Company's plant, at Glen Ellen, Cal., which was started up toward the end of last month, now has orders on hand to keep it working about half time, and is not making any surplus.

The San Francisco Brick Company and the Golden Gate Tile Company, are now located in their new offices at room 610 in the Wells-Fargo building.

The Stockton Brick Company, at Stockton, Cal., is keeping quite busy at present, most of its output being white enamel brick, though it is also getting some orders for a colored enamel brick.

The California Brick and Clay Manufacturing Company's plant at Antioch, Cal., is making heavy deliveries of hollow partition tiling for the Palace Hotel and for the new Custom House.

N. Clark & Sons are still keeping busy at their plant in East Oakland, but they report little new business at the present time. They are delivering semi-glazed cream-colored pressed brick for the Schmiedell building at the corner of Montgomery and Clay streets.

The Carquinez Brick and Tile Company, while it reports no new business of great importance, is working its plant at Eckley, Cal., full time on back orders, and is preparing to put in eight new improved kilns at a cost of about \$50,000.

Robert E. Alexander, formerly president of the Alexander Brick Company, died recently in this city.

The Golden Gate Sandstone Brick Company has taken an order for face brick, to be used in the new Southern Pacific Hospital in this city. The order calls for about 125,000 brick of the sand-lime variety. The common brick for this building, amounting to about half a million, are being furnished by a San Jose company.

The Board of Public Works, of Oakland, Cal., has asked

the City Council for an appropriation of \$10,000 for a storm sewer from Clifton avenue to Lake Merritt.

A contract for between a million and a half and two million brick for the W. J. Sackman sugar factory, at Santa Anna, Cal., has been let to the City Brick Company, of the same city.

The machinery for the new factory of the Union Brick and Tile Company, at Santa Monica, Cal., has arrived, and the plant is expected to be ready for operation early this month.

Clay development is going on rapidly in the neighborhood of Corona, Cal. Chester Garner, of that place, has completed a quarter of a mile of road to his clay beds, and has driven a 25-foot tunnel into the beds. Other development is going on at the McVicar-Terpening claims, where 200-foot tunnels have been driven.

D. L. Beardsley and others interested in the Realty Syndicate, of Oakland, Cal., have bought a brick and tile plant at Vallejo, Cal. The new owners state that in addition to common brick they will make paving brick. It is possible that this material is to be used in paving the new streets which the Realty Syndicate is gradually opening up through its extensive lands east of Oakland.

Near the end of last month a large scow schooner heavily loaded with brick went down in shallow water beside the Mail Dock in San Francisco Bay. At the present price of material, the schooner and cargo together were not worth salvaging, but owing to the position, they had to be removed. A diver and an automatic conveyor were kept busy several days unloading the cargo.

The California Stoneware Company has been incorporated in Sacramento, Cal., with a capital stock of \$5,000. The directors are: W. N. Bundock, H. F. Bundock, R. Bundock, C. R. Stubbs, and S. I. Hopkins. The company succeeds to the ownership of the stoneware manufacturing and clay products plant of W. N. Bundock.

The Modesto Repressed Brick Company's factory, at Modesto, Cal., under the management of J. W. Craycroft, has just burned its last kiln for the season.

L. E. Hayes, manager of the S. P. Brick Company, announces that he has just burned the second kiln for the season, containing 300,000 brick. A third kiln will soon be ready. A new 1,200-gallon oil vat has recently been installed.

The Pymont Brick Company has let contracts for excavating two pits, each 225 by 70 feet and 6 feet deep, at Lincoln, Cal. Machinery for the new plant is now on the way from Cleveland, Ohio.

C. H. Spinks and T. W. Tetley are planning to put in a brick plant at Livermore, Cal. They made a proposition to the merchants of the town some time ago, and a site of six acres has been secured for a factory.

Schroeder Bros. have done considerable development work at their brickyards at Arago, Ore., this season, having put in a new boiler, and made other necessary improvements, and are now turning out a good quantity of A1 brick. They will burn about a million brick during the season. They have forty acres of very fine clay that will average about 7 feet thick, with no top soil, roots or anything to remove. Next year they intend to put in a tile machine, as there are large quantities of tile wanted in that section, and none is to be had near at hand.

Two carloads of machinery have recently arrived at Buhl, Idaho, for the new plant of the Buhl Pressed Brick Company. The new factory will have a capacity of 15,000 to 20,000 brick a day. The machinery is now being installed, and the plant will be in operation before the middle of the month.

All of the machinery for the plant of the Humboldt Clay Manufacturing Company, at Freshwater, near Eureka, Cal., has arrived, and is now being installed.

J. D. Martin is erecting an experimental brick kiln near Palo Alto, Cal., for the purpose of testing a deposit of clay recently discovered by him.

Julius Gobeau, of Everett, Wash., has found what is claimed to be a valuable deposit of tile clay near that city, and is now endeavoring to secure assistance in opening it up for the manufacture of floor and roofing tile.

J. R. Harris, of Barberton, Ohio, recently appointed chief engineer of the Pacific Clay Company's plant at Corona, Cal., has arrived at Corona, accompanied by his wife.

San Francisco, Cal., August 5.

SUNSET.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



MUCH THAT IS interesting to the makers and dealers in brick has been noted in Chicago during the past month. The building situation itself, with little to indicate a financial stringency only a few months ago, and complications born of recent adversity and present somewhat surprising prosperity, have offered subjects for speculation and for gossip.

There have been, also, some interesting tests of building material at the Underwriters' laboratories here. As a result, a committee is now at work in New York City, trying to outline specifications for both clay and sand-lime brick upon which as a basis fire insurance policies may be written.

The tests and the present work of the committee, which is composed of a sub-committee of the National Fire Protective Association, co-operating with a committee representing the National Association of Manufacturers of Sand-lime Brick Products, followed the complaint of the sand-lime brick people that they were being discriminated against by the insurance underwriters in the matter of rates and ratings. They insisted that the prestige which fire clay products held over theirs was not fair to them, and so much protest was made that the decision to give a test resulted, and the tests were made a few weeks ago.

Accordingly five groups of sand-lime brick, submitted by the sand-lime men's association, and four groups of clay brick, selected by representatives of the laboratories, were given stringent and exacting tests. They were tested not only for their qualities of withstanding heat and flame and sudden changes of temperature, but were also tested for general characteristics. As a result of the tests the scientific men who had conducted them made out an outline of specifications and submitted them to the committee, which is now in session. What the findings of this committee are to be, and when, if at all, they are to be made public, is still unknown. Some reports will be had, however, and whatever information is gleaned will be received with interest, especially by those who are curious to know whether or not the sand-lime brick people have been able to overcome the prejudice which has long maintained against them in the minds of scientific builders.

It may be mid-summer and the dog days, but it is surely no gloomy nor despondent season for the brick dealer. Every office is about as busy as it can well be; most of the offices report that they are doing double, or nearly double, the business they were a year ago, and the somewhat startling fact is that it is infinitely easier to get orders than it is to get brick. This last is largely due to the fact that very few of the brick manufacturers sized up the situation right at the opening of the year when they were making their plans for the season, and underestimated the capacity at which it would be wise to run their plants. "Dick" Kimbell, general manager of the Hydraulic Press Brick Company, was one of the few who calculated aright. He was shrewd enough to see that while the general outlook was gloomy, conditions were right for a spell of building activity which would keep the demand for brick right up to the notch. Accordingly he astonished his board of directors late in December by announcing that the Porter plant would open practically full blast on January 1, instead of closing down tight. Every month since then almost has been one of triumph and vindication for his good business judgment.

The majority of the manufacturers, however, thought it was a good time to let up a little, at least until they had time to look around a bit. Almost without exception they had ample stock on hand, apparently. Some of them were a little close-hauled and did not want to spend any money in getting out new material until they were sure they would market it all this year. None of them were anxious to commit the fault of over-producing.

Then the rush of the first demand came all at once and

took most of them off their feet. Almost before they knew it the stock they had on hand was gone, and they were working full capacity, vainly trying to keep up with the orders which kept pouring in. They have not caught up yet. People with big or little sums to invest saw the cheapness of basic materials, common builders (reported now to be selling for \$4.75, delivered in some cases of large orders), steel, concrete and cement. They also realized that if wages were no lower the employer was getting more for his dollar, because of the scarcity of work and the anxiety of the masons, bricklayers and laborers to hold their jobs. This started the building boom with unwonted activity along the line of small buildings, and by the time this was under way, confidence was pretty well convalescing and some of the big projects were coming in. By this time the year is marked in red letters for all builders.

The result of the demand for front brick, and the difficulty in getting it in any sort of time, has been to stiffen prices. There has been no increase in market quotations, but there has been less cutting from the quoted price, less need and therefore less tendency for "making figures."

The local school authorities have found a new use for brick which is expected to find favor everywhere. It consists in the use of a serviceable semi-glaze brick in dark shades for the walls of the halls and stairways and the wainscoting of assembly halls. The Lyman Trumbull School, at Ashland and Foster avenues, is the second school building in which this scheme is being carried out, nearly as many brick being used on the interior as are on the exterior. The S. S. Kimbell Company are furnishing 170,000 Brazil dark semi-glaze for the interior. The Thomas Moulding Company are furnishing the exterior brick.

The work of rehabilitating the traction service has made lots of work in the building line. New power houses have been necessary, and new car barns. The Chicago City Railway is putting up a new car barn at Thirty-eighth and Rockwell streets, in which 100,000 Purington Continentals are to be used.

The decision has been reached to build the new LaSalle Hotel, the mammoth building foundations for which are being sunk at Madison and LaSalle streets, "four square." Front brick—the Purington purple continentals—are to be used on all four sides. The first order was for 300,000. Now it has been decided to put the brick on the alley side and on the west side, and 450,000 more have been ordered, making a total of 750,000 for the entire job.

By the first of next May work will have been started on another downtown skyscraper. This will house the Continental National Bank, which, having had a new home in contemplation for some time, has suddenly decided to build at once, owing to the present low price of building materials and the advantageous conditions of the labor market. It is estimated that by seizing the present opportunity approximately 25 per cent. can be saved, owing to the low market price of steel, concrete and some other materials, and taking into account the present efficiency of labor.

Smaller building in the outlying districts also continues briskly. Among the churches, is that being erected for the Covenant Evangelical Lutheran congregation at Fullerton and Drake avenues, in which 40,000 of the Brazil greenish bronze vitrified brick are to be used, furnished by the S. S. Kimbell Company. The Purington red continentals have been specified for a new railway station which the Chicago & Northwestern Railway is building in Austin.

Many warehouses are also being planned and erected. At Sixteenth street and Armour avenue, a building of this type is being put up for M. J. Neahrs & Co. The Bonner & Marshall Co. are furnishing 100,000 of their No. 102 waterproof for the job. The same company has an order for 100,000 oriental brick to be used in a church in Brooklyn, N. Y.

The only indications of a possible diminution in the present activity in a tendency—a slight tendency—towards increase in rates on building loans, and a slightly increased difficulty in getting them. If this develops seriously in the next few weeks, the next Chicago letter may not be so cheerful as this.

SCRIP.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Clay Notes From Brazil, Ind.

Editor THE CLAY-WORKER:

The Brazil branch of the Hydraulic Press Brick Company has installed machinery for the manufacture of paving brick in connection with the famous press brick they make. They are now rushing to fill an order for five million pavers for St. Louis, which the St. Louis plant was unable to fill.

The Weaver Clay and Coal Company, of Brazil, Ind., are making all the goods they can sell, and very reluctantly turned down a nice fat order for 200 carloads of hollow blocks; and still people talk dull times. M. B. B.

Excerpts From the Last Letter Received From the Late P. L. Youngren.

Friend Randall:

While I am quite busy building kilns, having more jobs on hand now than ever before at any one time, I have put but one kiln in operation this year. This was a producer gas-fired continuous kiln, built for the Eastern Township Brick and Manufacturing Company, at Quebec. I am glad to say it is working very satisfactorily, which is all the more gratifying to me because they had previously had trouble with their other kilns. I will have a kiln ready for operation in two or three weeks at Covington, Ky.; the new kiln* built for the National Drain Tile Company here at Summitville is almost completed, and expect to start burning it in the course of a couple of weeks. The National Drain Tile Company has put up a splendid plant, which it will pay you to visit.

I have also started work on a large continuous kiln for the American Clay Company at their new factory located in West Terre Haute, and will introduce my system of producer gas-firing under the boilers of the latter plant. Have just closed a contract with the Standard Brick Company, Milwaukee, for a large producer gas-fired continuous kiln, and hope to begin work on same very soon. You see, I am going to be very busy the balance of the year.

Hoping to have the pleasure of seeing you at an early date, I am,
Yours truly,
Summittville, Ind., July 23, 1908. P. L. YOUNGREN.

(*Mr. Youngren was superintending the first burning of this kiln when fatally stricken with apoplexy, August 11.—Ed.)

Busy Times for Albion, Ill.

Editor THE CLAY-WORKER:

The Albion Vitrified Brick Company has built two new kilns this season, and is running on full time under the present superintendency of J. C. Carlyle. The company has been unable to supply the demand for paving blocks.

The Edwards Vitrified Brick and Sewer Pipe Company is now actively at work. The second kiln of dry pressed builders has been burned. The product is of a very excellent quality. The second 30-foot round kiln is nearly completed. Two more are to be built.

Walter Colyer and Elbert Epler have purchased a twelve-

acre tract adjoining the depot of the Southern Railway, and are planning to organize a company to engage in the manufacture of dry pressed facing brick.

There is talk of two additional paving brick plants being built at Albion within the coming six months. Should the projects succeed, one of them will be a plant of large capacity. W. B. N.

THE PHILADELPHIA TRADES SCHOOL.

Editor THE CLAY-WORKER:

The Trades School of the Quaker City has had a successful year, closing with a roll of one hundred and thirty, against a roll of thirty-five least year. They anticipate a registration of two hundred next year. The architectural and mechanical drawing classes are particularly fine.

The progress made in the electrical class is perhaps greater than any other. The best suggestion that has been made so far and approved is offered by the chief of electrical bureau, at the instigation of the principal of the school. This is, that the pupils next winter shall be allowed practical study and work in the departments of the electrical bureau; in other words, shall be a part of their force, taking one week in each department. This will undoubtedly lend assistance and enthusiasm to their efforts, giving them a chance at all branches of the electric system, as their municipal testing laboratory is the finest in the world.

Fred Lincoln, the general manager of the Transit Company, has opened to the pupils a splendid opportunity, by granting permission to visit the shops and power houses all over the city, giving over a certain number of boys to the care of individual men in those shops and power houses; also, allowing them the privilege of lectures which are delivered to their employees.

The principal of the trades school is an enthusiastic and energetic worker for the welfare of the trades school, and regrets greatly the fact, that for some reason, they do not seem to be recognized as part of the public school system.

Philadelphia was the first city to start a trades school in connection with the regular public school system, and other cities following suit have passed her in progress. Other cities' representatives have visited Philadelphia and studied the system, weeding out all the weak spots, using all the good points for their own system.

Massachusetts has passed a State law, making an appropriation for industrial education; Wisconsin has done the same.

There should be a commission appointed to revise the public school education, arranging the trades school as part of it. The trades school is such a practical system as compared with the manual training. A boy can receive as much practical instruction in a trades school in six months as he will get in three years' time in manual training.

The Philadelphia Trades School intends to abandon the course of blacksmithing. The class in plumbing, tinsmithing and sheet metal work has done some wonderful things, but the electrical construction class has really made greater progress than any other.

The aim of the school is to turn out a first-class working man.

Just aside, I should like to mention an incident to which I was a witness. The principal had found a position for one of the boys, in the class for plumbing. The boy waited for his letter of introduction and while folding same and sealing the envelope this advice was the accompaniment: "Do not do just what you are told to do, but anything you see is to minute if you are busy, but go on and finish what you are doing." The finishing touch was given in the following fashion: "If you do there, as well as you have done here, I shall be satisfied."

The night school is crowded and growing rapidly, but can not branch out much, as there is no room.

M. E. LOCKINGTON.

Written for THE CLAY-WORKER.

BRICKYARD ECONOMIES.

TO REDUCE THE cost of making an article without impairing its quality, is the principal thing to which every manufacturer directs his energies. Around a brickyard the two largest items entering into the cost of making bricks are fuel and labor.

Naturally the thing to which attention was first directed in an endeavor to reduce cost was the brick machine. It went through a state of evolution until now most of the standard makes are as nearly perfect as will likely ever be produced.

The next thing was the kiln for burning the brick. Undoubtedly greater ingenuity has been exercised, more failures and disappointments have resulted and more money has been wasted on experiments to develop an economical kiln and one which will properly burn brick, with the least waste, labor and attention, than on all the rest of the equipment about a brickyard.

When the continuous kiln first made its appearance, a very material reduction of the coal consumption was effected, and the same having been repeated in every succeeding installation this type of kiln has gradually become recognized as the most economical kiln which can be employed for burning building brick.

The same general principles as were adopted for the first continuous kiln still prevail, though variations in the proportions of the chambers, flues, ducts, etc., have been tried, but without effecting any material saving in the amount of fuel required.

Some years ago the gas engine sprang into prominence and nearly every one of a mechanical bent turned his attention to that. At first the fuel was either illuminating gas or gasoline, but the cost of these fuels was so high as to make the relative cost to operate a gas engine as compared with a steam engine rather unfavorable to the gas engine, especially for large units.

It was discovered, however, that the amount of heat energy turned into useful work by the gas engine was very high as compared with any other motive power. Then engineers directed their attention to ways and means of getting the gas from coal in a simple and cheap way for commercial uses. The result was the invention of the producer gas machine.

Wherever natural gas has been available for burning brick the results have been most satisfactory. It eliminated labor, was extremely simple to control, gave a uniform temperature and was clean. The satisfactorily established value of gas as a fuel for burning brick, which, coupled with thoroughly established economy to be derived from producer coal gas, led to experiments along that line in connection with continuous kilns.

Most of the development of producer gas-fired kilns has taken place in Germany. After about three years spent investigating the principal devices in use over there, a simple and inexpensive gas producer has been designed and applied very successfully to a number of continuous kilns in this country. The saving effected has been a revelation to brick-makers, as the fuel required when used in continuous kilns is less than one-third of what the best types of average down-draft kilns require. By the conversion of the coal into gas in a gas producer, all the heat in the coal is made available for perfect combustion, and it is to this principally that the greater part of the economy can be attributed; furthermore, the grate bars, doors, furnaces, etc., are dispensed with.

Something over three years ago another radical improvement was introduced, known as the Scott system, whereby the brick are carried away from the brick machine on a

belt and conveyor directly into the kiln, where they are set and dried without first going through a brick dryer. This system also introduces wonderful economies, as it reduces the labor on most yards from one-third to one-half; it also does away with the dryer building, the cars, racks, decks, rails, transfer cars, turn tables, switches, etc., which, besides being expensive to buy, are even more expensive to maintain. It further simplifies the yard arrangement, making it more compact, as less than half the ground space is occupied.

There are many yards equipped with this system in various parts of the country, every one of which has demonstrated its value beyond question. All the rights to patents on this system of conveying and drying have been acquired by the American Blower Company, of Detroit, Mich., as well as the rights to manufacture and install a producer gas-fired kiln according to the designs and as perfected by Mr. P. L. Youngren, than whom there is probably no one who has had a wider experience in kiln design and certainly not in the use of producer gas for burning brick.

Associated with the owners in this branch of the business is Mr. Alex. A. Scott, a practical brick manufacturer with years of experience not only in making bricks on his own two yards, but as a manufacturer of brick making specialties which has brought him into intimate contact with the varying conditions to be found in all parts of the country.

It is the intention to take contracts for the complete installation of the conveying and drying equipment and to build the kiln, turning the plant over to the owners after it has been put into successful operation and with an absolute guarantee as to the cost of making brick. For this purpose Mr. Scott has associated with him Mr. W. W. Wallace, who was for many years superintendent of the American Clay Working Machinery Company and later general manager of the W. J. Oliver Manufacturing Company, of Knoxville.

The fact that the American Blower Company are willing to assume the entire responsibility of the installation in this way, proves conclusively their absolute confidence in the equipment they have to offer, and the manufacturer in accepting their proposition has everything to gain and nothing to lose.

The combination of the Scott system with producer gas-fired kilns promises more in the line of economy in the manufacture of brick than any other method yet devised, and it is difficult to see how the costs could be reduced to a lower point than can be attained with same.

A VISION.

I see a vision of the future opening before me; I see triumph in art and achievements in science not dreamed of by the artisans and philosophers of the past. I see the sun darkened by clouds of men and women flying in the air. I see throngs of passengers entering pneumatic tubes in New York and emerging in San Francisco two hours before they started. I see the gloved and umbrellaed leaders of the Populist party sitting in their horseless carriages, singing their harvest songs, while self-adjusting, automatic binders sweep through the fields, cutting and binding and shocking the golden grain.

I see swarms of paupers, dukes and counts kissing American millionaire girls across the ocean through the kissiphone. I see the women marching in bloomers to the ballot box, and the men at home singing lullabys to the squalling children. I see every Republican in America drawing a pension, and every Democrat holding an office—and every “culled pusson riding on a free pass.” And I see every laboring man drawing double pay for eight hours a day in conducting the proprietor’s business the right way. And then I think the millenium will be near at hand.—Author Unknown.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NOTES OF TOLEDO AND NORTH-ERN OHIO.

LOCALLY THE BUILDING brick market is not quite up to standard just at present, the price of building brick suffering a slump which resulted in the selling below cost today. Locally there is very little demand, and more brick are being shipped out of the city than is used on the local market. However, there is considerable demand out of town, and contracts are of fair size, running from 400,000 to 1,000,000. Soft mud brick are in greatest demand just at present, and the weekly shipments to other places amount to about 400,000. Of the nine factories of the city, but four are operating, these being: The Hydraulic Brick Company, Ohio Brick Company, Spear Brick Company, and Collingwood Brick Company. The general money depression is thought to be responsible in part for the local condition, where but little building has been done this year. Last season there were a number of large buildings, such as the Secor Hotel, the Bostwick-Braun Company, and several large flat buildings, all of which demanded

brick were recently discovered on the farm of John Spielvogel, near Ironton, Ohio. A supply of coal is also to be had on the same farm, and it is the present plan of the owner to engage in the manufacture of brick in the near future.

E. A. McCall, manager of the Tygart Fire Brick Company's store at Portsmouth, Ohio, has been promoted to the superintendency of the entire plant. The plant, which has been idle for a semi-annual inventory and repairs, is again in operation.

Forty-eight thousand dollars' worth of paving contracts were recently awarded by the Board of Public Service at Columbus.

Unless the management of the Harbison-Walker Company, of Portsmouth, can come to some agreement with the Board of Public Service, on the question of water rates, the plant will be removed from that city to one of its shale banks. Many other industries of that city are complaining of high water rates.

A structure which will consume a large number of brick at Canton is the new City Hall, which will soon be under way. The lowest bidder was Keller Huff, his figure being \$58,571. The contract for the work can not be lined up until



Ornamental Detail of the Terra Cotta in the Pacific Mutual Life Insurance Company's Building.
Furnished by the Conkling-Armstrong Company, Philadelphia.

a large amount of brick, while this year but few buildings of any size have been erected.

In paving brick there is practically nothing new in the situation, and a good general demand is making manufacturers and dealers alike feel very optimistic. Most of the brick plants are finding a market for their output, and are getting most of their stock well used up, so that there will be no excessive amount in the yards as the season closes. Locally there is but little doing, although there will be a letting of two street contracts the coming week, which will amount to about 5,000 yards of paving, the streets to be paved being Van street and Lincoln avenue. The small towns have been especially active in the letting of paving contracts all over the country this year, and the States of Ohio and Michigan seem to be in the lead. All through Ohio the streets are well paved, and new contracts are constantly coming up. The prices of paving brick are very fair, and compare favorably with those of last year. Considerable exporting has been done this year, especially to Canada, and some more fat contracts from that quarter are in sight, as Montreal is contemplating some extensive paving, the contracts for which have not yet been let.

Thomas Kirby was struck and instantly killed by a descending elevator in the local tile plant at Findlay, Ohio, this week. He was twenty-one years of age and married.

Quantities of clay suitable for the manufacture of fire

brick were recently discovered on the farm of John Spielvogel, near Ironton, Ohio. A supply of coal is also to be had on the same farm, and it is the present plan of the owner to engage in the manufacture of brick in the near future.

T. O. D.

A LONG HAUL.

From Philadelphia to Los Angeles is a long haul for a heavy material like terra-cotta, but nevertheless the Conkling-Armstrong Company of the former city is furnishing the ornamental terra-cotta for the Pacific Mutual Life Insurance Building in course of construction at Los Angeles. The terra-cotta job is an unusual one. Two entire fronts of this immense building, which is monumental in character, will be finished in a dull white glaze terra-cotta. In the design are a number of columns, which, including the bases and capitals are over fifty feet high and five feet four inches in diameter. The ornamental detail of the building is suggested by the Temple of the Sun, Parthenon and the Temple of Mars at Rome. The architects, Parkinson and Bergstorm, of Los Angeles, have designed many beautiful buildings on the Pacific Coast.

The Conkling-Armstrong Terra-Cotta Company is also making the terra cotta for the Adams apartment house, Los Angeles. The architectural terra cotta business has been very dull this year, especially in the East, but the manufacturers see indications of better times.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



AFTER WAITING EXPECTANTLY for several months, the long looked for revival in the building industry seems to have come, for, during the month of July building permits were four times the volume of June. August up to date has even exceeded that record, and the opinion is freely expressed that the fall is going to be a normal one in the building trades.

The banks are loosening up on their money for building loans better than at any period since the panic. Projects which have been under consideration for months have been gotten under way, and most of them will be under cover by the time snow flies. Two ten-story buildings have been contracted for, together with a bunch of small structures. Contracts have been let for another section of the big intercepting sewer, while the remaining batch of streets to be paved this year have also been contracted for. It has been found that in both the city's sewer and paving bids large sums of money will be saved on account of the low prices prevailing, due to the business depression.

The Reaugh Construction Company has been given the contract for a ten-story brick and steel structure for the Bailey Company, which operates the largest department store in Cleveland. Work is to begin January 1 next, and be completed in six months. Materials will all be framed up as much as possible before that date. A building occupying the site to be used on Ontario street will be left standing until the last minute possible. It will have a frontage of 80 feet and a depth of 120 feet. Lehman & Schmitt are architects for the new structure, which will be faced with red pressed brick. The building will cost about \$200,000.

Another ten-story building is to be built at once by the same construction company on Prospect avenue, corner of East Second street, for M. A. Bradley. The frame will be of reinforced concrete, and the walls of brick. It will have a frontage on Prospect avenue of 130 feet, and a depth of 80 feet. It will be ten stories high, according to present plans. The Reaugh Company has also received instructions to proceed with the finishing up of the administration building for the White Automobile Company, which was held up on account of the panic last fall. The building is 90 by 222 feet in size, and six stories high. Some 250,000 pressed brick are being used. It will cost \$250,000. It is now up to the fourth story.

Rapid work is being done on the new \$500,000 Sterling-Welch building. About 1,500,000 shale brick are being furnished by the Cleveland Builders' Supply Company, while the Cleveland Hydraulic Press Brick Company captured the order for 110,000 gray brick for the front. The Northwestern Terra Cotta Company will furnish the terra cotta.

The Northwestern Terra Cotta Company has also secured the contract for the terra cotta to be used in the new Plain Dealer building. The contract ranges about \$10,000. Work is rapidly progressing on the Plain Dealer's six-story building, in which the terra cotta is to be used. Other building jobs in which Northwestern terra cotta is to be used are a new school at Akron, and the Central Police Station in the same city.

It has been about definitely decided that a handsome pressed brick will be the chief material to be used in the new temple for the Anshe Chesed congregation to be erected on Euclid avenue, corner of East Eighty-first street. Work will begin in September, when a lease expires. The building will be about 200 feet square, and will be built about a great central dome. The Second Church of Christ has just paid \$24,000 for a site in the same vicinity, and is making preparations to erect a new church which will cost about \$150,000. The Church of the Sacred Heart, East Seventy-first street and Kasimere avenue, has begun work on a new structure 65 by 150 feet in size. It is of brick.

The paving situation is one of the most encouraging features of the brick business. At a recent meeting of the City Council, \$124,000 was appropriated in a meeting lasting fifteen minutes to pave sixteen streets. It is expected that by the

time the season ends that twenty-eight miles of Cleveland streets will have been paved. While this will not make a record in itself, it will show up very favorably with the amounts paved during the past two or three years. A total of 142 streets are being paved this year.

Bids for paving work have been very spirited, and the city has saved considerable money this year over last. In one batch of bids on thirteen streets there was a bid as low as 14½ cents a square foot for brick. Contracts were let to the Cleveland Trinidad Paving Company, the Northern Ohio Paving and Construction Company, and to M. E. Kavanaugh, Roehl Bros., and the Standard Paving Company were also awarded jobs in work to be finished up this fall.

The county has started four or five gangs of men repairing the brick country roads about Cleveland, and thousands of dollars are being expended in this work in addition to the paving of between fifteen and twenty miles of country roadways. The county has this year adopted the practice of employing its own men for repair work, and the claim is made that about 15 per cent. is being saved.

A new tax may be levied in Cleveland upon owners of vehicles, if the suggestion of Assistant City Auditor Wagner is followed. He maintains that the people who use the roadways should be compelled to maintain them after they are laid by the public at large. To do this, he would make a nominal charge of \$1 a year for each vehicle using the city streets. It would also serve as a means of identification of rigs of all kinds.

In the constant fight against perishable materials used in building construction, Building Inspector Lougee has issued a warning against wooden shingles in the fire limit districts. The city will not permit of shingles being used on new buildings, and will allow only 25 per cent. to be replaced in repair work. Lougee wants this percentage cut down or eliminated, as he claims the privilege is being abused. He recommends fireproof materials, even for repair work. He says that if something is not done, shingles will never be exterminated, as owners keep on repairing their buildings forever. A new ordinance is to be presented covering Lougee's ideas on the matter.

A proposition is being considered by the city's authorities for making shale brick, to be used in paving the city's streets. This, despite the fact that there are more large paving brick concerns in Cleveland and its suburbs than in almost any other part of the United States. Shale in large quantities has been found on the new 1,800-acre farm purchased by the city for a workhouse and infirmary colony. The shale has been tested, and it is said to stand up well in quality for making all kinds of shale brick. It is proposed to install a complete brickmaking plant, and man it with workhouse prisoners. The City Chemist's test showed that the shale consists of 54.56 per cent. of silica, 12.56 per cent. of oxide of iron, 13.20 per cent. of alumina, 4 per cent. of lime, and a trace of magnesia.

The Deckman-Duty Brick Company has secured a contract to furnish paving brick for 30,000 square yards of pavement for the town of Ravenna, Ohio. Shipments in large quantities are also being made on Detroit and other orders. Charles Deckman spent the first two weeks of August with the Knights Templar of Cleveland at an encampment at Saratoga, N. Y.

Burt J. Graham, formerly manager of the brick department of the Masons Supply Company, has been engaged as sales manager of the Ohio Clay Company, with offices at 1335 Schofield building, and works at Willow, Ohio. The company makes a specialty of manufacturing hollow brick for wall work.

About half of the 20,000,000 shale brick being used in the new county Court House are now set in place. About 100,000 brick a day are being laid now. Quantities of floor tile are being set in the big structure.

The sum of \$400,000 is to be spent at Lorain, just west of Cleveland, for one of the largest and most complete boiler shops in the world in connection with the plant of the American Ship Building Company. A machine shop is also to be added to the already large plant. The shops will be built this fall. Large quantities of brick are to be used.

BUCKEYE.



HOW TO LAY DRAIN TILE.

BEGIN AT THE outlet, or the lower end of the drain, and lay the tile as the ditch is dug. Turn the tile until a close fit is secured, bedding the tile firmly as they are laid. If the joints do not fit closely, lay a bit of broken tile over the joint, so as to prevent an inlet of water so strong as to admit the dirt or sand. Cover the tile as they are laid with a few inches of clay that has been taken from the bottom of the ditch to keep the loose soil or sand from entering the ditch, after which fill the ditch with as much top soil as possible; it will facilitate the entrance of water into the drain. If the work of digging the drain is discontinued at any time, if only a short time, set a board or flat stone at the upper end to keep trash or dirt from washing into the drain. When the drain is finished at the upper end, it should be closed tightly and securely. It is claimed, however, by some that the upper end should be left open—that it will have a “greater draining power,” but such is not the case in the experience of those who have had a large experience in laying drain tile. The last joint of tile at the outlet should be double-length, and the mouth of the drain should be covered with wire having meshes not larger than 1 inch in diameter to keep animals, such as minks, muskrats, or rabbits out of the drain. It is a good protection to the drain to build a stone or brick wall across the outlet tile, or riprap with cobble or boulder stones firmly set, so as to keep muskrats from digging holes following along the line of drain tile. They have been known to dig holes along the tile 40 or more feet, and cause a current of water to flow above the tile, washing out the earth above the tile, causing, in some instances, their displacement.

Grading the Drain.

The grading of a drain correctly is a very important part of the work; a smooth bottom and regular grade from the head of the drain to the outlet should be secured. A few use the running water, if there is water coming into the drain sufficient to make a current that will indicate more or less fall; but in the use of water there will be slight depressions in the grade not indicated by the water current. A better, in fact, almost a perfect grade can be secured by using a spirit level and a straight-edged board of uniform width from end to end—the board should be as much as 8 feet in length. By sliding the board along on the edge in the bottom of the ditch, with the level resting on the top edge of the board, a very satisfactory grade can be secured. But a better and more accurate grade can be made by using an engineer's level and having grade stakes set for the full length of the drain in advance of doing the work of digging the ditch; for the reason that slight elevations or depressions of the surface may not be noticeable to the eye, requiring more or less depth in the digging of the ditch, so as to secure a uniform grade. When the grade is slight, it is important to save any loss of grade by want of uniformity. When a survey and levels of the drain have been secured and noted on grade stakes, and the ditch dug, the bottom of the drain can be correctly leveled by using the spirit level and straight-edge board, if desired. No haphazard or guess work method should be substituted for accurate work in the grading of a drain. Push or pull scoops are desirable

for use in grading; the sizes of the scoops corresponding with the size of tile to be used—in their use, by pushing or pulling in a straight line, a firm bed and almost a perfect fit for the bottom of the tile may be secured. Adjustable scoops may be had, adapted to any angle of the handle that will be easiest to do the work in the most perfect manner. When the work of grading is well-done, as indicated, and the tile firmly bedded, there is little, if any, danger of moving the tile out of adjustment in the work of filling the ditch, or of water currents forming along the line of the tile to cause their displacement in the future working of the drain.

DRAIN THE SWAMPS.

There are yet many farms to be in this country where wet or swamps exist. They are to be seen frequently along the lines of the railways we travel, and on the farms and land holdings as we pass through the country. We see them in the meadows, where only coarse water-loving grasses are grown, of no particular value to the farmer. These swamps or stretches of wet land might be made productive of desirable products if tile drained. Swamps frequently make a part of the pasture where coarse grasses grow, grasses that have little nutritive value; the water in these swamps, swales, or ponds afford the stock water in the early part of the season till near the middle of the summer, when most of the water has evaporated or percolated into the surrounding earth. The water that remains is warm, dirty, unpalatable, and full of disease germs, affecting both man and beast. Such unhealthy conditions are not, as a rule, fully realized. Scientists know that such conditions are unhealthy for people and live stock. Every swamp or low-lying land should be drained that can be drained. There are many that could be drained with a single line of drain tile well laid, or by an open ditch; drain tile are preferred for many reasons.

The writer knows of one farm where a swamp covering five or six acres in a pasture of fifty years' standing was drained by constructing a tile drain 30 rods long and from 3 to 4½ feet deep, making the land dry and tillable—and it goes without saying that it was the most productive land on the farm. Another swamp on the same farm might have been reclaimed in the same way, but it was allowed to remain a source of disease and waste. How long, oh, how long will such eyesores to better farming and better health be left to breed disease, poverty and death?

GOOD DRAIN TILE.

Tile are bought and sent out from factories that are not as good as they should be. Lack of hardness is the main objection. Want of perfect form is another difficulty. Unevenness of the cutting at the ends making it difficult to secure close jointing in laying the tile. Hardness can be determined by striking the tile together—if they give off a clear, metallic ring they are hard enough; the other imperfections can be seen with the eye. In selecting tile discard the imperfect tile—the work of drainage is too important to allow the use of imperfect tile, or imperfect work in laying them. When the work is well done, with good material, it will last and give satisfaction for generations to come. The hard-burned tile are a little rough to handle, and professional ditchers will often advise the use of softer tile—tile that will not wear their hands in handling them, but we prefer the hard tile if perfect in form. When tile are ordered by car lots, tile manufacturers are not always careful to make the best selection. If a few bad, unsaleable tile are worked off in the carload, they think it is so much gain. At the same time the purchaser may not like the tile, and may feel that he has not been fairly treated and hesitate to make a further order from the same manufacturer, and may not order from anyone else. Such trade methods serve to discourage the use of tile. If good tile are ordered and paid for, then good tile should be had to fill the order, and thus give encouragement to the further use of drain tile.

Written for THE CLAY-WORKER.

TWIN CITIES AND THE NORTHWEST.



THE BUILDING season progresses in the Northwest it becomes more evident that the records established during the last few years will be considerably above that of the 1908 building season. Nevertheless, there has been an excellent volume of business among the builders and the total thus far has been small only by comparison. In fact, there has been more construction work carried on than most builders had anticipated and they have all been busy enough to be able to show a profit at the close of the season. While the conservatism has been marked, owing to financial conditions, the business men of the Northwest have felt confident in this section of the country and its possibilities, and they have been wise enough to realize the possibilities of economy in pushing construction work during the present low level of prices on building material. This has been a sufficient inducement to them for pushing all work, that they could secure funds to finance, and the totals will compare favorably with those of any years, except the last two or three. There also seems to be a good prospect that the next five months will include as good a bunch of building, in proportion, as the first of the year and the trade will undoubtedly be kept fairly busy until the snow flies.

All classes of building material has slumped in price markedly, the last to suffer a revision in prices being iron and steel. These materials are now in line with the others, and, while it has caused a slightly greater feeling of unrest, it has, to a greater extent, encouraged the public to get into the market, a fact which will prevent further declines in prices. The Northwest grain harvest has begun and there is very slight danger of any damage to the crop at this late date. As it is on the farm that the Northwest depends for its prosperity, the excellent prospects for a large yield, together with the prevailing high prices, will form a big stimulus to business, and the prosperity of this section stands very slight chance of abating.

A notable feature of this year's work, is the fact that it consists almost entirely of brick construction, aside from such structures as can be built of wood. In many instances, also, people have been erecting dwellings of brick, where frame would have been the style of construction a year or two ago. The falling off in concrete construction is being remarked on all sides and prices of cement have lately slumped again slightly in consequence. The principal reason for this, is that, in a time of financial depression like the present, the spirit of conservatism extends not only to saving money, but to refraining from engaging in methods which do not have the stamp of approval of long experience, and there is a greater tendency towards keeping to the beaten paths rather than engaging in doubtful experiments.

During the month of June, Minneapolis building permits showed a falling off of 12 per cent. from 1907, the total being \$877,020. In St. Paul, permits for \$807,542 were issued, a gain of 43 per cent. Duluth shows a gain of 22 per cent., \$301,745 being the total for June, 1908. For the first six months of the year, the Minneapolis totals are \$4,352,080, against \$5,060,405 for the first six months of last year.

There have been no very large buildings begun during July in Minneapolis, about \$75,000 representing the maximum cost of any new work projected. Among these is a fire-proof chapel and crematory at Lakewood Cemetery, on plans by Harry W. Jones, architect. The contract was let to Pike and Cook, at about \$75,000. R. J. Cheney & Co. have been awarded the contract for the erection of a pressed brick residence at Lake Minnetonka for C. S. Pillsbury at a cost of \$75,000.

L. S. Gillette has begun work on a five-story brick ware-

house at 114 North Third street, Minneapolis, which will cost in the neighborhood of \$40,000. C. H. Miles has also started excavations for a three-story brick theater at 46 South Seventh street, which will cost \$40,000.

The St. Anthony Commercial Club is considering the means of erecting a brick club house in East Minneapolis, and have already raised about a quarter of the \$50,000 necessary. The building will be of brick, two stories high. The contract for the erection of a new brick building for the Lutheran Deaconess Hospital on plans by Thori, Alban & Fisher, of St. Paul, will be let in August. The estimated cost is \$60,000.

Among the new church buildings planned for Minneapolis this year, is a brick edifice for the Third Church of Christ Scientist, Lindstrom & Almars, architects, having prepared the plans. It will be of pressed brick, 60x100. L. A. Lamoreaux, architect, has completed plans for St. Paul's Episcopal Church Annex, which will be of brick and will cost \$18,000.

The Minneapolis Board of Education is having plans prepared by E. S. Stebbins, architect, for a four-room addition to the Lyndale School. Work has also been started on brick additions to two other schools, costing \$25,000 and \$23,000 each.

In St. Paul, the largest single item of work started is on the new Masonic Temple, Beuchner & Orth, architects. The building will be of brick and stone and will cost in the neighborhood of \$200,000. Ground was broken on the 13th of July.

Another proposed building of consequence, is a four-story brick hotel, which W. B. Hatton proposes erecting at a cost of \$100,000.

In the erection of schools, two new ones have been started in St. Paul. The contract for an addition to the J. J. Hill School was let to E. J. Daly, at \$18,600. Work has also been started on a brick addition to the Hancock School, which will cost \$20,000.

The most interesting item from St. Paul is the information that the requisite \$125,000 for a site has been subscribed and L. P. Ordway announces that he will proceed at once on the erection of a million-dollar hotel. In Minneapolis, Mrs. A. Kruse has announced that she would begin work this fall on an eleven-story brick hotel.

The excavation and grading work at Hopkins, Minn., has been begun by the Minneapolis Sewer Pipe Company, and from the extent of the preliminary operations, it is evident that the new plant will be one of the largest of its kind in the country. There is an immense bed of fine clay near Hopkins, sufficient to afford material for the plant indefinitely.

News Notes of the Northwest.

The Fort Dodge (Iowa) Superior Clay Works has purchased a brick machine from J. D. Fate Company, of Plymouth, Ohio, which will have a daily capacity of 75,000.

O. Duclos, who has been the head of the O. Duclos Brick Plant, at Little Falls, Minn., for over twenty-five years, has sold his interests to P. O. Duclos and A. Dugas.

M. H. Zimmer, the Independence (Wis.) brickmaker, has installed a system of dryers and erected a new power house.

The Fort Pierre (S. Dak.) Brick Company is supplying brick for the new State Capitol. They now have their permanent kilns in operation.

The Northwestern Pressed Brick Company has just completed a kiln at Crookston, Minn., which has a capacity of 500,000, one of the largest in the Northwest.

Edw. Ward, the Blakeley (Minn.) brickmaker, died recently. T. WIN.

Competition for Fireplace.—The annual convention of the German face brick and terra cotta manufacturers has decided to arrange for a price competition for the best design of fireplace in which the brick and terra cotta materials should be exclusively used.—Deut. Topf & Z. Z., No. 36, 1908.

NOTE.—Could not the N. B. M. A. arrange a similar competition in order to further the use of brick for ornamental purposes.—Editor F. S.

Burned Clay Versus Concrete Construction.

IF CONCRETE IS GOOD IT ISN'T CHEAP.
IF ITS CHEAP IT ISN'T GOOD.

CONCRETE BUILDING ORDINANCES.

The use of concrete has probably caused more reconstruction and more elaboration of city building ordinances than any building material ever brought into general use. Practically every city in the United States has had to not only revise but materially enlarge the details of their building ordinances to cover specifically the use of concrete in the various forms, and in the matter of handling these specifications of concrete the various cities sometimes develop some peculiar rulings, some of which are easy to understand and some are very difficult. There is before the writer now a brand new ordinance governing building regulations of the city of Louisville, from which the following extract was taken:

"Hollow concrete building blocks may be used for buildings six stories or less in height where said use is approved by the Department of Buildings; provided, however, that such blocks should be composed of at least one part cement, and not to exceed five parts of clean, coarse, sharp sand or gravel, or a mixture of at least one part cement to five parts of crushed rock or other suitable aggregate. . . .

"The thickness of walls for any building where hollow concrete blocks are used may be 10 per cent. less than is required by law for brick walls."

The difficult thing to understand about this is, while after showing the evidence in one section that hollow concrete blocks are not as reliable in wall construction as brick, won't stand the strain nor the fire test, why is it that the same ordinance turns around and justifies the use of a lighter foundation wall of concrete than if the same wall were made of brick. This as is understood is quite a common practice of building ordinances, and is one of the factors which frequently influence the use of concrete for foundations under frame buildings. That is, the building ordinances permit the making of lighter cellar and foundation walls out of concrete than they will of brick. Of course, this gives the builder a chance to economize in cost. Maybe some of those who have made a careful study of the subject can explain just why and how this is.

BETTER BUILDINGS.

The many accidents and actual collapses of buildings while under construction have given force to the warning of such conservative bodies as the International Society of Building Inspectors, that have long advocated more stringent regulations of EXPERIMENTAL CONSTRUCTION in our cities.

New York's Building Code, now being rewritten, calls for a much higher class of construction in all grades of buildings than the old one, and it throws such safeguards about the use of reinforced concrete as to make that material much less attractive to the speculative builder.

Seattle has just passed a NEW BUILDING ORDINANCE, permitting standard steel construction to go up to SIXTEEN STORIES, but limiting reinforced concrete buildings to TEN STORIES, and it, too, makes many restrictions as to the use of reinforced concrete.

Minneapolis has gone a step farther and has just passed

an amendment to its building laws compelling every owner who builds a reinforced concrete building to have a specially LICENSED BUILDING SUPERINTENDENT constantly in charge of the work, one DIRECTLY RESPONSIBLE TO THE CITY for the efficiency of his superintendence.

Little by little the authorities are awakening to the fact that concrete is a most excellent thing when PROPERLY HANDLED, but the MOST DANGEROUS of all building materials if the slightest imperfection is allowed in it.

Fatal collapses of buildings have grown altogether TOO COMMON. A radical reform is IMPERATIVE and is in progress. A year ago one of our important building journals exclaimed: "The grey of our concrete structures is already TOO MUCH STAINED WITH BLOOD. Shall we allow that stain to spread and grow still darker?" Evidently our city authorities have determined to try to prevent the spread of that stain!—Philadelphia Item.

A CONCRETE HOUSE DREAM.

"Your concrete house proposition amuses me more than anything I have seen in America," said Mr. W. W. Dunwood, of Manchester, England.

"Now, you propose to build a mold of metal and duplicate all of the houses from this original mold. What a jolly looking country you will soon have. The railway trust, I can see, for example, will in time buy a depot mold and it will turn out 100,000 depots and plant them around the states. They will all be precisely alike.

"Then you will have contracting firms which own molds for special houses. All the seven-room houses in all the states will be the same.

"This might not appeal to the Italian or the Frenchman as extremely artistic, but I can see one advantage. When a man lives in a seven-room house in Indiana and suddenly switches out to California he will feel quite at home, and his furniture will fit, and possibly even the house cat will think it her old Indiana homestead and not even bother to return to her native state.

"All your barns, garages, municipal buildings, post offices, jails, etc., I suppose, will be alike. The idea is delightful, and so thoroughly American and original!

"It will also save visitors from Europe lots of trouble. They can visit only one city, and when they return home they can safely talk about any American city which comes up for discussion."—The Architect and Engineer.

A COMMON OBJECT LESSON.

Almost any man can get an object lesson about the "durability" of concrete by getting into the habit of observing concrete steps. There have been a number of them put up in the past few years, and now many of those that have been standing two years or more are cracking and breaking up in such a manner as to give a striking illustration of how little one can depend on concrete as a permanent building material. You need not argue, or listen to argument on the subject, just keep your eyes open and observe the results for yourself.

Written for THE CLAY-WORKER.

PITTSBURG AND WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS.

CONDITIONS IN BRICK and general clayworking industries throughout this entire territory have continued to improve somewhat during the past month, and are again rapidly resuming their normal state. Confidence is being restored in the great Pittsburg district, and, at the present rate, it will be but a short time until the number and size of the brick, sewer pipe and fireproofing orders will be about the same as at this time last year, which, as is well known, was one of the best in the history of the business.

Building has taken a big jump during the early part of this month, during the first week there having been contracts aggregating over five millions of dollars awarded. The outlook for the remainder of the month is equally as bright, and building is expected to boom for the remainder of the summer and fall.

The greatest demand for brick at the present time is from the paving contractors throughout western Pennsylvania, practically all of whom have a considerable amount of work on hand, and will have until the cold weather puts a stop to this class of improvement. Brick paving has been gaining in favor rapidly, and particularly in improved State road construction, some excellent contracts for this kind of work having been handed down in Allegheny, Westmoreland, Fayette, Beaver, Butler and Lawrence counties during the past couple of months. Brick roads have been thoroughly tested for both heavy and light hauling in both good and bad weather, and we are glad to say that the experience in this part of the State, at least, as well as in eastern Ohio, is strongly favorable to the vitrified brick-paved road.

Sewer pipe continues in very good demand, particularly in the smaller sizes, up to and including 2 feet in diameter. All of the plants in this vicinity are busy, many of them working on full turn. The heavy demand is occasioned by the large number of sewer improvements that are being made in the small municipalities in this vicinity, successful bond issues having been floated in spite of the tightness of the financial world.

The demand for fire brick has shown a handsome increase during the month, owing to the large number of additional furnaces that have been fired by the various steel companies in the steel and iron belt. Repairs were made during the time the furnaces were closed down, but orders for reserve linings were not placed until instructions had been given to fire the furnaces. The open hearth furnaces are large consumers of fire brick, and, as the majority of them are running at the present time, large quantities of brick must be kept on hand for relining in emergency cases.

It has been finally decided that a large plant for the manufacture of brick will be built this fall at Clymer, Indiana County, Pa. The new plant will have an annual capacity of 25,000,000 9-inch brick, and will be equipped throughout with the most modern machinery and equipment. The buildings will be constructed entirely of brick, making the plant as nearly fireproof as possible. Modern and up-to-date kilns of large capacity will be constructed, all of which will be of the down-draft type. Two kilns will be built first, and the brick for the remainder of the kilns will then be built of brick burned in the first two. The gentlemen interested in and behind the new enterprise are Thomas Bellis, of Altoona, Pa.; T. J. Snyder, of Clearfield, Pa.; H. M. Widdowson and W. D. Kelley, of Philadelphia, Pa., and I. S. Fisher, of Indiana, Pa.

The DuBois & Butler Brick Co., of Punxsutawney and Falls Creek, Pa., has been awarded a fine contract which calls for furnishing 250,000 brick to be used this summer in the construction of the new plant of the Eldred Glass Company at Punxsutawney.

The plant of the Steffler & Brown Brick Co., at Darlington,

Beaver County, Pa., which has been closed down for some time on account of the scarcity of business, started up in full on the first of this month, having received sufficient orders for paving and other brick to keep the entire plant in operation on day turn for several months. The concern has been awarded the contracts for furnishing the brick that will be used in street paving work in a number of small towns in the Beaver valley.

The Eagle Brick Company, Renovo, Pa., has been awarded a fine contract for paving brick, which calls for several hundred thousand pavers to be used in paving Erie avenue and other streets in that town. This concern has also received the contracts for paving brick that will be used this summer and fall in several other places in Clearfield and Clinton counties, as well as some good contracts for building brick. The plant is running steadily, and considerable advance business is booked.

The Pittsburg-Callery Brick Company has moved to its new quarters in rooms 629 to 631 Wabash building, Pittsburg, where much larger and more convenient offices have been secured. The company reports a very fair volume of business on hand, with excellent prospects for this fall.

Ambrose Slaterman, general sales agent of the Karthaus Fire Brick Company, Karthaus, Clinton County, Pa., reports that the entire plant is now in full operation, with many heavy orders on the books. The company has just opened up some immense new clay beds in the vicinity of the plant, and has added additional shipping facilities. A. SMOKER.

PUGET SOUND CLAY NOTES.

THERE HAS BEEN an effort made among the brick manufacturers of Seattle and vicinity to get together in regard to keeping up prices. So far, however, no results have been realized, and brick are still selling from \$7.00 to \$8.50, according to quality and delivery.

The Abrahamson Brick Company sustained a severe loss in the first part of the month, when a scowload of brick, which was being towed to Tacoma, was swamped with water, and lost in the waters of Puget Sound, half way between Seattle and Tacoma.

The Builders' Brick Company has had a very satisfactory month, with plenty of orders ahead. The new plant is working in good order, and is now turning out about the best brick in town.

Foreign brick are making some inroads in the brick markets. Vancouver pressed brick were used for a new apartment house, and the brick used for the new White building are shipped in by the Hydraulic Brick Company from St. Louis.

The Denny-Renton Clay Company have about completed their second new kiln at their Renton plant. The demand for paving brick has been very brisk so far, and the plant is taxed to its full capacity.

The Tacoma Federal building, which will be built by H. V. Maxell, of Spokane, will use Bedford (Ind.) limestone. Postmaster Votaw has been advised by the Post Office Department at Washington that the samples submitted are approved in competition with native stone.

The clay properties known as the McMurray tracts, at Denton, have been bought by Prof. Carsten, of Hope, Idaho. Prof. Carsten had the clay analyzed in St. Louis, and the same has been found to make good building and vitrified paving brick. A company will be organized to develop the property.

The Far West Clay Company has been incorporated in Tacoma, with a capital of \$50,000. H. Wheeler and A. Armstrong are the incorporators.

Geo. W. Kummer has resigned his place as general manager of the Pacific Coast Clay Company, and accepted a position as traveling salesman for the Denny-Renton Clay Company. SIWASH.

Written for THE CLAY-WORKER.

AN INTERESTING BRICK PLANT.

JUST OUTSIDE OF THE city limits of Quincy, Ill., located on the C., B. & Q. Railroad, stands a prosperous press brick plant, owned by the Gem City Paving Brick Company. This was formerly owned by the Whittaker Press Brick Company, which, in the year 1892, installed a large continuous kiln. This made it one of the unusual plants in that district. They failed, however, due perhaps to too much experimental work and lack of knowledge as to the correct setting and firing of this type of kiln.

The plant was abandoned and foreclosed under a mortgage in 1897, and became the property of the First National Bank, of Quincy, Ill. In 1901 the main stockholders of the Gem City Paving Brick Company, who happened to be officials and directors of the bank that came into possession of the plant, took the crew from their paving brick plant, then under the management of John C. Shea, and put the Whittaker plant in operation again.

In 1903, Ezra Besh, one of Quincy's foremost hustling business men, was elected president, and John T. Hummert,



The Gem City Paving Brick Company's Plant, Quincy, Ill.

an old-time brickmaker of the city, was persuaded to take some stock and the management of the plant. They went to work with a will and the determination to make a success of their undertaking.

They succeeded in finding a man in the person of George E. Derry who understood the burning of continuous kilns, and through his knowledge, coupled with Mr. Hummert's past experience in the brick business, the company was soon able to market merchantable brick. In fact, the kiln that had been a failure, in the course of one year, proved to be a moneymaker. No changes or improvements were made in the construction of the kiln; the success was due entirely to the method of setting and burning.

As the kiln is a cross and down-draft in construction, the brick were set in benches seven high from the bottom, then arched together the same as in the common up-draft kilns, the width of these openings between benches being 9 inches. The heat could then travel freely from one compartment to another, controlled by the dampers in different compartments. Above the benches the brick are set three on three, the same as in up and down-draft kilns. In the last two years not a single poor burn has been made.

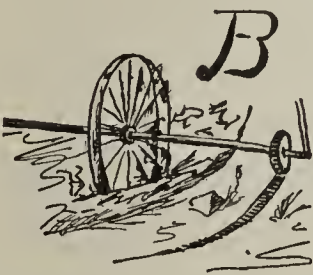
This company employs the Boyd brick presses, which

replaced the Whittaker presses at the time of the purchase of the plant by the Gem City Paving Brick Company.

The company has found ready sale for their product, and are enjoying a busy season with their brick trade.

Written for THE CLAY-WORKER.

ST. LOUIS BRICK AND BUILDING NEWS.



BRICK MANUFACTURING is far from satisfactory, although there has been an improvement in it since the early spring. Conditions are not what they should be; with so much wet weather during the early summer, manufacturers have been somewhat retarded in their business. The report of the St. Louis

Building Commissioner shows that the number of permits for new brick buildings during the month of July, 1908, were 266, with an aggregate estimated cost of \$2,536,049, against 190 permits and \$2,823,723 last year. Brick additions were 103 this year, and \$113,248 was the estimated cost, against 136 permits and an estimated cost of \$164,633 last year. There were 385 permits issued for new frame buildings during the month of July this year, showing an estimated cost of \$118,921, as compared with 377 permits and an estimated cost of \$111,152 last July. The frame additions amounted to 100 permits, with an estimated cost of \$13,310, against seventy-five permits and \$14,008 estimated cost last year. The total cost of construction in July of this year was \$2,781,528, as compared with \$3,113,515 last July. This shows a loss of \$331,987 in estimated cost this year, as compared with last year. The total number of permits issued during this July were 864, as compared with 778 permits issued last July, a gain of seventy-six permits.

There will probably be a considerable amount of building done in St. Louis before winter sets in. Within the past few months many building sites have been sold, and in each instance handsome residences will be built. Plans for several of these have already been prepared. Work on some of them has already begun.

An addition, 36 by 210 feet, with a complete equipment of machinery, has recently been completed by the St. Louis Vitified and Fire Brick Company. The company reports a fair volume of business, and some large shipments of fire brick made.

The manufacturers of building brick say that there has been a pretty good business. Most of the yards are doing quite well in the way of manufacturing, but not turning out the amount of brick they should. There is a slight improvement in business reported by the sewer and fire brick manufacturers. Nearly all the latter plants were able to get clay that they needed for manufacturing during the wet weather, but the building brick plants were not quite so fortunate.

The paving brick plants are able to turn out a fairly good amount, and the demand for them was up to the limit, owing to the extensive amount of paving that has been and is being done by the city.

Prices remain at just about the same figures as they were earlier in the year. Strictly hard and red brick are quoted at \$8.75; ordinary hard and red, \$8.25; merchantable, \$7.50; paving brick, \$16.00, and pressed brick, red and off-colors, \$18.00.

The Winkle Terra Cotta Company say business is a little quiet, better than it was early in the spring. Orders are coming in quite nicely, but they are small ones. They report that their force is working full time, but they are not working quite as many men in some of the departments.

A. SAINT.

WOMEN HANDLE BRICK FOR THE CHURCH.

The ladies of the M. E. Church at West Milton, Ohio, saved \$25 by unloading two carloads of brick intended for use in the new church being erected there. With gloves on their hands, they worked all afternoon and evening until midnight passing the brick along the line.

Written for THE CLAY-WORKER.

REVIEW OF CLAY PRODUCTS STATISTICS OF THE PAST YEAR.

IN COMPARING the report of statistics of 1907 of clay products of the United States with the report of 1906, we discover some very surprising changes. These reports, published by the United States Geological Survey, give the production, average selling price and total value of all the many different clay products in every State, and compare the totals with those of the preceding year.

The effect of the panic can be plainly seen in glancing over these tables. We find that the production of common brick has fallen off nearly half a billion, with the selling price dropping 11 cents per thousand below the average price of \$6.11 in 1906.

The front brick production has fallen off to thirty-one millions less than in 1906, and sustained a loss in price of 28 cents per thousand. The average selling price for front brick during the past year was \$12.51.

The potteries were the ones to suffer the most, their products, as a rule, being considered as luxuries by the common people. The total valuation of pottery produced in the past year dropped off over a million dollars. Fireproofing, stove lining and tile (other than drain), also showed a decrease in valuation, while the remaining products gained, though for the most part slightly.

The paving brick production shows an increase of over one hundred million, and an advance in average price per thousand from \$10.45 to \$11.02. Fancy and ornamental brick (including enameled brick), drain tile, architectural terra cotta, hollow building block or tile, fire brick, etc., have valuations higher than in 1906.

The gratifying increase of nearly two million dollars in the valuation of vitrified paving brick and block is the most marked improvement in the clay industries. This feature shows that although we have passed through a short season of hard times, the importance of brick-paved streets is becoming more apparent to the Government officials and the public as the years go on.

The total loss in valuation of the clay products sold in 1907 is less than 1 per cent., so there is very little need for worry so far as the total valuation is concerned. The panic has not affected the clay industries as much as would ordinarily be expected, and the fact that they have weathered the storm as well as they have augurs well for a busy and prosperous season after the presidential election.

Ohio is still the leading clay State, with Pennsylvania and New Jersey holding second and third places respectively, with about the same percentage of total as at the end of 1906. The one surprising fact is that New York State did 15 per cent. less business last year than in 1906, and dropped from fourth to fifth place in rank in the clay States. California made the largest advance, due perhaps to the rebuilding of San Francisco.

Illinois replaced New York, gaining nearly 5 per cent. in her valuation, due mostly to the paving brick and tile industries, while New York's loss is due to the falling off in production and price and demand for building brick.

Missouri now ranks as the sixth, passing Indiana. Indiana has lost in production of pottery and common brick, although the price is higher on common brick per thousand. Missouri gained largely through her sewer pipe and fire clay industries.

California, Iowa and West Virginia rank eighth, ninth and tenth respectively. All the remaining States not mentioned fall below the 2 per cent. in production, South Dakota being low, with .03 per cent.

Ohio is still the leading State in production of paving brick, sewer pipe, hollow building block or tile, tile (not drain), and pottery. Ohio ranks second in the production of front brick, fireproofing and fire brick, and third in drain tile.

Illinois leads in the production of common brick, having a total for 1907 of 1,494,807,000; average, \$4.35 per thousand. New York is second, with 1,319,416,000, getting \$5.35. Pennsylvania is third, with 980,102,000, getting \$6.48. Wyoming gets the highest price for common brick, \$10.04, due to

freight rates and low production. Illinois gets the lowest of all the States, with Kansas second, and New York third.

Ohio, with its production of 264,571,000 paving brick, gets the average price of \$10.10. Illinois is second, with 126,927,000, getting \$11.08. Pennsylvania is third, with 115,729,000, at \$10.65. Wisconsin gets the lowest price for paving brick, \$8.04, while Connecticut and Rhode Island receive the highest, \$24.23.

Pennsylvania leads in the production of front brick, with 134,869,000, Ohio is second, with 88,992,000, and New Jersey third, with 36,890,000. The average prices they receive are \$11.32, \$11.61, and \$13.42 respectively. Michigan receives the lowest price, \$8.12, while Oregon gets the highest, with \$29.13. California leads in fancy or ornamental brick, including enameled brick, with Colorado second.

Iowa is the leading drain tile State, with \$2,011,793 valuation; Indiana second, with \$1,437,735, and Ohio third, with \$1,433,341. Illinois is fourth.

Ohio leads in sewer pipe, with \$3,792,352; Missouri second, with \$1,332,080, and California third, with \$1,086,916.

In the production of architectural terra cotta, New Jersey is first, New York second, and California third. The valuations are: \$1,722,067 for New Jersey, \$1,089,278 for New York, and \$528,623 for California.

In fireproofing New York leads, with Ohio, Illinois and Indiana in the order named. Ohio comes to the front again in hollow building tile or block, with Iowa second and New Jersey third.

The production of stove lining has its center in Massachusetts, with Pennsylvania a close second.

Pennsylvania is the leading fire brick producing State, with Ohio and Missouri second and third. The valuation of Pennsylvania fire brick is \$369,956.

The pottery industry is easily conceded to Ohio, with a valuation of \$13,533,199. New Jersey is second, with a valuation of \$6,985,626, while West Virginia is third.

A closer study of the statistics of the United States Geological Survey Report for 1907 will perhaps be of interest to many of the readers of THE CLAY-WORKER. These charts are free, and will be mailed on request by addressing Jefferson Middleton, Statistician in Charge of the Clay Industries, United States Geological Survey, Washington, D. C.

A NEAR-SERIOUS MISHAP.

Remarkable Experience of James Hensley While Fishing—His Narrow Escape From a Watery Grave.

On a pleasant summer day, James Hensley, of Indianapolis, the well-known dealer in brickyard supplies, with a boon companion, sought a favorite stream some fifteen miles from the Hoosier capital, where they are wont to boat and fish at frequent intervals during the summer months. There was little doing in the way of sport, for some reason the fish were not biting, and late in the afternoon when the shadows fell darkly across the stream, Mr. Hensley's companion strolled down the bank, leaving Mr. Hensley alone in the boat. Having given up hope of a catch, he carelessly seated himself on the edge of the boat, and allowed it to drift with the current. Suddenly, and wholly unexpected, there was a mighty tug at the line, and, taken unawares, Mr. Hensley was yanked backwards into the river headfirst. Luckily, he is an expert swimmer, else a coroner's inquest might have written "Finis" then and there for Hensley, for he had on heavy clothes and rubber boots, and the water was 10 to 20 feet deep. After a mighty effort, he gained the shore, and, in his exhausted condition, was unable to land the catch, but brought him to the surface. It proved to be an immense bass, the largest ever seen in that section of the State. With a great splash it broke the line and disappeared. That evening a bedraggled figure was seen passing through the side streets in the neighborhood of Mr. Hensley's home, and when questioned as to his appearance, Mr. Hensley related the foregoing story, and added: "He is the biggest bass in Indiana; I know where he is, and I am going to get him if it takes all summer." We hope, later on, to chronicle the capture of this great fish, and to give exact dimensions and weight.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICK YARDS.



HE DOWNTOWN yards seem to be suffering more from the bad conditions than those uptown. At Webster & Keyser's they are making face brick only. Wm. Conway says that he is making brick and stacking them in preparation for the better state of things in the near future.

T. H. Gesner & Son have kept busy in spite of the strained condition, but theirs is a local business; single houses and two houses constitute their operations. Naturally they are sanguine. It was a pleasure to hear some one speak cheerfully regarding the brick business.

At the North Philadelphia yard they are putting out from seventy-five to eighty-five thousand brick per day.

The Frankford Brick Company is busy. They are making thirty-five thousand brick daily. Their four kilns have an aggregate capacity of seven hundred and sixty thousand.

Mr. Kelly says that he has quite enough business for the two yards this year and is sanguine as to the general outlook.

Carroll Brothers are not doing much just now. Their yard is beautifully equipped, but they are really ahead of the building proposition. The business is bound to move in

courageously of the brick business. They have enough business to carry them over until the winter months, and whether they sell or not, they continue making. It is not long since they had \$20,000 worth of stock at the yards and it was cleared out in two months' time. Mr. Siner, smilingly, remarked: "We can't always eat pie."

Patrick Kelly & Son are doing little; likewise Mr. Goodwin. Yet in contradiction there are some brick manufacturers who seemingly have enough and to spare.

Joseph Byrne, at his yard, has been working all summer and is still hard at it. They are working full time and not piling up any, so that tells its own story and a good one.

The Peter Byrne estate is working full time, full force and full pay. Not a man or boy is working for less than \$1.75 per day. They are supplying brick for fifteen houses in Tioga, eight-house, two-house and four-house groups in other parts of the city and a theater at Broad and Poplar streets. All their hard bricks disappear so rapidly from the yard that they have not one left in the place.

The morning I called they were offered the contract for twelve three-story houses, but hesitated on account of so much work on hand. Well, there is bound to be an oasis in the desert, and perhaps this locality is one in North Philadelphia.

Chambers Brothers' Company have recently been fortunate in receiving some new orders that make them feel as if things were moving again in the right direction. Their Chicago office sent in quite an order from Central Illinois, and their men in the East here are gathering up some new business from the Hudson River district. Inquiries are also of a better character. They have just shipped an outfit of clay preparing machinery to the Fulton Brick Works, at Richmond, Va., and one of their new "Keystone double disintegrators" to Georgia.

M. E. LOCKINGTON.

MARTIN-LANCASTER.

WE PRESENT HEREWITH a good illustration of the new addition to the home of the famous Martin clayworking machinery, and we take great pride in inserting in our columns such a building that is worthy of note to our readers. The complete front of this building is devoted to offices and rooms for a complete study of the clay industry, and the Henry Martin Brick Machine Manufacturing Company, of Lancaster, Pa., has achieved an enviable reputation among the clayworkers through its

fine clayworking machinery and straight business dealings. An enterprise, founded on honest commercialism, is bound to advance, and the Martins are no exception to this law. Their business has extended greatly during the past few years, and many improvements have been made to their factory, which is thoroughly up-to-date in its equipment.

The main offices are in the foreground, and in the rear of the offices, same building, is where the Martin machinery is erected and tested. They employ the best talent obtainable and systematize their lines, and employ the latest and most modern shop facilities, and all their machinery is set up and thoroughly tested before loaded on cars for transportation, the machinery being loaded on the cars inside of this large building and handled only by experts in this line, so as to make sure that everything shipped from their factory is in a No. 1 condition.

The plant covers several acres, and its equipment includes the most advanced machinery procurable for the manufacture of clay appliances in all branches. The company equips brick and tilemaking plants complete, including molding machinery, artificial dryers, engines, boilers, etc., etc. Clayworkers going East should not fail to visit this plant, and have a social chat with the Martins, where they will be welcome.



Main Office and Factory, Henry Martin Brick Machine Mfg. Co., Lancaster, Pa.

that direction, and fortunately, Carroll Brothers can afford to wait for it.

The manager of the Samuel Huhn estate is closing out the business permanently. We regret to hear of their leaving the brick manufacturing business.

McAvoy & Morris have closed down now and then for a day or two, but otherwise have been manufacturing brick as usual all during the summer. Their business last month was better than that of June last year. They have a builders operation just now of 156 houses at Fifty-eighth and Greenaway. As Mr. McAvoy remarked, the building operations are the last to feel the pressure of business, and likewise, the last to recover. He, however, is hopeful and cheerful.

The Hydraulic Press Brick Company are holding their own and are running along full time. This is the time when people are coming after good stuff and they are selling their best. Plenty of inquiries coming in and several large operations on hand; altogether they are very optimistic regarding the condition of affairs.

F. Seitter's Sons are particularly busy—consequently happy. They just bought 1,000,000 hard brick and are getting the same price they got last summer. They have no kick and have enough to keep them working for the next ten weeks.

Joseph L. Siner's Sons, of Nicetown lane, speak en-

Written for THE CLAY-WORKER.

DETROIT BRICK AND BUILDING SITUATION.

THE BUILDING SITUATION in Detroit is, of course, no different than that of other cities this year. It is practically an acknowledged fact that building conditions are not as good anywhere as they were last year, and for the first four months of 1908 operations in Detroit were practically nil. But despite the falling off in the volume of building, as compared to last year, there seems to be at present a noticeable improvement in building activities. This improvement will undoubtedly continue and greatly reduce the difference in favor of the year 1907 before the present year's operations are over.

Building permits issued during July, 1908, showed a falling off as compared to the same month in 1907. In fact, July, 1907, showed a total of building permits nearly twice that of July this year. According to the records in the fire marshal's office, there were 218 permits taken out in July, 1908, for new buildings, at a total cost of \$649,500, and for fifty-six additions to cost \$200,450, making the total \$849,950. In July, 1907, there were 435 permits for new buildings, valued at \$1,227,800, and sixty-five permits for additions, valued at \$348,900, making a total of \$1,576,700. The difference in favor of July, 1907, is \$726,750.

The total figures for the year to August 1 are \$5,417,350. The total for the first seven months in 1907 was \$8,889,800, making a difference of \$3,472,450 in favor of 1907.

Building permits issued during the first week in August, 1908, show a good degree of activity in the various building lines and denote that the "build now" movement is having a good effect.

The brick business naturally depends to a great extent upon building conditions generally, and many of the Detroit brick manufacturers are not as much pleased as they might be. Practically all of the construction work now being done is for small jobs, residences, additions, etc., in which ordinary brick are used. Prices also are lower than last year, and this, with the moderate demand, does not cause much enthusiasm. Common brick are now selling for \$5.75 to \$6.00 per thousand, while a year ago they were bringing \$6.50 to \$7.00 per thousand. These prices are for delivery on the job.

At the plant of the F. H. Wolf Brick Company it was stated that only one machine was running at present and that the plant was working only about one-half its regular capacity. "We are selling a good quantity of brick in Detroit and vicinity," said Mr. Wolf, "but prices keep down the profits and for that reason particularly business is not as good as it might be. There seems to be no use in making a lot of brick now, because the more we make the more we lose."

John S. Haggerty, Detroit's well known brick manufacturer, however, is very optimistic and declares that business could not be better. He stated that his plant is now running full capacity night and day and that prices are satisfactory as far as he is concerned.

The Larkins Brick Company states that demand for brick now is better than it was a short time ago and the company is looking for a very good business this fall. Prices, however, were not satisfactory.

As far as the paving brick situation is concerned, it can be stated that the city of Detroit is doing as much paving as ever this season, but not as much brick is being used. Practically as an experiment, the city is now using a good quantity of creasote block on many of the cross streets. Brick is, of course, being used on the principal thoroughfares.

The Bartlett Company, of Jackson, Mich., dealers in building supplies, have opened an office at 706 Hammond building, Detroit. This company some time ago was represented in Detroit by H. H. Dickinson, with offices in the Hodges building. Mr. Dickinson, however, is now conducting his own business and has his yard at 1125 Wabash avenue.

The Improved Paving Brick Company, formerly located in the Wetherbee building, and the Rochester Sand Stone

Brick Company, formerly in the Chamber of Commerce building, have discontinued their offices.

The Vulcan Brick Yards, W. J. Turner owner, is working full capacity this season and the plant will turn out over three million brick. WOLVERINE.

A NEW CHAMBERS CLAY DISINTEGRATOR.

THE ACCOMPANYING illustration of the Keystone Double Disintegrator No. 30 will prove of interest to many of the readers of this journal. It is the latest addition to the Chambers Brothers Company's clayworking devices, and has a number of novel features. It will be observed that there are no gears employed, each cylinder having an independent belt drive. In a series of careful tests, it has been fully demonstrated that the machine is practically unchokeable, no matter how rapidly material may be fed into it. The fineness of its output is easily controlled, and it will grind all manner of plastic materials, either wet or dry, and is especially adapted to shales and clays in which are embedded small stones, pieces of ore, etc. Like all Chambers machinery, it is strongly built of the best material. All its parts are easily accessible. The journals are fitted with continuous ring-oiling devices, which permit the high speed necessary, the revolving cylinders running 600 revolutions per minute and upward, according to requirement. These cylinders have a number of hardened steel bars inserted and projecting slightly from the cylinder faces. These



Chamber Double Disintegrator.

bars run in close proximity to a double-faced grooved grinding block, adjustably secured between the two cylinders and below their centers. In operation, the material is first crushed between the bite of the two cylinders, after which it is carried down by the projecting bars and ground against the hard faces of the grinding block. The latter is made of very hard material, and so constructed that it may be renewed easily and with little expense. The machine is offered under guarantee, and is made in varying sizes to suit desired capacity. For full particulars, address Chambers Brothers Company, Philadelphia, Pa. (See ad on page 123.)

The Coos Bay Brick and Stone Company, located on Daniels Creek, south of the Coos River, near North Bend, Ore., state that they have enough clay of fine quality to last thirty years. They have in operation a stiff mud auger machine, with a capacity of 25,000 to 30,000 brick a day. They have recently secured a contract to furnish brick for the new \$75,000 Chandler Hotel in Marshfield, Ore., which will take about 400,000. The first kiln of 200,000 on this contract is now being burned. Coos Bay brick have also been recommended for a new \$40,000 school building at North Bend, Ore., the contract for which will be let some time this month. This company has recently discovered a stratum of fine clay suitable for making cream-colored brick or terracotta.

THE AMERICAN NO. 515 SIX-MOLD DRY PRESS BRICK MACHINE.

THE EVOLUTION of the sand-lime brick industry demonstrated that among the prime essentials of a successful plant is a brick press of exceptional strength. To meet this demand, the American Clay Machinery Company have designed and patented their No. 515 six-mold dry press, which is especially adapted to the severe service incident to the manufacture of pressed brick from sand. It has features which add greatly to its durability when used in making dry pressed brick from shales, surface clays and fire clays. In its general design it embodies many of the patented features already successfully used in the American D-3, D-4 and Model "C" presses, and, in addition, a number of excellent features not heretofore appearing in their line of brick presses. The handsome cut of this press, shown on page 134 of this issue, affords a good idea of the massiveness of this press, which combines 51,500 pounds of iron, steel and other metals so proportionately distributed as to insure the greatest possible strength, durability and capacity. The designer has provided an ample factor of safety in every feature, and yet no particular part of the press is unnecessarily heavy. On the contrary, it is evenly balanced throughout. All shafting and tension bars are made of high-grade steel forgings, and all other parts which sustain the great strain of pressing the brick are of open hearth steel castings. The mechanical arrangement is such that all parts of the press are easily accessible; the machine is self-contained, all working parts being above the base line, and it may be shipped set up ready for operation, as shown in the illustration.

A feature of the press which will be appreciated by experienced press brick manufacturers enables the operator to vary the thickness of the brick by means of a simple mechanical adjustment, by which a variation of three-fourths of an inch from any established minimum thickness may be secured. The depth of material in the mold is regulated by means of the hand wheel located immediately underneath the discharging table. This hand wheel is connected through steel levers with springs and rubber-faced buffers, which sustain the lower crossheads at any desired position while the molds are being filled. This construction gives instant regulation, is free from noise and jar, and is in every respect durable and satisfactory in its operation. The press has a capacity of 2,300 to 3,000 brick per hour. For full description or any other information desired in regard to this press, or any clay machinery, for that matter, address American Clay Machinery Company, Bucyrus, Ohio.

MORE BUMPER CROPS.

It may be difficult to tell just what is going to happen to high finance, between Lawson, the System, and other influences at work to create business, and to reconstruct out of the panic a busy order of things again; but the weather man seems determined to give us another bunch of bumper crops. The wheat crop was a record breaker. It looked for a while like the corn crop was going to the dogs, and corn has been scarce enough that it has been uncomfortably high in price to those who have been purchasing. However, late rains have done the corn crop so much good that it looks now like corn and all the other late crops will be excellent, and there will be no need for anybody to go hungry or fail to prosper if we can only get the distributing machine at work in the right manner. It will take some money to move all the crops, and as the farmer has been the prosperous man for several years, now it looks like he is in a fair way to add still more of the country's cash to that already in his pockets. Let it be so—it is in just as good hands there as if it were tied up in some financial scheme, and there is

just as much room for the farmer and those nearest him territorially to do good building as there is for anybody else. Also, the more he prospers the more other things he will buy, and the better business will be. In fact, it is almost impossible to maintain anything like a calamity howl as long as the agricultural element is prospering like it is at present.

OBITUARY.

P. L. Youngren Stricken With Apoplexy While at Work and in Usual Health.

The death messenger came to P. L. Youngren Monday, the 10th, wholly unexpected. Mr. Youngren was at Summitville, Ind., superintending the final test of a new continuous kiln constructed under his supervision for the National Drain Tile Company. Apparently, he was in his usual good health, when, without the slightest warning or premonition, he fell a victim to apoplexy. His wife was summoned by telephone from their home in Milwaukee, and reached his side the following morning, but found him unconscious, in which condition he remained until death ensued a few hours later.

The funeral service was held from his late home at 299 Twenty-fifth street, Milwaukee, Thursday afternoon, the Rev. Thomas Barney Thompson of Plymouth Congregational

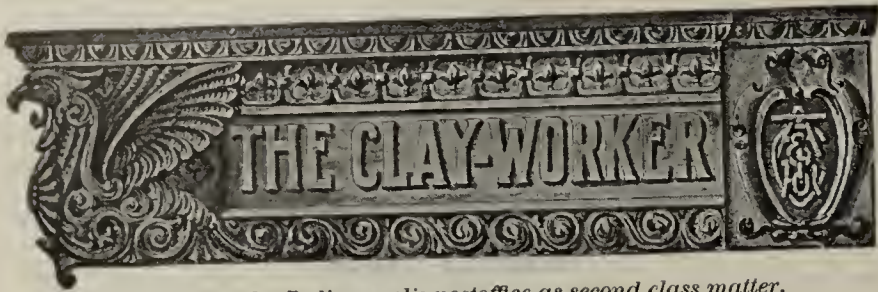


The Late P. L. Youngren.

Church officiating. Mr. Youngren is survived by his wife and seven children.

Mr. Youngren was born in Sweden in 1862, and came to America when quite a young man. For a time he lived in Baltimore, and afterwards removed to California, where he met and married Miss Ida Tuttle. In 1901 they located in Milwaukee, which has been their home since then. His work of building continuous kilns kept him on the road much of the time, and he was a familiar figure in many of the clay centers of the country. He was an authority on clay burning, and was one of the first to successfully operate continuous kilns fired with producer gas. His death is a distinct loss to the clay industry, to which he had given many years' conscientious study. He was an influential member of the N. B. M. A., and contributed to its literature much valuable information. He was extremely modest and kindly, and very conscientious in all his business and social relations. He was known personally to a great many brick and tile manufacturers throughout the country, by whom his death will be mourned. His kiln business will probably be continued by his elder son.

Muck-raking is a disagreeable thing, but if we will just sow the seeds of uprightness in the disturbed muck, and give diligent and consistent attention to future cultivation, the end will justify the means.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. L.

AUGUST, 1908.

No. 2.

CURRENT COMMENT.

There may be only one kind of right and one brand of real honesty, but there is a host of imitations.

* * *

Producer gas is one kind of hot air that seems to be worth while, and the clay industry is seeking a closer acquaintance with it right along.

* * *

About the only people getting excited over the political campaign this year are the campaign managers themselves. The people, as a rule, would rather "fan" at a baseball game.

* * *

The vacation fish story crop is being interfered with this year by reports from the country districts that the chiggers are thicker than usual. Also, it is said the chiggers beat the fish when it comes to biting.

* * *

Speaking of monopolies and their troubles, the first and only man on earth that had an absolute monopoly was Adam, and it seems that he wasn't satisfied till he got into trouble, and made trouble for all mankind henceforth.

* * *

The world is undoubtedly making some progress in airship construction and efforts at successful controllable flight, but the progress is now and then marred by deplorable accidents, and what we need to give proper encouragement to this idea of aerial flight is some means of reducing the hazard, as well as increasing the power to control the machines.

* * *

It is said that most of the banks that went broke in New York and worked havoc in the country have cleared up the wreck and resumed operations. This is good as far as it goes, but it doesn't go far enough. What we would rather see is the havoc wrought to the industrial world cleared up, and all the industries going again at full tilt. We wonder

if these same banks could do anything to help repair some of the damage they have caused to the public in general?

* * *

Were it not for the element of uncertainty in business, there are some of us who might do too much sleeping in the daytime.

* * *

The prices of farm products are very satisfactory, and, with money at a low rate of interest, it is a very favorable time to push the work of tile drainage.

* * *

There is no set price on the cutting of the commercial "eye," or "wisdom" teeth, but they cost too much unless you get some adequate return out of the lessons learned.

* * *

You need not be afraid of exhausting the mine of knowledge by digging at it, for knowledge is a peculiar quality, in that the more you acquire of it the more there is left for you to get.

* * *

If only Uncle Sam's affairs would run as smoothly as political platforms read, what joyous times there would be in this country, and what little cause for complaint. However, some pessimists will be cruel enough to remark that political platforms are supplied for making stump speeches and getting votes only and not for running governments.

* * *

This is the season of the county and State fairs, when the big pumpkin, the prize pig, and the best pies and everything else from the farm are on display. Also, there are displays by manufacturers of great lines of farm machinery and implements for the welfare of the agricultural districts. It puts us to wondering just a little if it would not be a good idea to do something in the way of promoting better home building by displays at these fairs of ideal home construction, and by pushing forward in every way the better class of building materials and designs for homes.

POWER TRANSMISSION IN CLAYWORKING.

The problem of power in the clayworking institution has always differed slightly from the same problem in the majority of other manufacturing institutions because of different conditions, especially in relation to moisture. When belting and shafting was the only means of transmission, the clayworker had to select his belts with unusual care, because sometimes moisture did more harm to an ordinary belt than the service itself. By and by moisture-proof belts were developed, until today one can get leviathan belts that are practically waterproof, and can also get moisture-proof leather belting.

Now, however, that belting as a transmitting agent has reached a more satisfactory basis, electricity comes in for a place in power transmission; also, incidentally, the gasoline engine as a means of furnishing power. Electric transmission has been making very rapid progress in the manufacturing world, and the majority of modern plants of any magnitude have dispensed with long heavy lines of shafting and big pulleys, and have turned to electric motors, some of which are attached directly to the machines, and some to light sections of line shafting to drive a group of small machines. Electricity has been a little slow to make its way into the clayworking field, because of the rough service and the presence of moisture in many instances. It seems, however, that it is making fairly good headway now, and not a few of the modern plant equipments today include electric drives as a part of the equipment. Electric motors are used for driving pumps, shovels, brick machines, represses, cutters, etc.

The one great point in favor of electric drives where practical is that it not only dispenses with the heavy line shafting

and pulleys, but renders the different machines and different sections of the plant entirely independent of each other in their operation, so that any one can be stopped and started at will without interfering with the other. Where machines are run intermittently, this is a great advantage. Also, it is an advantage in locating and distributing machines so as to have them in the most advantageous relation to each other. Where the plant is driven by line shafting and belting, the machinery must be arranged to conform in some measure to the requirements of the driving system, but in electric driving the machines can be set wherever they will give the best service. It is beginning to look as if the clay-working plant of the future, of large proportions, will use electric transmission, especially if there is not too much trouble with the rugged service and moisture so frequently incident to clayworking.

BRICK SELLERS AND THEIR DISPLAYS.

Aside from the reading matter connected therewith, there was shown in THE CLAY-WORKER for July an interesting pictorial story of displays of ornamental and pressed brick. Brick is one thing that it is difficult to display advantageously except when it is put in buildings, together with all the trimmings and other things that go to set it off. It is probably because of this fact that many a manufacturer doesn't go to a great deal of trouble, or take a great deal of pains to display his product in his office or in a sample room about his factory. Not only that, but many a brick dealer depends simply on a few sample brick of different kinds, piled on window sills and in dusty corners, which he can get at and show to prospective customers. Here and there, however, one finds some elaborate effort at displaying brick, so as to give some idea of the effect that may be produced by it when put into the building. Enough brick are laid up together to give some idea of how they may look in a wall, and when the laying is done permanently, with mortar properly colored and used, it improves the display wonderfully. Of course, it is impossible to bring out all the effects as in a complete building, but yet one can lay enough samples of the work to give an architect a fair idea of the results that may be obtained. Things like this appeal to the architect, too, and they are so well worth the trouble and expense of equipping a display room that this feature as related to selling brick and clay products should be given more attention. It not only shows it off to better advantage, but shows a commendable enterprise, and the moral effect it has is worth while, also. For the salesrooms in large cities, something of this kind is almost imperative if one would get proper attention, and, also, those brick manufacturers who invite architects and prospective builders to visit their offices and works frequently might well devote quite a lot of space and time to arranging complete displays. These displays can be helped out by photographs of buildings that have been erected, and in which products have been made use of in various ways, so, altogether, it can be made a valuable and interesting feature of the clayworking business.

THE PITFALLS OF MUNICIPAL TRADE.

Every once in a while the newspaper reports tell of troubles and sometimes of scandals connected with the street paving contracts. There are enough of these, in fact, if they could all be unearthed, to form the basis of a series of sermons on the pitfalls of municipal trade. Such sermons might consist of warnings against the idea of getting trade by purchasing it. The only logical way to get trade is to merit it, to furnish the product that is best suited for the purpose. Unfortunately, many a man who goes to work on this theory and sticks closely to it has some difficulty

in getting his share of business, and sometimes because of this fact eventually becomes impressed with the idea that the only way to get municipal contracts is to buy them in some way or other. There are various ways in which this buying is done, but no matter which way is followed, it is full of pitfalls and should be avoided. Sometimes the way leads along the line of furnishing political influence, sometimes it is the payment of commission to parties who can influence contracts and municipal legislation, sometimes it is one way and sometimes another. Sometimes it brings "good" results for a while, but always the way is fraught with dishonor and dangers and should be avoided both on moral and business grounds. All this and a lot more that might be said on the same subject is brought to mind now by newspaper reports to the effect that a contractor representing a prominent granite concern furnishing paving blocks to the city of Louisville was arrested for attempting to bribe an alderman with the payment of \$500 in order to get a favorable report on account of the said granite company which had been held up pending investigation. It is not the purpose nor the intention here to go into the merits of this individual case, nor to make any comments thereon, but rather to point out the fact that in municipal contracts, as in private contracts, it is a mistake financially, as well as wrong morally, to buy business. There is only one way to do business to avoid pitfalls, and that is to do it on the square and on the merit of the material you have to offer.

TRADE LITERATURE.

THE CHICAGO BRICK MACHINERY CO. has already distributed several thousand copies of their new Red Book of Labor Saving Devices and Yard Supplies, but they request us to state that if any brickmaker has been missed and has not received his copy they will gladly mail him one if he will send in his name and address to their office at 77 Jackson boulevard, Chicago. This Red Book is a unique catalogue, the only one of its kind in the trade, so every brickmaker should have one on hand for reference.

THE GLASS AND POTTERY WORLD, "The Green Book," which is one of the best trade magazines in its field, announces in its last issue the change in ownership and the removal of its office from Chicago to New York City. The same policies are in vogue, the editorial, correspondence and equipment being the same. However, the "Green Book" has been reduced to magazine size, a decided improvement. The subscription price was also reduced to \$1.00 for the purpose of building up their subscription list. We wish to congratulate the "Green Book" on its new style, and wish them the success the merit of the magazine so richly deserves.

"SOMETHING BETTER" is the title of a new, attractive catalog being mailed to the trade by H. W. Caldwell & Son Co., Chicago, Ill. This is a thirty-two-page, well printed and illustrated pamphlet, bound in a brown cover, printed in black and orange, and is very tastily gotten up. This company furnished the machinery for the large Hecker-Jones-Jewell mill, of New York City. The pages of the pamphlet are given over to complete detailed descriptions of the machinery installed in this mammoth mill. Any clayworker interested in rope drives, double disc clutches, automatic elevators, spiral lowering chutes, conveyors, etc., should write the H. W. Caldwell & Son Co. for their late catalog.

THE BOOK OF SMILES for July contains a number of very amusing skits, beginning with "The saddest words of tongue or pen are these: 'The home team lost again.'" Another paragraph in the same vein is headed "The Burying of Hope," and is so seasonable we quote in full: "The boss and the bookkeeper met in the grand stand. 'Huh, thought you got off to attend a funeral,' sneered the boss. 'Well,'

said the bookkeeper sadly, as three more of the visitors scored on the home team's errors, 'what do you call this?' There are many other "smiles" contained in every issue of the little book, which is published every month by the Standard Dry Kiln Company, Indianapolis, Ind., from whom a copy can be had for the asking.

THE TRADE SCHOOLS of the Winona Technical Institute, Indianapolis, are mailing their book of particulars for the ensuing school season. Among the features mentioned of particular interest to clayworkers is the School of Bricklaying. This department, under the direction of Ora C. Pierson, an experienced brick contractor and mason, is now fully equipped and young men desiring to learn the trade of bricklaying are offered an opportunity of doing so at the Winona Institute. The fall term begins September 1. Any of our readers who are interested in trade school work, as well as those who want further information in regard to the School of Bricklaying, should obtain a copy of this book, the title page of which is exceptionally attractive, showing the entrance to the Institute, which is aptly labelled "The Gateway of Opportunity." A copy can be had on application to the Institute.

MILLIONS OF BRICK USED IN CONSTRUCTION OF CHIMNEY.

The tallest chimney in the world, it is said, is now being erected at Great Falls, Mont., for the Amalgamated Copper Company. It will be 506 feet high above the foundation, and its diameter will be 54 feet at the top and 74 feet at the base. The entire construction will require 5,700,000 brick, which will be of a special radial type.

Written for THE CLAY-WORKER.

THE EDITOR'S VACATION.

How good to lie upon the sands
And look into the sky,
And feel the tide creep on your feet,
Nor care how time goes by.
Back in the city, with its crush,
Its noise and smoke and glare!
Its everlasting rush and grind—
I'm done with it, I swear!

Me for the shore—for three whole months—
Let editorials hang!
Give me these days of one long hour,
With never clash nor clang!
Look at this string of fish! It beats
Years in a city. Gee!
Wish I could stay here three whole years.
For a dive, now—one, two—three!

Don't know a soul—and glad I don't.
Tired of folks and things.
Just by my lonesome—that's the stuff!
Feel like my soul's on wings.
Wish I could get those colors, there—
Purple and opaline,
Into my pen; and that blue haze,
Melting the golden-green.

Wonder what my pen-brothers find—
Back in the black-aired town,
Now, to inspire their thoughts? Poor pals!
Nothing but drab and brown,
Shriek and rattle, and rush and grind,
While I lie stretched at ease,
Steeping my body, mind, and soul,
In glories such as these.

Two weeks? Surely it's more than that!
I'm reeked with color-scheme!
My waves of thought roll like the sea,
And beat upon a theme!
Lusty with rest, my fingers itch—
I'm glad enough to yell—
Homesick to rush the "copy," and
To pant, and catch the "L"!

MARGARET ANDREWS OLDHAM.

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ESTABLISHED COMPANIES, as well as beginners, find our services profitable. We correct faults of manufacture and keep plants up-to-date. Engagements for special service, or by the year.

THE RICHARDSON-LOVEJOY
ENGINEERING CO.

[See page 213.]

FOR SALE, WANTED, ETC.

WANTED—An energetic, capable sewer pipe salesman, one familiar with dealers' and contractors' trade. Address
SEWER PIPE,
8 1 d Care Clay-Worker.

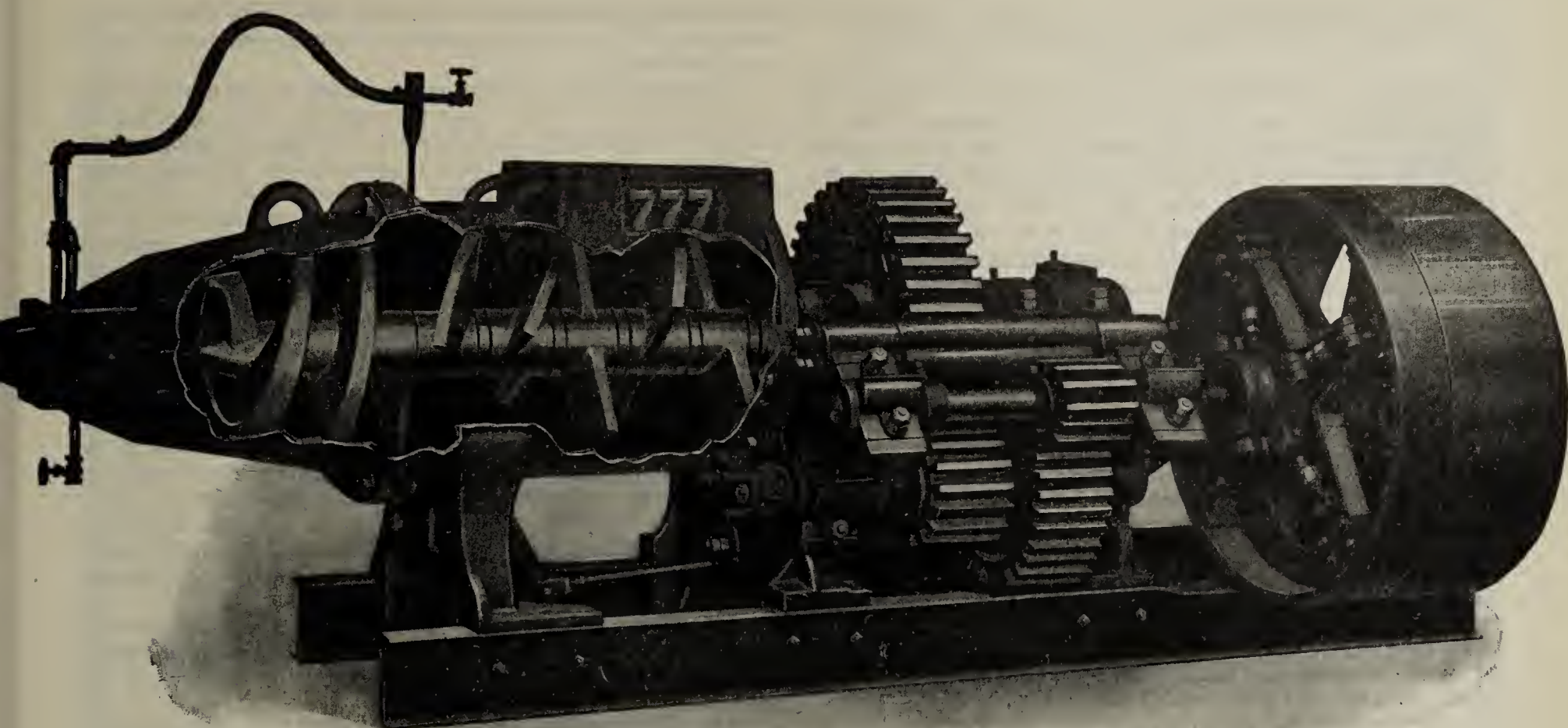
WANTED.

A position as superintendent by a responsible man, who is thoroughly familiar with all the details of a brick plant, and capable of handling all kinds of help. Can give the best of references as to ability, etc. Address
R. R.,
8 tf d Care Clay-Worker.

FOR SALE.

A brickyard consisting of dry press and Hercules mud machines, 70 h. p. boiler and engine, waste heat dryer, eighty rack cars, sheds and pallets, fourteen tenement houses, twenty-one acres of land, two brick kilns. The machinery has been used but little. Yard is located near large city and demand for all the brick that can be made. Will sell entire plant for \$5,000 on easy terms. Address
S. J. C.,
7 3 d Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on
Pages 198, 199 and 200.



RAYMOND "777" BRICK MACHINE.

Over six million brick made every day on the famous Raymond "777" Brick Machine.

It is the embodiment of strength, durability and performance—so with all of our manufacture.

We issue the following publications which may be obtained upon application to our Publicity Department:

GENERAL CATALOG

CATALOG OF DRAWINGS AND SPECIFICATIONS

"Smiles."

Exhibits

- 2040. Nine-foot Heavy Duty Dry Pan.
- 2042. No. 2 Rotary Automatic Cutting Table.
- 2044. "999" Brick Machine.
- 2045. Perfection Hand Represses.
- 2046. Clay Conveyors.
- 2047. Four Roll Crushers.
- 2049. Niagara Hollow Ware Machine.
- 2052. Victor Repress.
- 2053. Granulators and Bevel Geared Pug Mills.
- 2055. Clay Elevating Machinery.
- 2056. Portable Track.
- 2060. Roofing Tile Designs.
- 2061. Dry Presses and Dry Press Machinery.
- 2062. Automatic Tile Cutter.
- 2063. System of Open Air Drying.
- 2069. Peerless Smooth Roll Crusher.
- 2070. No. 3 Brick and Tile Machine.

Exhibits

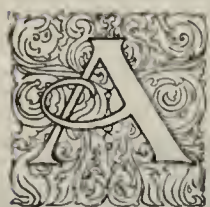
- 2071. Standard Pug Mills.
- 2072. Single Geared Pug Mills.
- 2075. Semi-Automatic Cutter.
- 2077. Radiated Heat Dryer.
- 2078. Soft Mud Machinery.
- 2079. Belt Apron Type Clay Elevator.
- 2080. "555" Brick Machine.
- 2081. Automatic Wet Pan Emptier.
- 2082. Piano Wire Screens.
- 2083. No. 1 Automatic Cutter.
- 2084. Dryer Cars.
- 2085. No. 3 Hand Dry Press.
- 2086. Automatic End Cutter.
- 2087. "777" Brick Machine.
- 2088. Hoisting Apparatus.
- 2089. No. 2 Combination Brick Machine.

THE C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

The Largest Exclusive Builders of Clay Working Machinery in the World.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



APPARENTLY THE KANSAS gas belt problem of getting rid of the common brick is about to solve itself, or rather the extraordinary demand is about to take up the entire supply, and thus relieve the tension for the balance of this year, at least. There may be an over-production of common brick in the Kansas gas belt at this time, but judging from the amount of building mapped out for the surrounding country, it looks to brick men like the production would about be taken this year, and there is a little stiffer feeling on common brick in consequence of this prospect. They are still being sold in Kansas City at a low figure, but it has been noticed that a good many contracts have been closed of late for the entire products of plants, and this is an indication that those who are in touch with the builders feel safe in loading up, knowing that the demand is going to be ample to take the product off their hands.

Up to July there was a big demand for paving brick, and also for vitrified building brick of the better grades, but common brick were draggy. At the present time, the demand for pavers is as great as ever, in fact, it is stated by those who ought to know that every plant in this section of the country which is making a vitrified paving brick has already engaged its entire output for this year, and it is now only a question of turning out as many as possible, for the matter of delivery is now a simple matter, as the railroads are finding plenty of cars in which brick can be shipped this year.

The local demand for all kinds of brick is greater than ever before this year, but the increase is most noticeable on the common brick, as that was the sticker to July 1. Whether investors feel especially confident that their money will be well placed if put into buildings in a wide-awake city, and are investing here instead of putting their money into the different kinds of securities, or whether there is just a general picking up in all kinds of business, it is impossible to say, but many feel inclined to believe that people who have been hoarding their money for some time are now looking for investments of the realty kind, so they can see the value with their open eyes, and not have to take someone else's word for it. They have been scorched on stocks, etc., and are willing to take up something of a more solid form. It is natural that this city should reap the benefit from such a feeling, being the heart of the producing country, which has been the granary drawn upon for the past year, and where the future prospects look remarkably good.

Kansas has harvested, and is rapidly marketing a 75,000,000-bushel crop of wheat, and has also harvested a fine hay crop. The corn crop of the State is reported to be in extremely fine condition in the west and central part of the State, and fair in the eastern part, but rain is now badly needed in the latter section. Missouri crops are uniformly good this year, and Oklahoma is also making a fine report.

The greatest factor of all, however, in the use of common brick, is the fact that Oklahoma has so much money at its command with which to build school houses, court houses, city halls and all kinds of public buildings. The cities and towns in this territory have not been in shape to create a bonded indebtedness until lately in the old Indian Territory part of the State, and hence they are now able to issue bonds for whatever they wish, and the indications are that a vast amount of money is to be spent for brick, especially for the construction of school houses. The fact that the restrictions on the Indian lands have been removed makes the business men of the new State feel like they were going to have a good, steady business. Up to this time they have had plenty of business, considering there was a big oil and gas boom, but as long as a large part of the land was owned by the Indians, and not thickly settled, it made the farming community one which was not as strong a backbone to the community as it always is in other sections. Now that the country is to be thickly settled the business men realize that if they lost their gas and oil, and there was nothing left but

the farming community, they would still have good towns, so there will be a good movement towards substantial business buildings.

In this city the most encouraging thing in the new demand for brick is the fact that even the railroads have again begun to buy. Jobs which were dropped last fall are being taken up again and are to be pushed to completion. Railroads have refused to spend any money for improvements until this time, and as they are big buyers of building materials their coming back into the market is considered by building material handlers to be the best sign of an era of good times that they have had since last fall.

Word comes from several Kansas gas belt plants, which have a reputation already established for the quality of their common brick, stating that they have already booked orders for their output for several months ahead.

The Kansas City brick plants are all busy at this time, and some of them could sell a good deal more than it is possible for them to produce without increasing their capacity.

The Eadie Building Supply Company reports having contracted for 4,500,000 common brick within the past few days, and within the same time had sold 2,000,000. Mr. Eadie said: "I never saw better prospects for business, not only in Kansas City, but all over the West and Southwest."

The Kansas City Vitrified Paving Brick Company reports the plant in full operation now, and a good demand for brick. They just closed a contract for a million of their pavers to go to Clinton, Mo.

The Leavenworth Brick Company has been incorporated to take over and develop the Leavenworth, Kas., plant of the Pittsburg Vitrified Paving Brick Company, which has not been operated for five or six years. The new company has a capital of \$25,000, and is largely composed of Kansas City men. The directors are as follows: J. P. Dobbs, superintendent of the State brick plant, at Lansing; Wm. G. Holt and D. P. Lindsay, of Kansas City, Kas.; H. R. Hart, of Leavenworth, Kas., and Robert Nesch, president of the Pittsburg Vitrified Paving Brick Company, of Kansas City, Mo.

The LeRoy Brick Company, of LeRoy, Kas., is a new concern, which just began to ship brick last week.

A. L. Molar and others are organizing a company in Houston, Tex., with a capital of \$50,000, to engage in the manufacture of a lime brick.

The City Council of Little Rock has been petitioned to order paving to the amount of 20,000 yards on Louisiana, Third, West Fourth and other streets.

About \$24,000 is to be expended by Denton, Tex., in the construction of a sewer system.

A vote is to be taken in McAlester, Okla., on the question of issuing bonds to the amount of \$156,000 for sewer construction.

The Brenham Pressed Brick and Manufacturing Company has been incorporated in Brenham, Tex., with a capital stock of \$60,000, by J. A. Crocker, W. A. McVitie and E. F. Newing.
K. A. W.

RECORD PRICE FOR CLAY LAND.

A record price of \$16,000 for fifteen acres of clay land has been paid by the Fort Dodge Superior Clay Works to Henry Engholm, of Ft. Dodge, Iowa. In the history of Webster County no such price as this has ever before been paid. The land is underlaid for a depth of 75 feet with clay shale of the finest kind. The company that will buy the land is, for the present, capitalized at \$50,000, in order to erect their drainage tile plant. It is the intention of the company to build a \$150,000 plant in which to manufacture sewer pipe and porcelain electric insulators. The clay with which the insulators are made is almost black in color, but after it has been burned in the kiln turns to a pure white.

THERE ARE OTHERS.

(D. PRICHARD.)

The jaybird, he's my favorite of all the birds they is.
I think he's quite a stylish sight in that blue suit of his;
An' when he lights an' shuts his wings his coat's a "cutaway."
I guess it's only when he sings you'd know he was a jay.
—Exchange.

NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

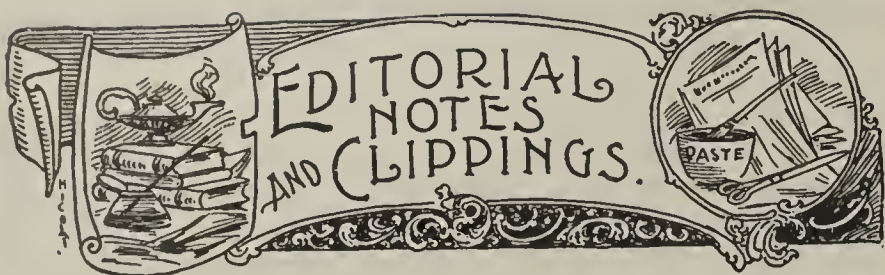
The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



W. L. Weaver will erect a small brickyard at Blairsville, Ga.

C. O. Patten contemplates the establishment of a brick and drain tile factory at Milroy, Ind.

The Southwestern Brick Company, of Cherryvale, Kans., are now operating a Bonnot repress recently installed.

T. A. Matthews is erecting a small brick manufacturing plant at Jonesboro, Pa., where there is a good local demand for brick.

The Bonnot Company, Canton, Ohio, has recently shipped a heavy duty 9-foot dry pan to the Ludowici-Celadon Company, of Chicago Heights, Ill.

A fire which broke out in the kiln sheds of Yard No. 22 of the Illinois Brick Company, at Blue Island, early in the morning of August 1, caused a loss of over \$1,000.

The Humphrey Brick and Tile Company, of Brookville, Pa., has recently put into operation a large combination brick machine, manufactured by the Bonnot Company, Canton, Ohio.

The Uniontown (Ky.) Brick and Tile Company has been incorporated with \$5,000 capital stock. Those interested are: W. R. Thomas, Morganfield, R. L. Roberts, Waverly, and J. P. Bowers, of Uniontown.

The Harbison-Walker Refractories Company, Pittsburg, Pa., has purchased twenty-five acres of fine clay land at Wylam, Ala., in the Birmingham district, on which they will erect a \$250,000 fire brick plant.

The New York Face Brick Company, capitalized at \$300,000, and with an office at No. 724 Garden street, Hoboken, N. J., has filed articles of incorporation. The incorporators are: H. M. Browne, F. W. Mills and E. J. Forham.

The report that the Portsmouth Pressed Brick Plant at Portsmouth, Ohio, contemplated a shutdown is erroneous. William Corriell, the foreman, announced that the plant has more orders than it can fill, and that the outlook for several months is extremely flattering.

The Trumbull Brick Company, of Warren, Ohio, has increased its capital stock from \$30,000 to \$100,000. The additional capital will be used to enlarge the company's plant. The product of the company includes yellow building brick, hollow brick, and building tile and drain tile.

J. G. Poston, of Crawfordsville, Ind., now contemplates establishing a paving brick plant at Jacksonville, Ill. Mr. Poston recently sold his interest in the Poston Paving Brick Plant at Crawfordsville. He evidently does not intend to remain out of the clay business for any great length of time.

The Rogers Brothers Brick Company, Punxsutawney, Pa., was recently sold at sheriff's sale to Thomas McMullen and O. P. Walker. The new owners will at once make extensive improvements in the plant which will almost double the present capacity.

The Sandpoint Dry Press Brick Company, Sandpoint, Idaho, is having a very busy and prosperous season. This plant, which has a daily capacity of 50,000 brick, has been running now for nearly five years, and has always found a ready market for its product.

John A. Koehler, an experienced brick manufacturer of Ft. Wayne, Ind., has leased a tract of ground on which he will erect a plant for the manufacture of press brick and tile. The plant will have a capacity of 25,000 brick at the start, and will be increased later on.

Madden & Co., manufacturers of clayworking machinery at Rushville, Ind., write that trade is fairly good with them and they have a number of good orders in sight. They recently sold a complete equipment of their heaviest machinery to the Farmers Co-Operative Brick and Tile Company at Mason City, Iowa, and at the present time are shipping a tile machine and cutting table to I. Armstrong, of Catlin, Ind., who is building a new plant at Farmersburg, Ind. The National Drain Tile Company's new plant at Summitville, Ind.,

which is fast nearing completion, is also equipped with Madden's heavy machinery.

T. P. Reynolds and M. L. Aldridge, Jr., are interested in the organization of the Buckshot Brick Company, Greenville, Miss.

The brickyard at Bolivar, Ohio, which was burned down some time ago, has been rebuilt by Brown & Markley, and is now ready for operation.

The Crawfordsville Shale Brick Company, of Crawfordsville, Ind., has just installed a complete outfit of Bonnot machinery for the manufacture of front brick.

A. W. Ewert has installed a new Boyd press at his plant at Pierre, S. D. Mr. Ewert has a good market for all the press brick he can turn out at \$14.00 per thousand.

Articles of incorporation have been filed by the Frankfort Brick and Supply Company, of Frankfort, Ky. The incorporators are: E. F. and F. Denton and others. The capital stock is \$10,000.

Robert Klose, owner of the Beatrice Brick Works, Beatrice, Neb., has sold a part interest in the plant to Dr. H. M. Hepperlen and W. N. Farlow. The plant is one of the largest in that part of Nebraska, and is doing a splendid business.

Morris & Ballantyre's brickyard at Springfield, Mo., was badly damaged by fire July 22, in a fire which started in the engine room. The loss is estimated at \$3,000, and although there is no insurance, the company will rebuild at once.

M. S. Storer, Nelson, Neb., is at the head of a project to erect an immense brickmaking plant on Puget Sound, either at Tacoma or Seattle, Wash. Mr. Nelson is an experienced brick man, and under his supervision the enterprise is sure to succeed.

The Grand Ledge Clay Product Company's plant at Eaton Rapids, Mich., which has been shut down for the last month, is again running full-handed. Since the factory has been closed for repairs it has been equipped with a complete outfit of modern machinery. Nearly 100 men have been put to work.

Theodore Leas, one of the proprietors of the Star Clay Company, of Mertztown, Pa., died at his home in Tipton, Pa., August 1. He was born in Pennsylvania, and had always taken an active interest in the political and social affairs of the community in which he lived. He leaves a widow and six children.

The Luce Engineering Co., St. Louis, Mo., reports a better business than expected. Quite a number of plants are negotiating with them for improvements, Mr. Gibson, the secretary of the company, says, and they have under way the construction of several plants. The prospects are exceedingly bright for future business.

The death of J. C. Bolen, president of the South Zanesville Brick and Terra Cotta Company, occurred last month at his summer home near Zanesville, Ohio. Mr. Bolen was sixty-three years old, and had been engaged in the brick business for many years. He is survived by a widow and one son, who is secretary and manager of the brick plant.

The Leavenworth Brick Company has been incorporated with \$25,000 capital stock by Robert Nesch, Wm. G. Holt, and D. P. Lindsay, of Kansas City, Mo., J. P. Dobbs, of Lansing, Kans., and H. R. Hart, of Leavenworth, Kans., for the purpose of reopening the paving brick plant at the latter place formerly operated by the Pittsburg Vitriified Paving Brick Company.

The business portion of the town of Clayton, Wash., was entirely destroyed by a fire which broke out early in the morning of August 4. The heaviest loser by the fire was the Washington Brick and Lime Company, whose plant was almost entirely destroyed, entailing a loss of \$60,000. The terra cotta factory was saved, but they will not be able to operate it until the power plant is rebuilt. All of the buildings will be rebuilt, and the entire plant put in operation as soon as possible. The company carried \$50,000 insurance.

Horace G. Thomas, a prominent fire brick manufacturer of the southern Ohio district, died at his home in Fullerton, Ky., July 27th, after a lingering illness of several weeks. Until seven years ago, he was interested in the Ironton Fire Brick Works, which he sold at that time and established the Tygart Fire Brick Works at Fullerton, Ky., of which he was president and general manager until two weeks ago, when

(Continued on page 196.)

Written for THE CLAY-WORKER.

LOUISVILLE BRICK AND BUILDING NEWS.

THE BRICK INDUSTRY is showing progress in this section, and there are indications that point to an even greater activity in the next month or so. The building industry has just taken on a reasonable activity, after a slow season, and there are in view a number of important structures. Everybody who is interested in the construction industry are urging the people to build now, and there would seem to be some reason in this, because the cost of materials and labor have not been as low in several years.

The Elks are remodeling their quarters, and the Pendenis Club is arranging to erect a new home at a cost of \$175,000. Plans are under way for this structure. The number of permits show a very healthy increase, and there is undoubtedly more real activity than has been noted in some months.

The Falls City Brick Manufacturing Company find that the demand for building brick is very active just now, and say that they are hardly able to take care of their orders. They are working a full force of hands, and say that the demand is increasing steadily with them. They are of the opinion that there will be a very nice business this fall, and are well pleased over the way the demand has materialized.

The Louisville Brick Company say that they have noted an increase in the number of orders of late, and that there is a very encouraging aspect to the business outlook for the fall months. They are busy, and have about enough to keep their plant in continuous operation. There is nothing to find fault with on this account, and there is reason to see a bright future ahead.

The Louisville Fire Brick Works, at Highland Park, Ky., are increasing their orders all the time, and are working a

larger force of hands than they were a month ago. They see in the coming months a very much better outlook than they have noted in some time, and there is an indication that there will be quite a resumption to the demand within the next month or so.

The P. Bannon Sewer Pipe Company say that there has been an increasing call for their products, and that the outlook is more favorable now than it was a month ago. They look forward to a satisfactory demand, and hope for at least a nice business in the coming weeks. There is more sewer work and similar construction work under way, and the prospects are favorable for a continuation of the same.

The Southern Brick and Tile Company say that they are very busy, both on brick and tile, and that there has been a steady increase in the call for those commodities in the past few weeks. They are confident that there will continue to be a good business in the future, and are arranging their plans accordingly. Mr. Bishop said that there were encouraging prospects, and he was well pleased with the outlook.

The Kentucky Fire Brick Company, Haldeman, Ky., is still finding a big call for its output, and has been noting an increasing demand for fire brick in the past month. They are enlarging their plant, and this will enable them to do a considerable business in the next few months.

The Burrell & Walker Clay Manufacturing Company are hopeful, but they do not find the demand increasing as rapidly as it should. They say that they are doing a fair amount of business, but not as much as they had hoped at this season of the year.

The Carrollton Brick Company, Carrollton, Ky., is still finding a ready demand for its brick, not only in this market, but they are also shipping considerable brick to the South. The outlook with them is very favorable, and they are still inclined to the belief that there will be an active fall demand for brick.

C. O. L.

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he disposed of his entire holdings to his partner, Charles Taylor, of Cincinnati.

The Buckeye Tile Company, of Findlay, Ohio, has been incorporated with \$50,000 by D. E. Child, D. Earl Child, J. A. Gibson, G. E. Harper, and Roy B. Child.

Harvey Baldwin, President of the Buckeye Sewer Pipe Company, Akron, Ohio, and wealthy clay product manufacturer, died July 14 at the age of eighty-six.

The Queen City Brick and Tile Company, Cumberland, Md., is making arrangements to use natural gas for burning their product, and also will use it in the boiler room.

The Bonnot Company, of Canton, Ohio, recently sold two represses to the Deckman-Duty Brick Company, of Cleveland, Ohio, to be shipped to its Malvern and Collinwood plants.

The Ridgeville Tile and Brick Company has been incorporated to manufacture brick and tile at Ridgeville, Ind., with a capital stock of \$10,000, by T. A. Almonrode, Catherine Almonrode, W. F. McCurdy, C. I. Hollowell and C. F. Nixon.

F. F. Bachus has burned the first kiln of brick at his plant at Vollmer, Idaho, and is well pleased with the results of the burn. There is a demand for a good red brick in that vicinity, and Mr. Bachus will be kept busy in order to meet it.

An early morning fire at the brick plant of Roger Moore's Sons & Co., Wilmington, N. C., resulted in the loss of seventy-five cords of wood, valued at about \$100. Prompt work by a volunteer fire brigade prevented the fire from spreading to the plant.

Wm. H. Scott, president of the Scott Mfg. Co., St. Louis, Mo., says they have booked quite a number of orders for the press they manufacture, and inquiries are really more numerous than one would expect with business so quiet in many manufacturing lines.

F. W. Dennis, the inventor and builder of up and down-draft kilns, of Norfolk, Va., writes that he has had a very busy season. At present he is building a double-chamber kiln of 300,000 capacity for the Nansemond River Brick Company, of Norfolk, being the second one of the Dennis kilns at this plant.

A brickyard has just been started at Moulton, Ala., by S. C. Lee, of New Decatur, Ala. Mr. Lee recently received the contract for building the county high school for Lawrence County at Moulton. The building is to be built of brick, and as there are no brick to be had there, Mr. Lee will make his own brick. The building will cost \$10,000.

F. Landrum, an officer of the Columbus Clay Manufacturing Company, and superintendent of the plant at Taylors, near Reynoldsburg, Ohio, met with an accident recently that it was feared for a time would prove fatal. He was riding in an elevator with a load of tile, when the cable supporting the elevator gave way and the cage fell down the shaft at a terrible speed, and Mr. Landrum was badly crushed by the tile falling on him.

Frederick G. Weaver, a well-known brick manufacturer of Utica, N. Y., died at his home July 20. He was stricken with paralysis July 2, and never rallied. He had been engaged in the brick business nearly all his life, as was his father before him, and two of his sons will continue the work their father has laid down. Mr. Weaver was in his sixty-sixth year, but was actively engaged in a number of business enterprises aside from his brick business. A widow and seven children, all grown, survive him.

The plant of the Carson Brick Company, Charlotte, N. C., situated on the main line of the Southern Railway, at the Catawba River, was partially destroyed by fire early in the morning of July 20th. The loss is estimated at \$25,000, on which there is no insurance. The fire, which is thought to have been of incendiary origin, started in the engine room at the rear of the plant and destroyed the engine and boiler room and machinery room. The burned portion of the plant will be rebuilt at once.

The Howard & Berry Brokerage Company is the name of a new brick concern which has recently been formed at Columbus, Ga. This company, according to a statement made by Mr. Turner E. Berry, the junior member of the company, will handle the output of all the brickyards of this immediate vicinity. In other words, the brickyards in and around Columbus will sell all of their products to the brokerage com-

pany, and anyone who desires brick must buy from the company.

The Southern Clay Company, of East Liverpool, Ohio, has been organized by R. T. Hare, Robert J. Meaken, John Dent, Thomas F. Dent, Wm. J. Ren, Ernest Mayer and others.

The Zehnder Brick Company has been incorporated at Easton, Pa., to take over the old Zehnder Brick Works. Daniel Zehnder is president, and Chester Snyder treasurer of the new concern.

Business is not as good as Walter P. Grath, president of the Illinois Supply and Construction Co., St. Louis, Mo., would like, but something is doing all the time. From the number of inquiries that he is receiving, business ought soon to show quite a betterment.

The Burlington Brick Company has been incorporated with a capital stock of \$20,000. W. W. Parsons is president, Paul Philips, secretary, and William Gillette, treasurer. The plant is located at Gilchrist, Ill., where an excellent supply of raw material is located.

The Wyoming Brick Company is the name of a new concern at Wyoming, Pa. The company is headed by Thomas Dunn. Eighteen acres of clay land have been secured by the company, kilns have been erected, and the plant was started up the first of the month.

The Granite Brick Company, of Columbia, S. C., has been incorporated with \$200,000 capital stock. The incorporators are: F. H. Hyatt, J. H. Bolin, and D. W. Robinson. The property which will be developed is on the land of Mr. Hyatt. They will erect a plant for the manufacture of vitrified paving brick.

Mr. Camp, of the Ross-Keller Brick Machine Company, St. Louis, Mo., says business is quiet, although inquiries are coming in nicely. This means business in the near future. When business conditions improve, and they are doing so, Mr. Camp thinks their business will make a most favorable showing.

The Kaaterskill Paving Brick Company, Catskill, N. Y., recently made a shipment of 3,500,000 brick to Savannah, Ga., by water. The plant, which has recently been leased by Mr. A. A. Gery, has a capacity of 100,000 brick per day, is very busy, and has orders booked for all the product for some time to come.

C. A. Miller, the superintendent, and two of the employees of the Barr Clay Company, Streator, Ill., were badly injured recently by the collapsing of a flume at the clay bank. The sluice box at the clay pit had become clogged up and the men were cleaning it out, when the chute gave way and they were precipitated 30 feet to the bottom of the pit. Mr. Miller sustained a broken wrist, and the other men were more or less badly bruised and shaken up.

The Corry Brick and Tile Company, which was incorporated sometime since with \$100,000 capital stock, is now erecting a plant of 50,000 daily capacity at Corry, Pa. The plant will be fitted throughout with machinery from the shops of E. M. Freese & Co., Galion, Ohio, and the brick will be burned in Yates down-draft kilns. George R. Durham is president, Thomas M. Derickson, secretary and treasurer, and D. Warren DeRosay, general manager of the company.

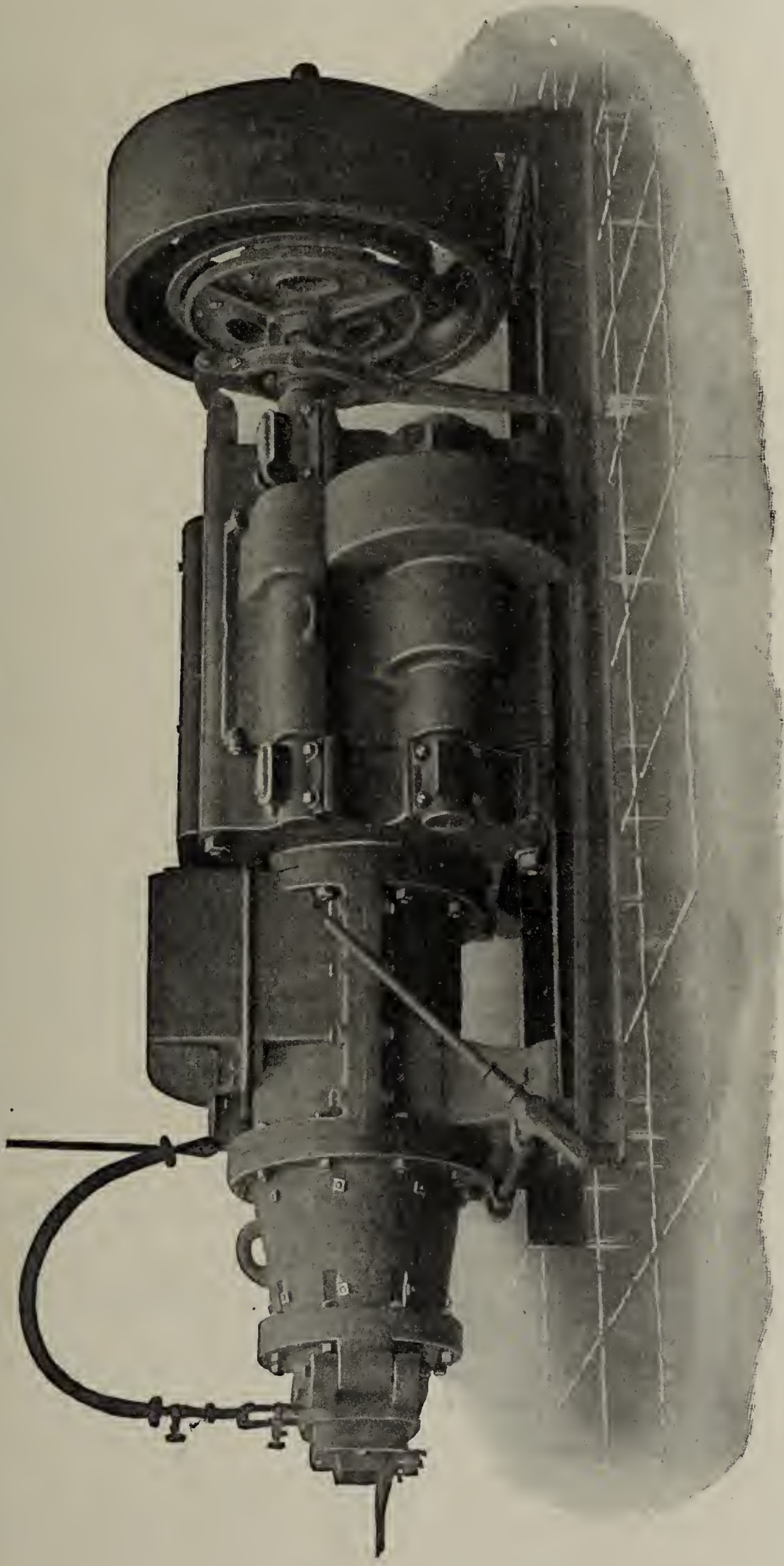
Articles of incorporation have been filed by the Ft. Wayne (Ind.) Pressed Brick Company. The new company has a capital stock of \$36,000. The directors are: John Suelzer, Henry Kellar, Henry Hilgemann, Henry Wehrenberg, Edward C. Miller, Max Immschler and Ferdinand Meier. This is the same company that was placed in the hands of a receiver last spring after a fire damaged its factory to a considerable extent. It has gotten upon its feet again with new capital, and after rehabilitating the old building will at once commence the manufacture of brick.

**CLEARFIELD BRICK MANUFACTURING CO.,
CLEARFIELD, PA.**

Works at Krebs, Clearfield Co., Pa.

FIRE CLAY PAVING BRICK.

Modern Stiff Mud Brick Machinery.



We've been building Brick Machinery a good many years and have naturally been brought into contact with a variety of clays and conditions and have been able to produce machinery more and more nearly adapted to the requirements of our customers. Our motto in this work has been "Prove all things and hold fast to that which is good." Consequently the features in our products which have not been found good have been discarded and improvements from time to time have been substituted.

Let us get acquainted with your troubles or your wants, and if we cannot do you good we will tell you so. We build Brick Machines in many sizes and patterns.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

(See ads on pages 226 and 227.)

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—A sales manager for sewer pipe and fire clay products. Address
WHITE,
8 1 d Care Clay-Worker.

FOR SALE—Five Quincy dry clay gatherers, overhauled and in good condition. Price, \$125 each, f. o. b. cars Memphis, Tenn. Address
TENNESSEE BRICK CO.,
8 2 dm Memphis, Tenn.

FOR SALE.

About 125 single deck iron cars for drying brick. Used very slightly; good as new. Will sell part or all of them. For particulars, address
8 1 d BOX 304, Liberty, Mo.

FOR SALE—Hercules Senior brick machine, Horton mold sander, pulleys, shafting, etc. Also 24,000 wooden pallets, 10 by 32 by 5-8. Address
JNO. B. FOX BRICK CO.,
8 3 c Toledo, Ohio.

WANTED—Situation as superintendent. At present employed, but desire change. Experienced with stiff mud plants. Reasons for change and references given when desired. Address
WYATTE,
8 1 cm Care Clay-Worker.

FOR SALE—Three-mold Boyd dry press. with a lot of ornamental and shape dies. One 36-inch Steadman pulverizer. Four-mold Simpson dry press with extra mold box cheap. Address
THE B-K BRICK CO.,
6 3 d Denver, Col.

WANTED—A brick burner to burn vitrified paving brick with gas. Must be between the age of 35 and 45 years. Must be able to furnish best of references. Position in the southwest. Address
BURKE,
7 2 d Care Clay-Worker.

FOR SALE—Seventy-five tripple deck drain tile wooden dryer cars, roller bearings, 31-inch track gauge, all in good running order and now in daily use. Will hold 200 4 inch and thirty 12 inch. Address
KANKAKEE TILE & BRICK CO.,
8 3 cm Kankakee, Ill.

WANTED.

Position by young man at present employed as superintendent of a large sewer pipe, conduit and fire brick plant. Wishes a change. Is practical in all branches including burning having had eighteen years experience and has succeeded where others failed. All references. Address
CHANGE,
8 1 c Care Clay-Worker.

FOR SALE.

My stock in Charleston tile and brick plant. The greater part of the stock is owned by home people as an investment. I wish to sell my interest and retire from the management. This is a grand opportunity for one with a small amount of money and a good amount of experience and ability to manage the works. Address
S. H. RECORD, Pres. and Mgr.,
8 2 cm Charleston, Ill.

FOR SALE—ENGINES AND BOILERS.

—Engines—

Corliss and Automatic—20x42 Allis, 18x42 Hamilton, 18x36 Wright, 16x32 Buckeye, 14x24 Atlas; also 12x30, 10x30, 13x16, 13½x15, 12x18, 12x14, 12½x12, 10x10, etc., etc.
Throttling—18x26 H. S. & G., 18x24 Erie City, 16x20 Chandler & Taylor, 14x24 Atlas, 14x14 Vertical, 12x18, 11x16, 10x16, 10x12, 10x10 Vertical, 9x12, 8x16, 8x12, etc., etc.

—Boilers—

Horizontal Tubular—84x18, 78x16, 72x18, 72x16, 66x16, 60x16, 60x14, 54x16, 54x15, 48x14, etc., etc.
Fire Box—60, 50, 40, 35, 30, 25, 20, 16, 14, 12 and 10 horse power, etc., etc.
Vertical—55, 35, 30, 20, and 15 horse power, etc., etc. Pumps, heaters, tanks, saw mill and general machinery.
THE RANDLE MACHINERY CO.,
1735 Powers st.,
7 1 d Cincinnati, Ohio.

WANTED, BRICK PLANT.

Any kind of a machine plant near a good market. Will buy one that has been a failure if price is right. Give full description. Address
D. A. LAKE,
8 1 c Care Clay-Worker.

FOR SALE—One 13 by 21 Buckeye engine, has been making 38,000 ten-pound block per day, and is in good shape. Replacing with larger. Address
THE DANVILLE BRICK CO.,
8 1 d Danville, Ill.

FOR SALE—Little Wonder brick and tile machine and tables, two wheelbarrows, and two clay cars. \$150 takes the outfit. Everything in good shape. Address
A. M. COMBS,
8 1 c Mechanicsburg, Ill.

FOR SALE.

Matthews gravity 12-inch brick carrier, nineteen 8-foot sections, one 6-foot, five 4-foot, three 7-foot, curves, seventeen adjustable jacks, two aprons, eighteen extra rollers. Good reason for selling cheap. Address
THE HEIDECCKER BRICK CO.,
7 6 c Sharonville, Ohio.

WANTED.

Position by first class man as head burner or assistant superintendent on a dry clay, press brick, down-draft kiln plant. Can guarantee results if proposition is not fundamentally wrong. Address
RESULTS,
7 1 d Care Clay-Worker.

FOR SALE.

A brickyard, with machinery, fifty acres of land. Finest of clay, near a large saw mill on the N. O. G. N. Railroad. Sixty-three miles from New Orleans; price, \$6,000. Address
ST. TAMMANY BRICK YARD,
7 1 d Ramsey, La.

FOR SALE.

A complete set of machinery for the manufacture of stiff mud brick, 20,000 per day; 9-foot dry pan, engine, boiler, machine, pug mill, dryer cars, pulleys, shafting, etc. Will sell at a bargain. Address
ED. NICHOLSON,
7 3 cm Steubenville, Ohio.

FOR SALE.

One three-mold Boyd dry press.
One three-mold Andrus dry press.
One two-mold United States dry press.
One Freese stiff mud machine, A Special.
One Standard board delivery cutting table.
One Freese 8-foot pug mill.
One "Centennial" stiff mud brick machine.
One Fernholtz 42-inch pulverizer.
One 6-foot iron frame mixer.
One pair crusher rolls. (Corrugated).
One Chandler-Taylor 10x12 steam engine. Good as new. Has developed 40 h. p.
One 8x12 steam engine. Good condition.
SCOTT MANUFACTURING CO.,
Third National Bank bldg.,
8 1 d St. Louis, Mo.

FOR SALE.

Fifty thousand dollar brick plant in center of gas and shale belt. Good business and excellent railroad facilities. Address
FRED PFENDLER,
8 2 c Muskogee, Okla.

FOR SALE.

One Grath Special four-mold dry press. One American two-mold dry press. Both presses are as good as new. Address
SOUTHERN CLAY PRODUCTS CO.,
8 1 d Chattanooga, Tenn.

POSITION WANTED.

As manager, superintendent or sales manager by a young married man of good character, ability and ambitious. Seventeen years' experience with paving brick and dry press plants, up and down-draft kilns. Can design and build entire modern brick plant. Very best references. Address
SUCCESS,
8 1 cm Care Clay-Worker.

WANTED—Position as superintendent or manager of a brick or roofing tile plant, by a practical young clayworker of a number of years' experience. Am a graduate of ceramics in Ohio State University, and am familiar with different types of machinery and different methods of manufacture. Can furnish references. Address
"W,"
8 1 d Care Clay-Worker.

WANTED.

Horse power outfit, consisting of one machine, two tempering wheels, three carts, harness, and trucks, in exchange for a Martin power outfit. New and up-to-date 1908 plant, consisting of 24-inch crusher, 16-foot pug mill, "A" machine, Potts sander, all the necessary shafting, pulleys, posts and boxes, belting, conveyors, track, two side-dump Koppel cars, hoisting drum and cable, racks and pallets for 85,000 brick, off-bearing trucks, one 75 h. p. motor, one 5 h. p. motor, switches and connections, all in first-class shape and run only a short time. Will sell cheap or allow reasonable amount in exchange for horse power outfit. Will take partner, rent or sell yard. Good clay and water. Capacity too great for my capital, is reason. Address
OPPORTUNITY,
8 1 d Care Clay-Worker.

FOR SALE.

Modern equipped brick plant. Modern dryer and conveyances, etc. Located on Erie Canal, between Albany and Schenectady, accessible to New York and up state markets. Capacity, about 50,000 daily with power for additional capacity. Seventy acres of land, stone quarry, timber and molding sand. Plant now in operation. Large unfilled order, and brick specified in specifications for many new school buildings to be erected in Schenectady. This plant is exceptionally well equipped with machinery and appliances. Erie Canal runs through brick sheds. Company will dispose of plant as it now stands at a reasonable price to responsible parties. Reason for selling: Owners are not brick manufacturers and are otherwise engaged and can not give plant personal attention. Enquire of JOHN SCANLON,
5 4 cm Cohoes, N. Y.

An Opportunity of a Life Time.

Will Sell at a Low Figure and on Easy Terms.

An up-to-date brick plant located on the James River, Va., and in easy touch by water with eight rapidly growing cities.

Brick bring \$7.00 at kiln and future outlook is excellent.

The outfit consists of Henry Martin soft mud machine, 50,000 per day capacity, with latest patent steam drier. Also J. D. Fate Co.'s stiff mud outfit 25,000 per day capacity, with Scott's patent cars. All practically new.

New and commodious dwellings for manager and laborers. Not a better equipped yard in the state. Twenty or more acres of finest plastic clay, average depth fifteen feet and burns cherry red in five days. Cheap fuel and labor, with low freight rates and a mild climate offer a combination seldom met with. The improvements have cost \$16,000. Reason for selling, am not myself a brickmaker; bought to protect my own interest. Write for full particulars. Address

BOX 5, Care Clay-Worker.

SITUATION WANTED.

Believing that the clay industry affords opportunity for a permanent and profitable situation to one with the ability and ambition to master the details of the business, I desire a situation that will enable me to earn living wages to start with, believing that in time I can earn promotion and satisfactory salary. I am 27 years old, married, and for the past few years have been erecting, operating and doing experimental work on gas producers. Previously was schooled as a chemical engineer. Can give satisfactory references as to character, habits, etc. Correspondence solicited.
7 1 d
AMBITIOUS, Care Clay-Worker.

The Starkey Automatic Brick Counter.

(Patent Applied For.)

A machine that counts the number of wheelbarrow loads of brick absolutely correct and cannot be tampered with. To forget or to swell the count are both impossible.

We will sell a limited number of machines on trial and at a low price to introduce them.

Write for descriptive catalog, terms and prices. Address

JOHN STARKEY,

MINERVA, OHIO.

Mention The Clay-Worker.

THE SOUTH DEMANDS!

The Best

FIRE BRICK

FOR KILN CROWN AND LININGS.

WE MAKE THEM!

SOUTHERN CLAY PRODUCTS CO.,

Chattanooga, Tennessee.

The Improved Flue System.

The most profitable kiln on the market for burning any clay product.

Absolute Draft Control. Economy of Fuel and Time. All Hard Brick.

Kiln and Yard Rights, with Plans, Specifications, etc., sold at very reasonable rates. Booklet, estimates and full information cheerfully furnished.

GEO. E. SNOWDEN & CO.,

[Formerly J. P. Bradley & Co.]

New Cumberland, W. Va.

WANTED—Experienced stoneware salesman, one who is energetic and can produce results. Address **STONEWARE,** 8 1 d
Care Clay-Worker.

FOR SALE.

One three-mold Boyd dry press, almost new; also an American Clay Machinery Co's No. 2 Giant brick machine. Will sell cheap. Address **ATCHISON PAVING BRICK CO.,** 8 1 d
Atchison, Kans.

FOR SALE.

One 11-foot by 18-inch right-hand engine complete.
One 10-foot by 12-inch center-crank engine complete.
Engines replaced with larger ones.
M. J. LEE DRAIN TILE CO.,
8 1 50p Colfax, Ind.

FOR SALE.

Modern tile factory in central Iowa, now in successful operation. Good business established at good prices. Fine shipping facilities and product is of best quality. Might take land in part or full payment. Address **IOWA,** 7 tf d
Care Clay-Worker.

FOR SALE—One 2-mold Simpson dry press. One eight-foot iron frame dry pan. One No. 6 Brewer brick and tile machine, with all necessary dies and cutters. One tile elevator, one clay elevator, one clay disintegrator. O. W. DUNLAP,
2 tf L Bloomington, Ill.

FOR SALE.

I have fifty acres of fine clay suitable for the manufacture of red face brick. The property is located within thirty miles of New York, near tidewater. Write for full particulars and price. Address **C. A. B.,** 6 tf d
Care Clayworker.

WANTED.

Clayworkers who are having troubles of any sort in the operating features of their plant, whether in the making, drying or burning, to know that my experience of twenty-five years enables me to give valuable practical advice that will prevent further loss and trouble, if skill and knowledge as a practical worker and chemist can accomplish that purpose. Terms reasonable and contracts made contingent upon success. Address **J. J. KOCH,** 5 tf L
3325 Caroline st., St. Louis, Mo.

DO YOU WANT TO SELL OUT?
DO YOU WANT A PARTNER OR MORE CAPITAL?
DO YOU WANT TO EXCHANGE PROPERTIES?
DO YOU WANT TO BUY A BUSINESS OR A FARM?
I BRING BUYER AND SELLER TOGETHER.
ESTABLISHED 1881.

If you want to buy, sell or exchange any kind of business or real estate, anywhere at any price, address

FRANK P. CLEVELAND,
965 Adams Express Building,
8 tf d Chicago, Illinois.

DO YOU NEED MODELS or MOULDS?

We can furnish you with them for any line of clay products, ornamental or plain. Plaster-blocks and cases made to order. First class work guaranteed.

IRONTON CLAY SPECIALTY CO.,

Ironton, Ohio.

Continued on page 200.

FOR SALE.

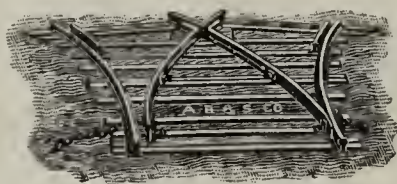
One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CON-
TRACTING CO.,
8 tf d Zanesville, Ohio.

FOR SALE.

No. "0" Thew Shovel ½-yd. dipper, good.
6 "Little Giant" Traction Shovels.
Dredges for clay swamp, ½ yd. to 2 ½ yd.
Locomotives, cars and rails for up-to-date
clayworkers.

We buy and sell.

THE MALES CO.,
26 Cortland Street, New York, N. Y.,
1508 First Nat'l Bank Bldg., Cincinnati, O.



SWITCHES FOR SALE.

Right and left hand one, two and three-
way switches of various gauges, radius
and weight rail, at special prices.

THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

(See additional ads under Table of Contents.)



They Never Fade

Twenty
Long Years

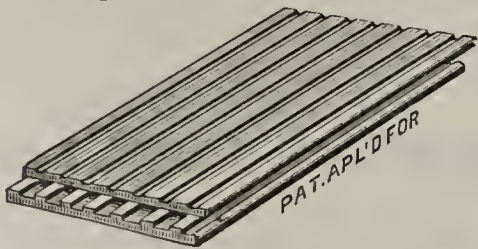
of time and weather
have tried out Ricketson's
famous Red Brick brand

COLOR

For Mortar, Brick,
Cement, Stone, etc.
Proved to be absolutely
permanent. Red,
Brown, Buff, Purple
and Black.

Ricketson's Mineral Paint Works,
MILWAUKEE, WIS.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for
Interlocking Tiles, Dies for all shapes,
Hips, etc., in metal or plaster.

Special Roller and Auger Presses for
Shingles, Interlocking Spanish Tiles, Au-
tomatic Shingle Cutting and Punching
Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capa-
city and horse power, stiff mud brick
and hollow block dies, dry press liners.

MUELLER BROS.,
9235 Clark Avenue. St. Louis, Mo.

DOVER FIRE BRICK CO.,

509 Cuyahoga Building, Cleveland, Ohio.

Operating plants at North Bend, Clinton County,
Pa., and Strasburgh, Ohio.

"NORTH BEND." "DOVER." "BUCKEYE."

We have have been furnishing fire brick for kilns
for over forty years.

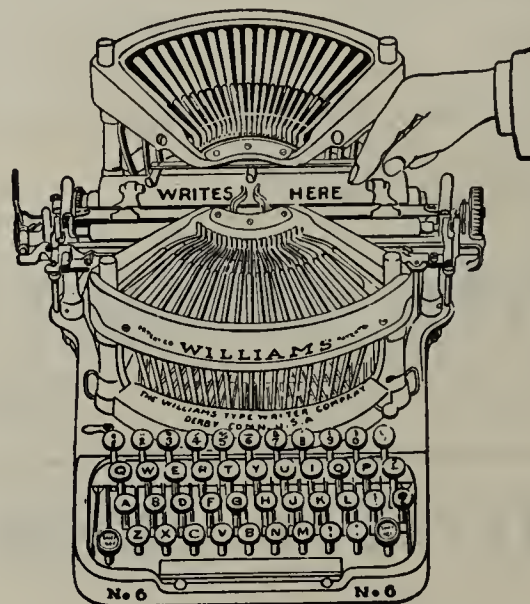
WRITE US FOR PRICES.

SEEING

Saves the beginner time when learning.

Saves the learned time when beginning.

New
Number
Six
Visible
Writer



Saves time, energy,
worry and money.

Gives speed, simplic-
ity and beautiful work.
Single shift. Strictly
visible writing.

Old machines of any
make taken in trade.

The Williams is sold
under a positive guar-
antee and on easy
terms.

If you want the best
value in a typewriter
ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.

MADDEN & CO.,
Rushville, Ind.

Full Line of

CLAYWORKING MACHINERY.

See two-page ad in April No. Clay-Worker.

New Specially Designed Machine for Large
Drain Tile and Hollow Ware now ready.

New automatic attachment for any hand cut-
ting table.

Send for circulars and catalogues.

THE WEBB WIRE WORKS

MANUFACTURERS OF

MUSIC WIRE

NEEDLE WIRE

NEW BRUNSWICK, N. J.

We manufacture BRICK AND TILE CUTTING WIRE, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.

C. A. SHOOP, Pres.

N. R. WITHERS, Sec. and Treas.

H. L. JACOBS, Gen. Mgr.

SUFFOLK CLAY COMPANY,

MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

Marion Machine, Foundry & Supply Co., Marion, Indiana:

Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

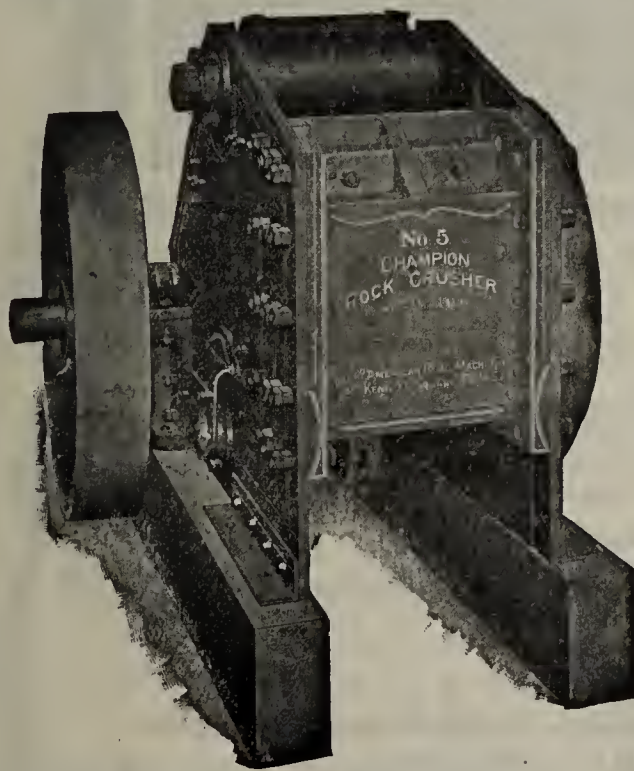
Very truly yours,

SUFFOLK CLAY CO.

For further information address

H. L. Jacobs, Gen. Mgr.

MARION MACHINE, FOUNDRY AND SUPPLY CO., MARION, IND.



NO. 5, 11x26 CHAMPION CRUSHER.

It Looks Good
on paper.

It Looks Better

crushing shale, fire clay,
rock and other hard material.

THE CHAMPION CRUSHER

is expensive, *to do without*, because it saves you money.

Catalogue is free on application. Address

AMERICAN
ROAD MACHINE CO.

KENNETT SQUARE, PA.

The Department of Clayworking and Ceramics

Established by the Legislature in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.

W. H. S. DEMAREST, D.D.

Department of Ceramic Engineering Ohio State University.

THE OHIO STATE UNIVERSITY offers complete courses in all of the usual engineering branches. It is prepared to offer especially fine facilities for the study of the clay industry in its department of Ceramic Engineering.

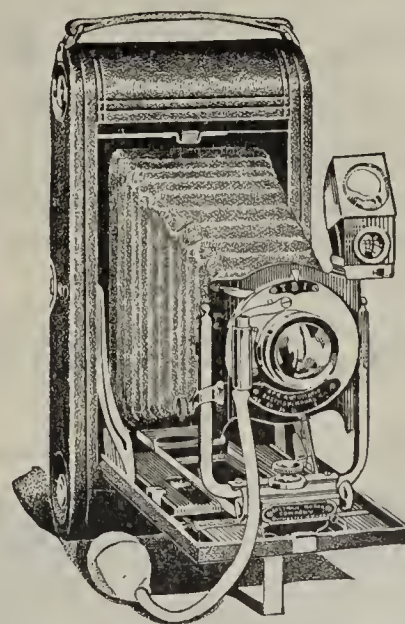
This department, located in a large new building, is entering upon its 15th year. Substantial additions to its equipment are now in process. Its laboratories and equipment are the most complete in the country. It offers regular courses in the technology of clayworking, glass and cement manufacture, and an opportunity for a limited amount of special study in these and similar fields.

Tuition is free. Laboratory fees are low. Living expenses moderate. The corps of instructors is composed of specialists who have had good practical experience.

For information or catalog address

PROFESSOR EDWARD ORTON, JR.,

Director of Department of Ceramic Engineering,
Columbus, Ohio.



TAKE A KODAK WITH YOU.

Any one can take good pictures by the

KODAK SYSTEM.

Its daylight all the way.

Kodaks \$5.00 to \$105.00.

Brownie Cameras \$1.00 to \$9.00.

EASTMAN KODAK COMPANY,
Rochester, N. Y.

Catalogue Free by Mail.

G. K. WILLIAMS & CO.,
EASTON, PA.

Largest Manufacturers in
United States of

Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
on application.

Chattanooga Paint Co.,
Chattanooga, Tenn.

Manufacturers of

**Red Oxides for Brick-
makers' Use.**

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

COLORING

All Mineralogists Know
Clinton Hematite Red
is the highest grade
Oxide of Iron.

Be sure you get the genuine, with the "Little
Yellow Side Label" on each package.

MADE ONLY BY
Clinton Metallic Paint Co.,
CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.
NEW YORK.

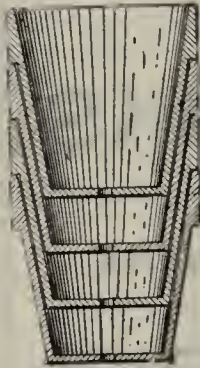
Sole Importers in the United States of the

Precipitated  Carbonate
of Barytes

The only preventative for scum and discolor-
ation on Facing Brick and Terra Cotta, neu-
tralizing the Sulphate of Lime in the Clay and
Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



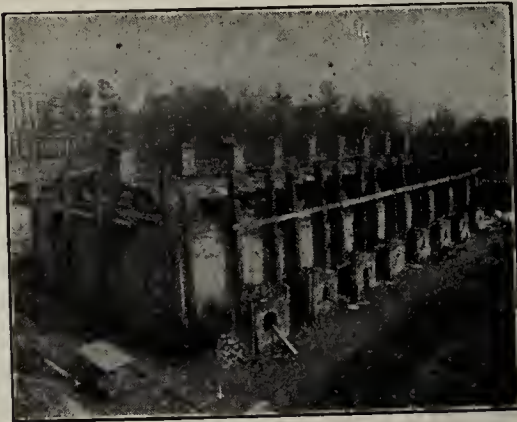
Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

WEST POINT BRICK & MFG. CO.

West Point, Miss., July 18, 1908.

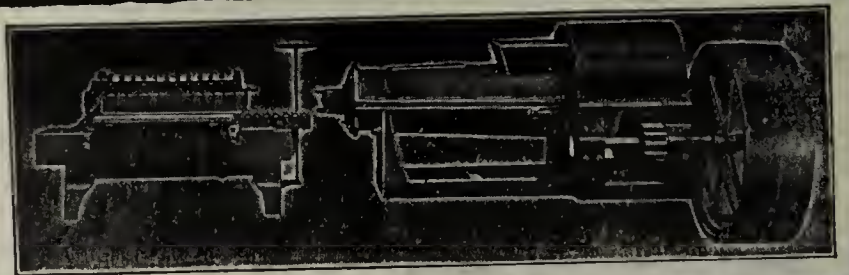


Double Up and Down Draft Kiln.

This is to certify that during my experience of 35
years in the brick business I have handled all kinds
of down-draft kilns and I can conscientiously say that
the F. W. Dennis Kiln is one of the best kilns in the
United States today for burning all kinds of brick. I
would cheerfully recommend the F. W. Dennis Kiln
to anyone needing down-draft kilns, as I have had
wide experience in all kinds of clays. I have been
superintendent in Chicago several years for E. Har-
land & Co.; five years at Ottumwa, Iowa; two years
at Lincoln, Neb.; seven years at Lawrence, Kan., and
many other places; that I have handled different clays
and kilns. But this kiln I have just burned and half
unloaded is pronounced by the above company as the
best burned kiln of brick ever seen in the State of
Mississippi. Yours truly, GEO. WHITE,
Supt. West Point Brick Co.

Wood burning kilns changed to coal burning.
Brick plants installed and put in operation.
Write for booklet. Correspondence solicited.

F. W. DENNIS,
145 WATER ST., NORFOLK, VA.



THE PIONEER. Kells Brick and Tile Machine

has been the synonym of excellence in the Brick and Clay-
working industry for the past thirty years.

It has had few rivals and no superiors. Improved from
year to year to gain increased

Strength, Simplicity, Durability, Efficiency and Quality

of finished product, until it has reached the highest state of
the Mechanical Arts in Brickmaking.

Our new handbook will give you the detailed informa-
tion desired.

The Kells Foundry and Machine Co.
ADRIAN, MICH.



The Best and Cheapest

BAND LUG

on the market.

Write us for price.



E. C. TECKTONIUS MFG. CO., Racine, Wis.

Improved Belt Conveyors



For carrying all kinds of material, gritty and otherwise. Gradual, uniform curve of belt secured without complicated parts.

Bearings thoroughly lubricated and *dust-proof*. Economy and satisfaction—nothing to get out of order.

We manufacture Complete Handling Equipments.

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*The Anton Vogt
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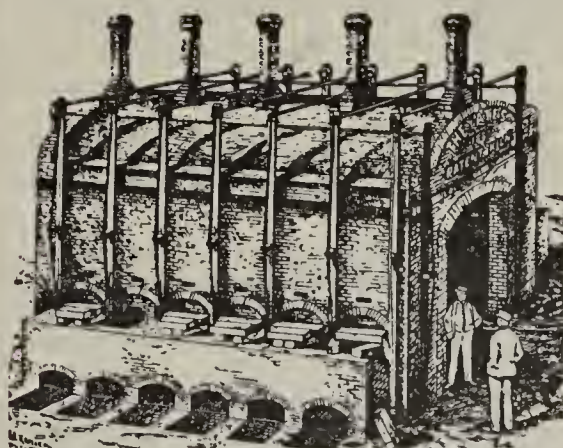
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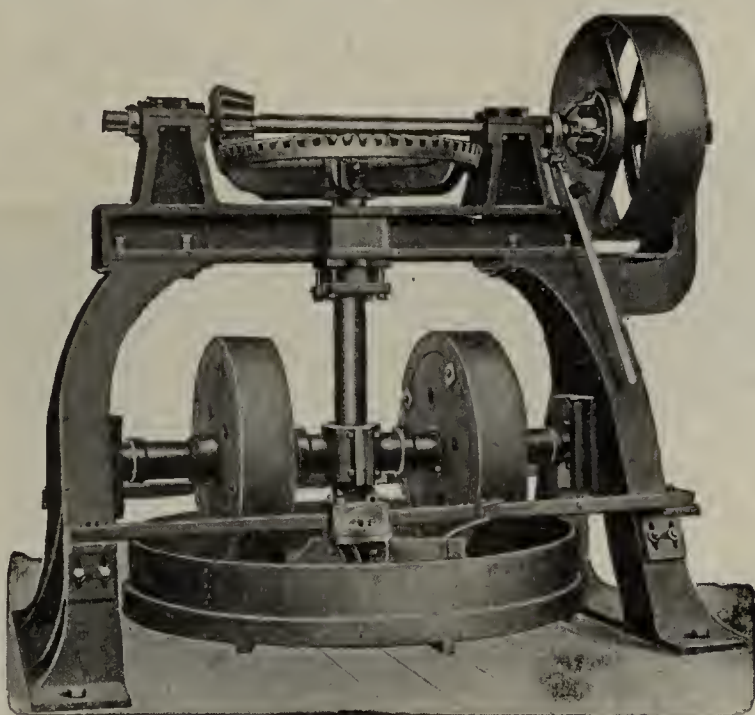
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For all transient advertisements, such
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**The Best, Quickest, Cheapest
Method of Securing Results.**



Photo showing brick before
we took charge.

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THE two photos here shown illustrate
an extreme case of Lamination, and
the results we obtained in correcting it.
Write and get our definite proposition
in which we guarantee results.

LUCE ENGINEERING CO.

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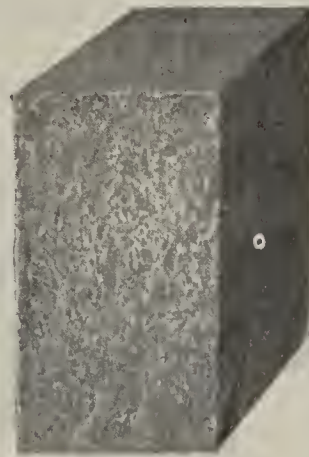


Photo showing improvement
after we had finished.

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Consulting Engineers and Factory Architects.
Manufacturers of Controlling Apparatus.

Geological Examination of Properties.
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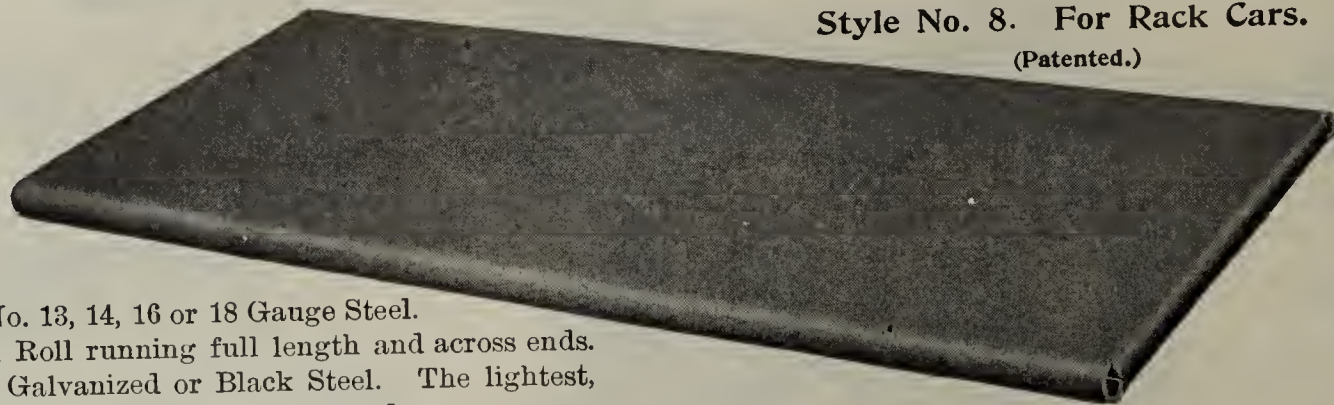
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Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
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CARBONATE OF BARYTES
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Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
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and all Chemicals used by the Clay Trades.

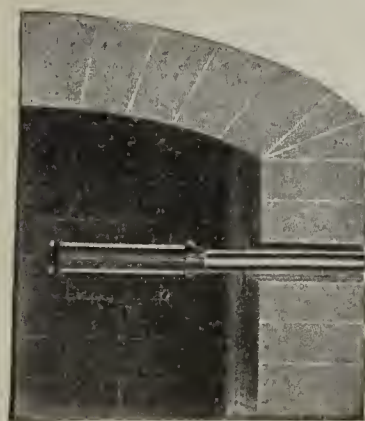
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BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

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Arranged to Suit All Locations. These Kilns Can be Seen Burning

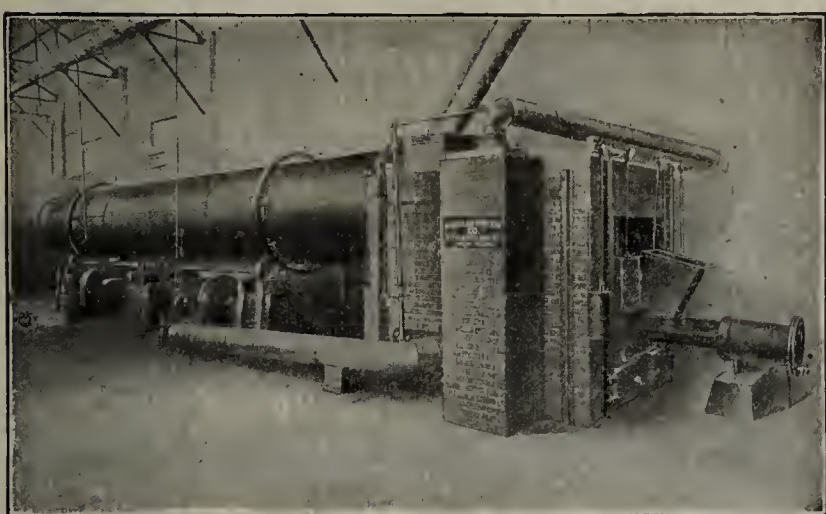
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Automatic Improved DRYERS

ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

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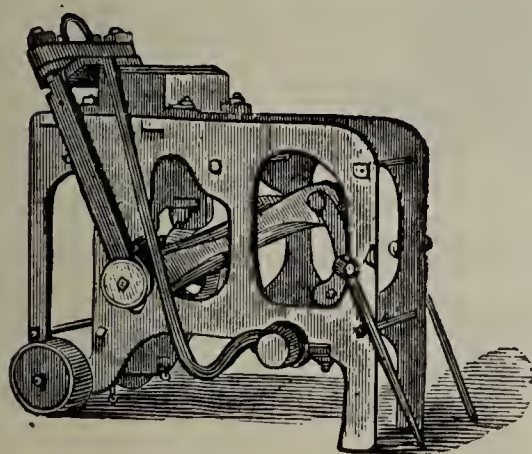
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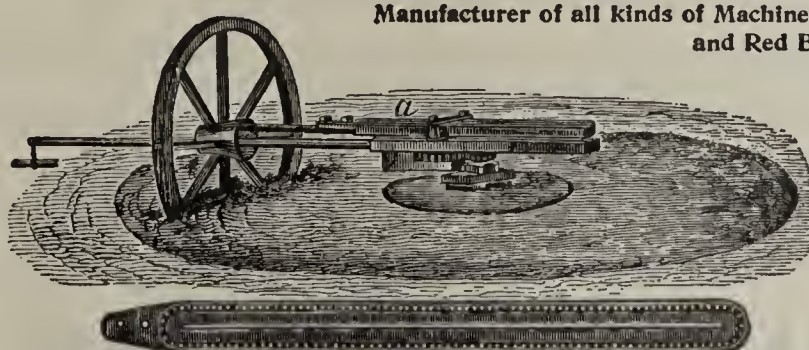
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Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



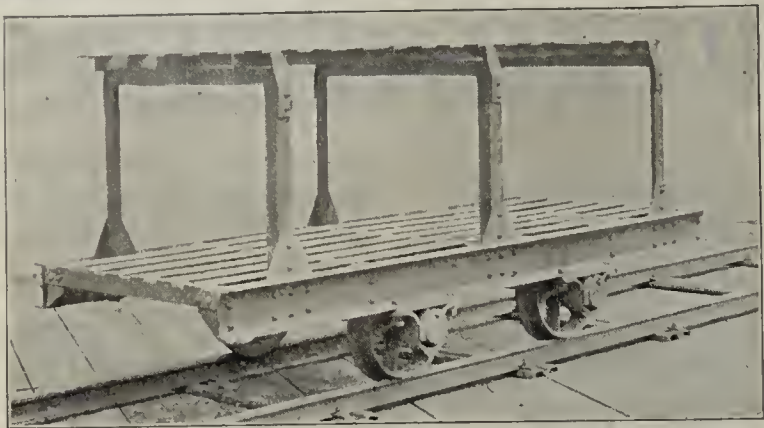
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PORTABLE TRACK**

save money in transporting materials and finished products.

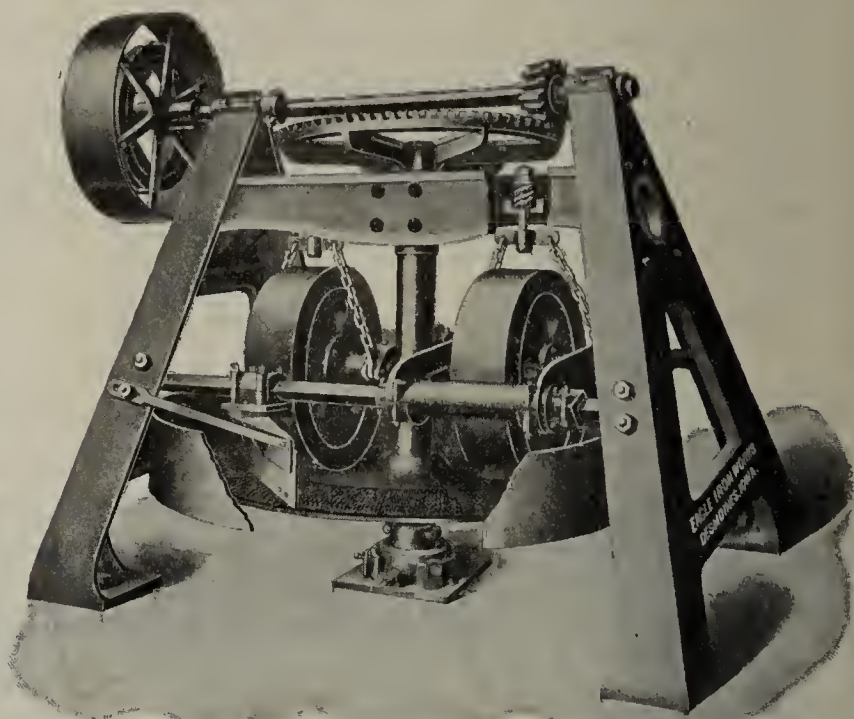
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WORKS AT KOPPEL, PA.			

Independent and Suspended Mullers
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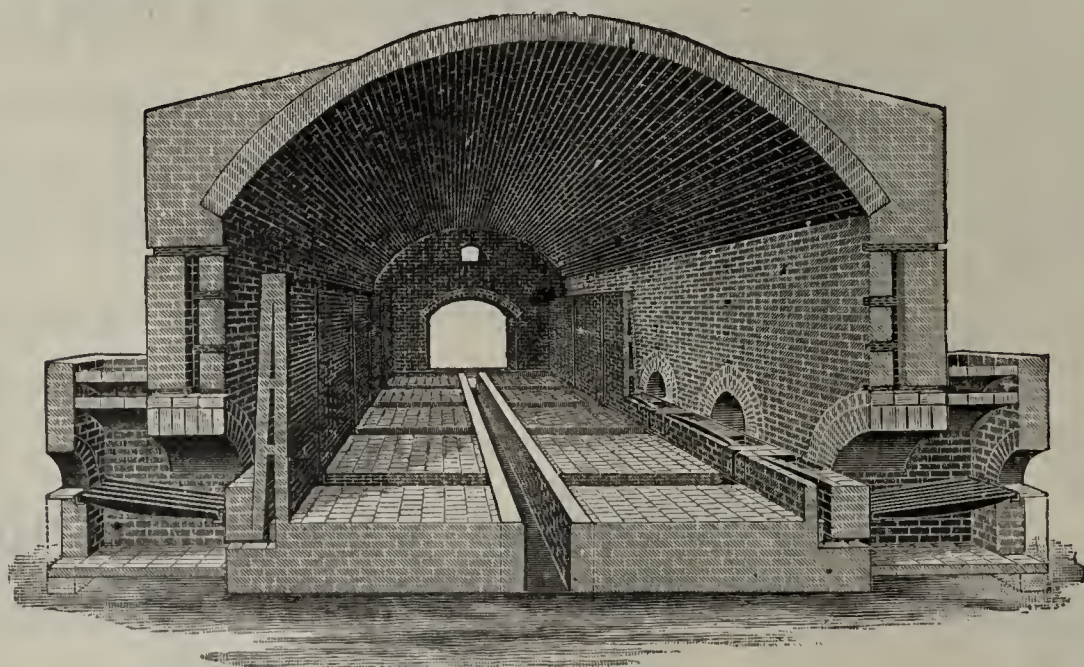


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STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

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RAILROAD SPECIALISTS FOR ALL INDUSTRIES.
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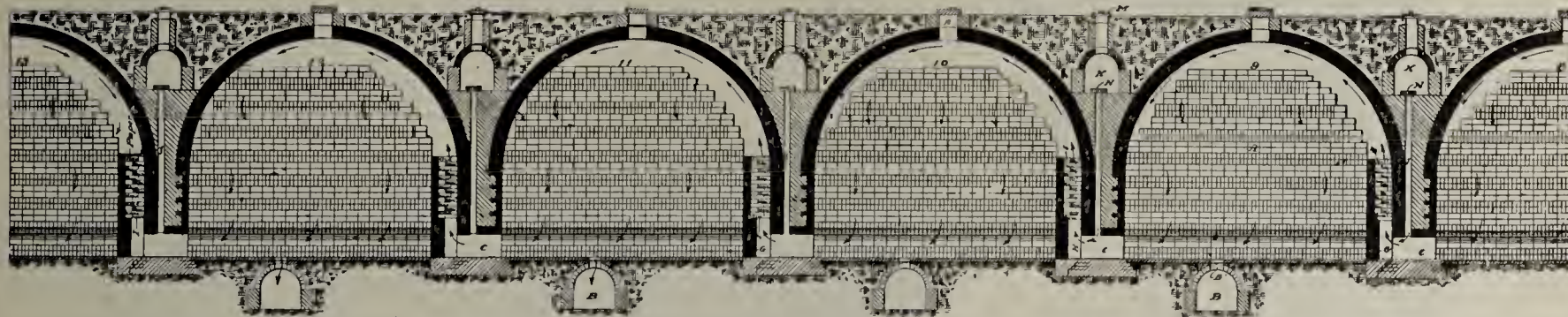
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The kiln is fired with producer gas which is generated from ordinary bituminous coal in a gas producer attached to the kiln. This renders the operation easy and places the regulation of the temperature under most accurate control.

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WATER SMOKE WITH ALL SLACK
BURN WITH ALL SLACK
NO CLINKERS
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LESS TIME
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APPLIES TO ANY STYLE OF KILN
BURNS COMMON BUILDING BRICK
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Thirty years' experience; will guarantee to burn any kind of clay, including the most refractory fire clay for 40% less fuel cost than by the old method. Can be applied to kilns already built without any alterations. Write for Catalogue.

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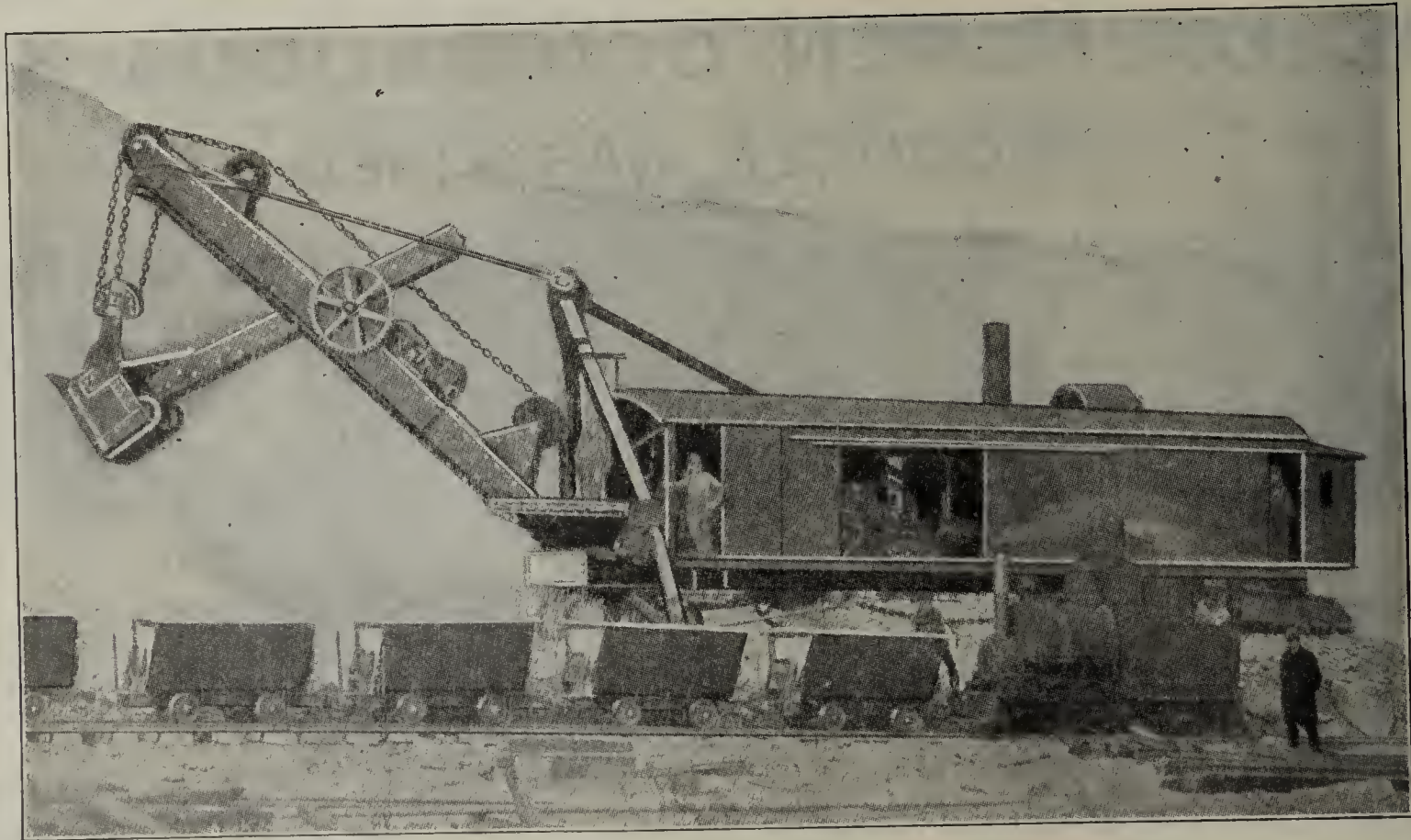
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THE STANDARD BRICK MACHINES

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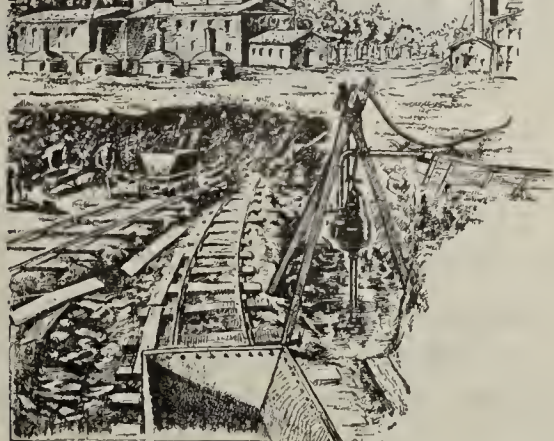
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We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

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Easy to Install. Easy to Operate.

We do not believe there is any other form of pumping apparatus that is so well adapted to the **clay working field** as the PULSOMETER.

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Type No. 3—George Gynn Brickyard, Cleveland, Ohio.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick p erday.

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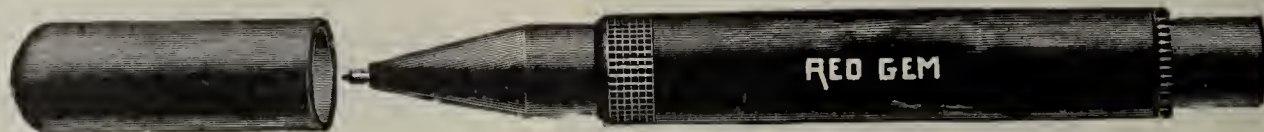
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Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

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Brick and Tiles made by the plastic process of clays of normal qualities may be dried in the Buhrer Dryer in 1½ to 4 days.

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Clay is tested in a thorough way. Ask for pamphlets. Correspondence solicited.

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Total Amounts.	133	133	170	95	41,951	732,500,000

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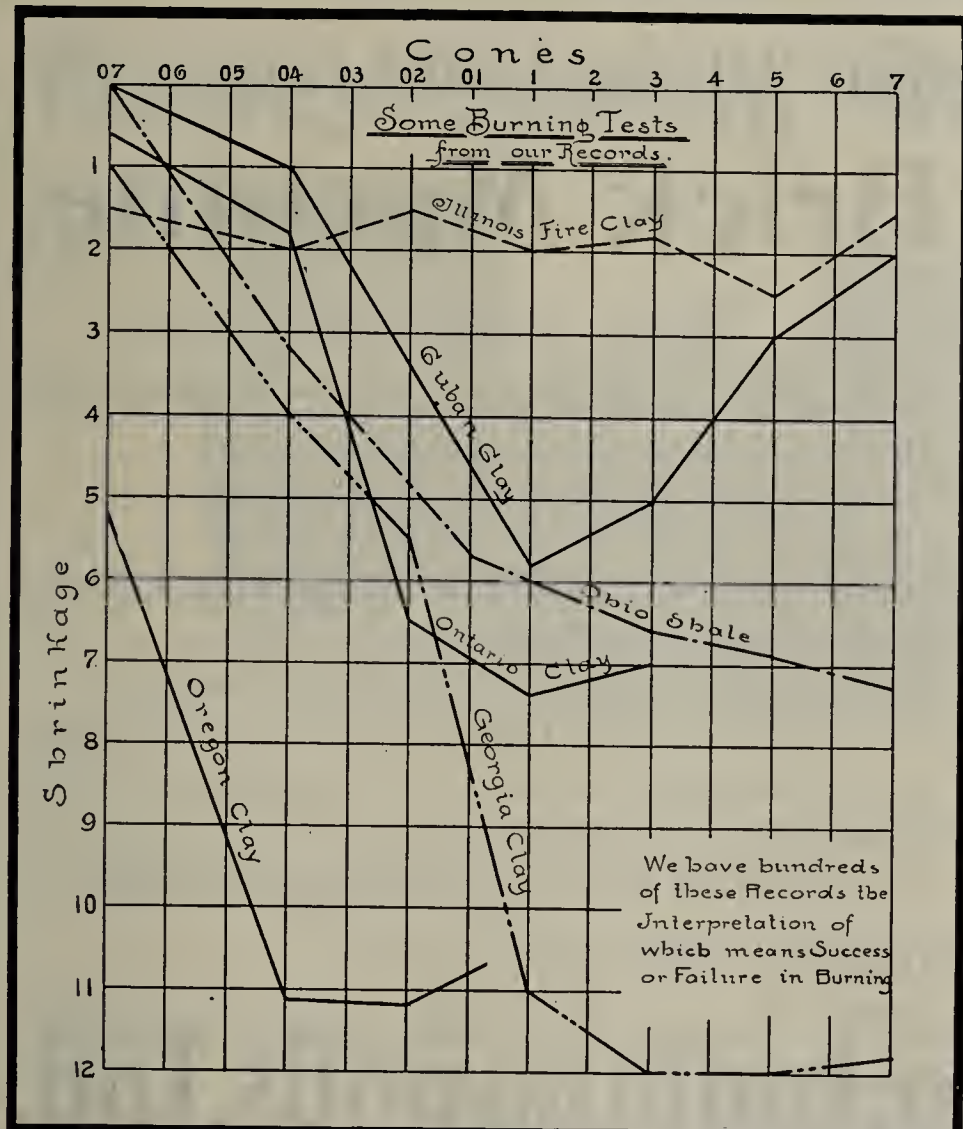
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Know Your Clay Before You Build a Plant to Work it.

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Clay is Full of Troubles, which our tests show, and we tell you whether your venture is safe or better let alone.

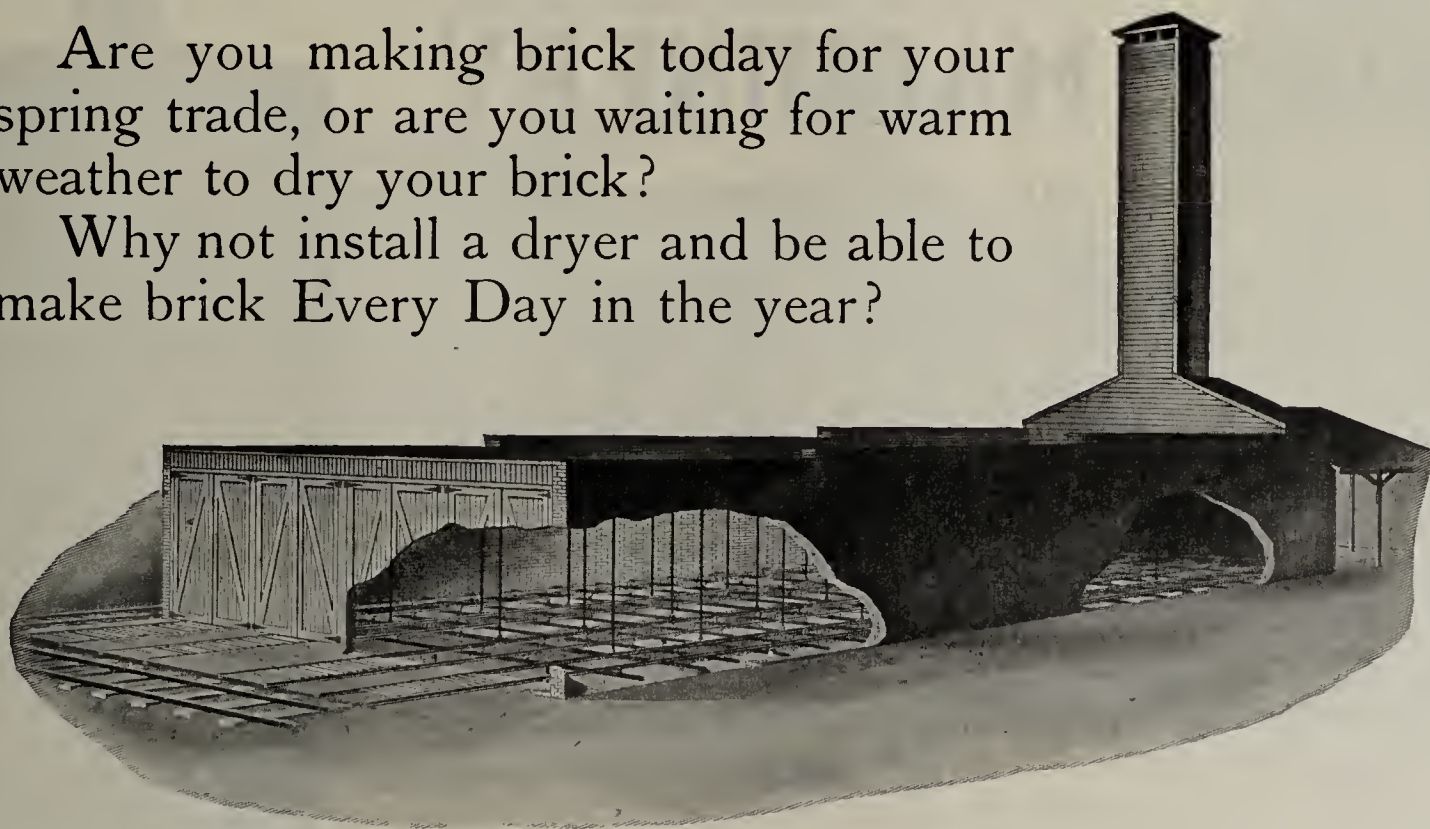
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Are you making brick today for your spring trade, or are you waiting for warm weather to dry your brick?

Why not install a dryer and be able to make brick Every Day in the year?

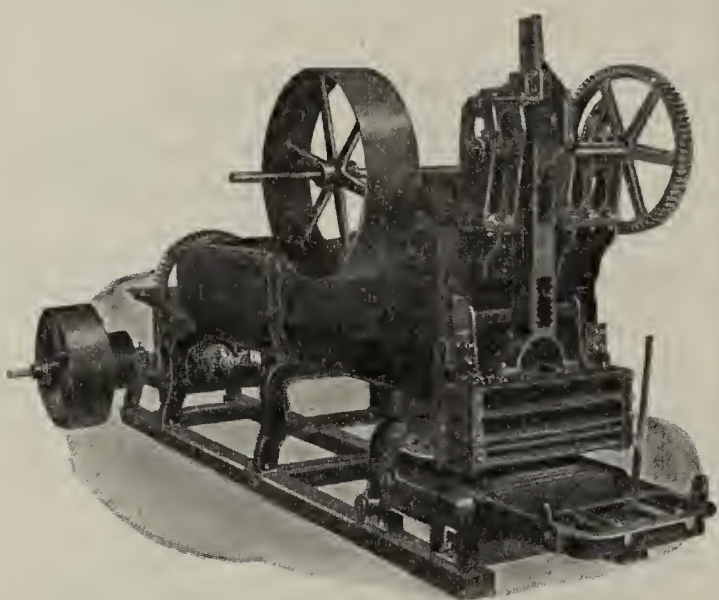


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having Chilled Rolls, Adjustable Steel Cutting Bars and Ring Oiling Bearings, and

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makes the Best and most complete outfit for making sand mould brick.

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The best built. Price \$6.50 each.

Stock size wheel, 20 inches diameter.
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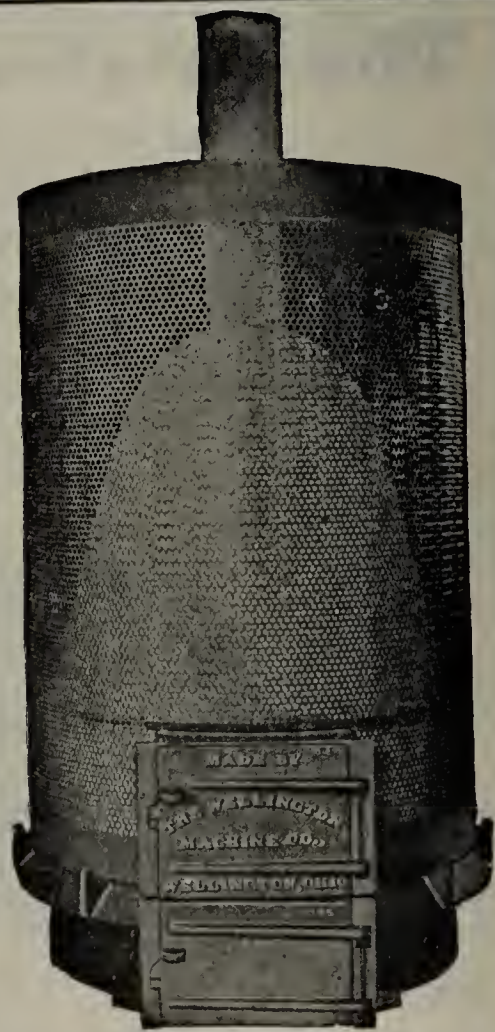
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Never can be broken.
Shoes that do not mar
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James W. Hensley,

Successor to S. K. Fletcher.

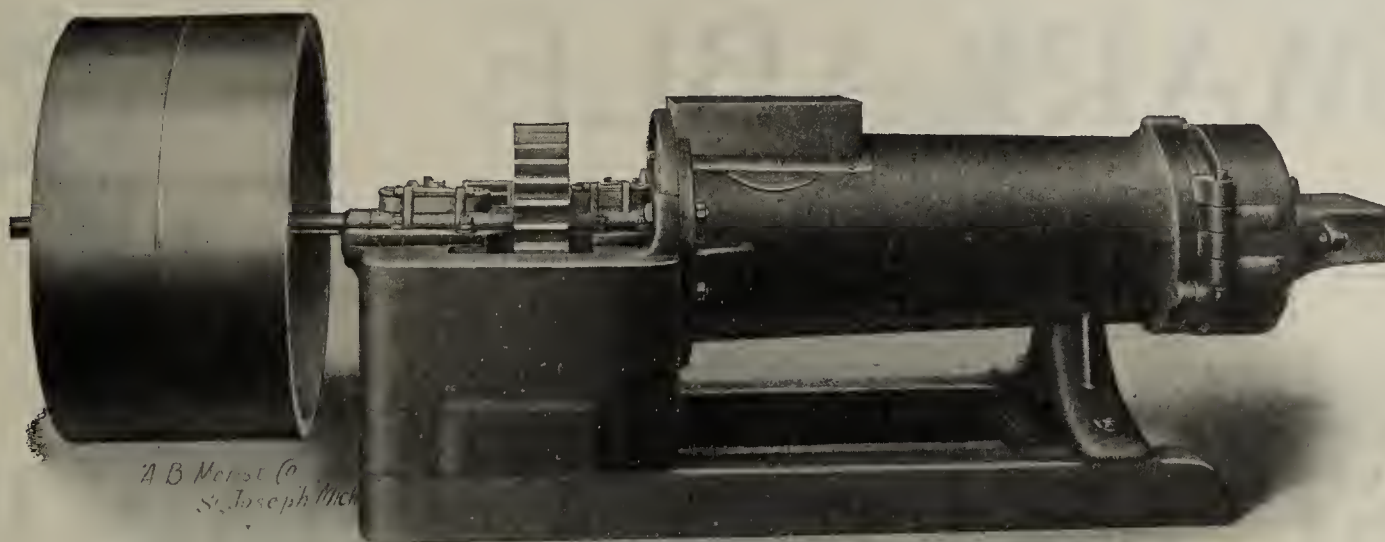
Indianapolis, Ind.



SAND DRYER.

Weight, 1,100 lbs. Every brick work needs one. Diameter over all, 3 ft. 1 in. Height 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

Money-Saving Brick Machines.



No. 1A Brick and Tile Machine, With Square Hopper.

Capacity 15,000 brick or 5,000 to 8,000 4-inch tile or over, daily. Horse power required, 15 to 20.

For catalogues and further particulars address

Michigan Brick and Tile Machine Company,

[ESTABLISHED 1856]

Morenci, Mich., U. S. A.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for ; write us.

Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.

REMARKABLE OFFER.

We will send this famous Gold Pointed pen, post paid, and The CLAY-WORKER for one year, to any address in the United States and Canada for

\$3.00



The New Way.

"POST" SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen.

Guaranteed by Makers.

NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



The Old Way.

Gen. Lew. Wallace: The author of "Ben Hur" writes, "I have tried every kind in the market and unhesitatingly give the preference to the "Post."

Judge Luther L. Mills, Chicago: The "Post" Fountain Pen is the Best I have ever used; simple, reliable, durable.

Dr. Josiah Strong: The great author of "Our Country" says: "I have been hunting for twenty years a perfect fountain pen; have tried many, and they have tried me; but the "Post" leaves nothing to be desired."

The CLAY-WORKER, INDIANAPOLIS, INDIANA.

**DO
IT
NOW**

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis :

You will please send me THE "POST" FOUNTAIN PEN and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued, beginning with the.....Enclosed find \$.....

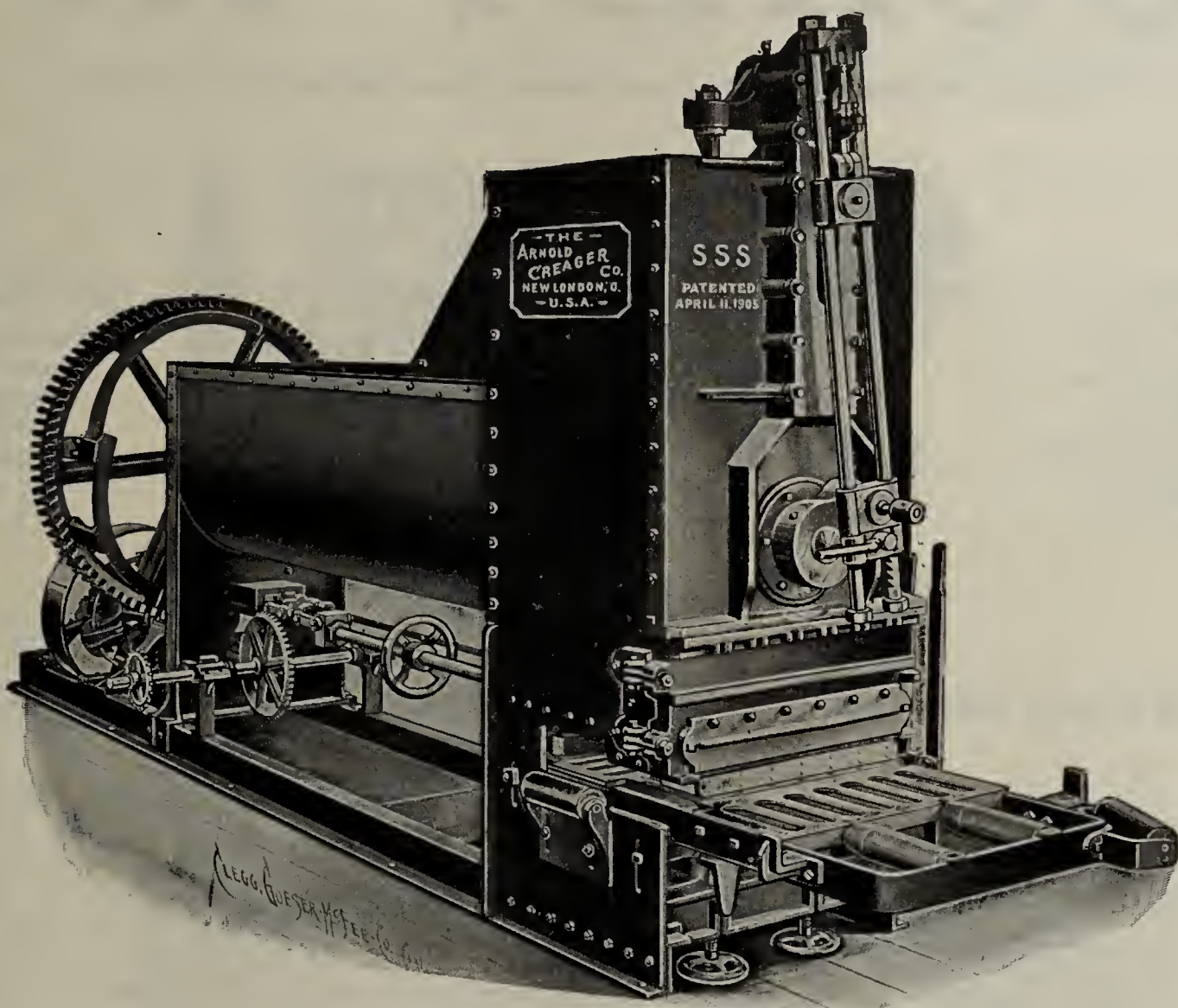
Name.....

Postoffice.....

Street and Number.....

County..... State.....

HONESTY IS THE BEST POLICY.



S-S-S.

Every Brickmaker should insure himself against loss through poor machinery by taking out a policy NOW with the Arnold-Creager Company, and adopting one of their S-S-S all-iron-and-steel Brick machines. A perfect combination of Simplicity and Strength. Few parts, and all Automatic. Inside Press, exerting tremendous pressure, easily regulated. Twelve feet of tempering capacity, and can easily run 16 moulds per minute. Solid construction enables the working of very stiff clay, making the ideal brick. Front of Press fitted with stone doors when desired. A strictly first-class machine at a small price.

For complete catalog giving details of this, and other high grade machinery and the "1908—Grand-Automatic" address

The Arnold-Creager Company, Inc.,

NEW LONDON, OHIO.

CINCINNATI, OHIO.

CABLE "AUTOMATIC".

Mention The Clay-Worker.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO

Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET
KIT and THE CLAY-WORKER
for One Year to any address in
the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

Name

Postoffice

Street and Number

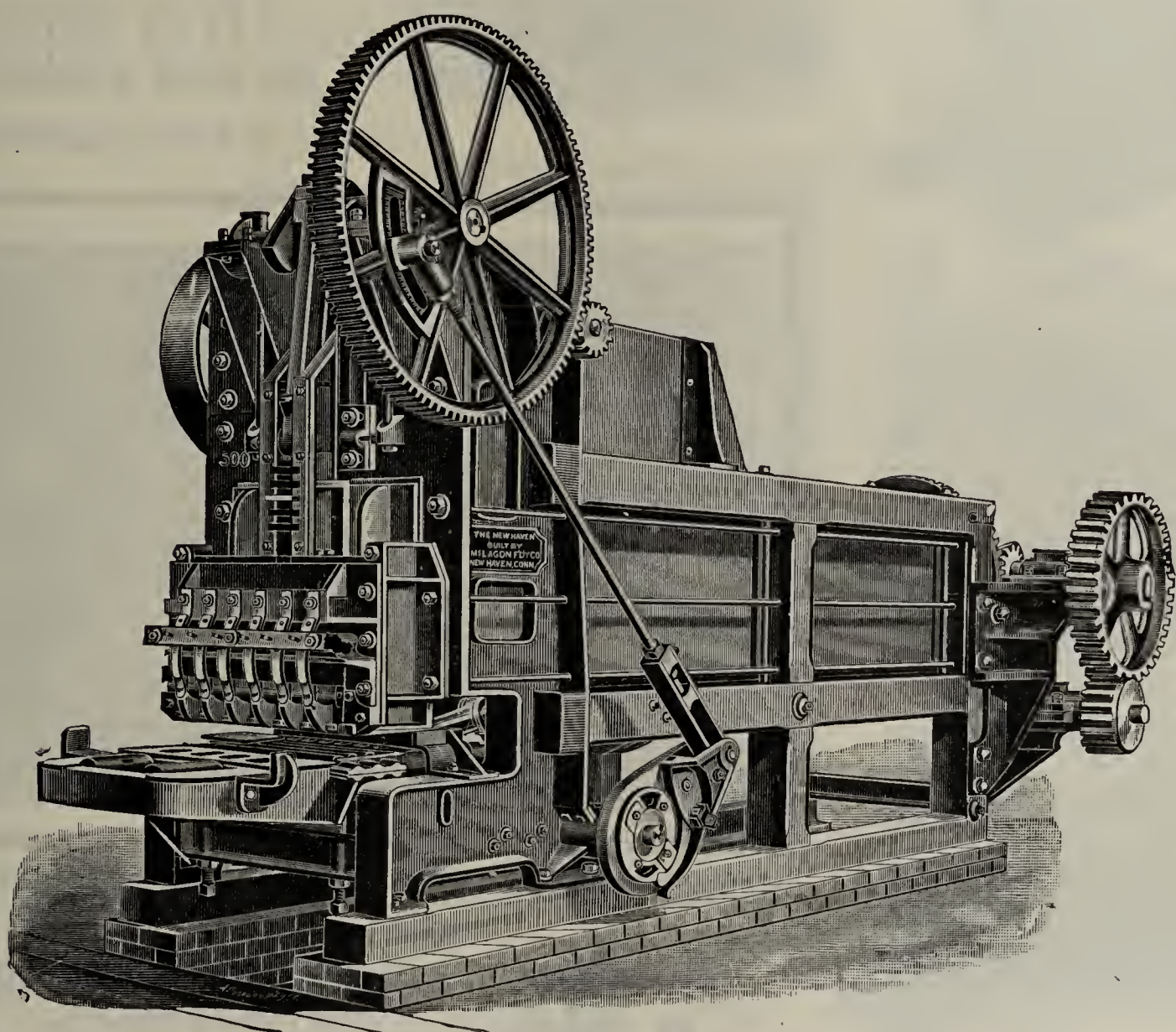
County State

Soft Clay Brick Machines

Are the only kind we build, and it is our aim to BUILD THEM WELL. IF NEW HAVEN Brick Machines were built just to sell, they might be built cheaper, and for awhile more be sold. INSTEAD, they are built to DO THE WORK, and they do it.

Stout Shafts, long bearings, large oil holes, strong gears, steel liners and other details in proportion. They are the kind

THAT DON'T BREAK DOWN EVERY DAY.



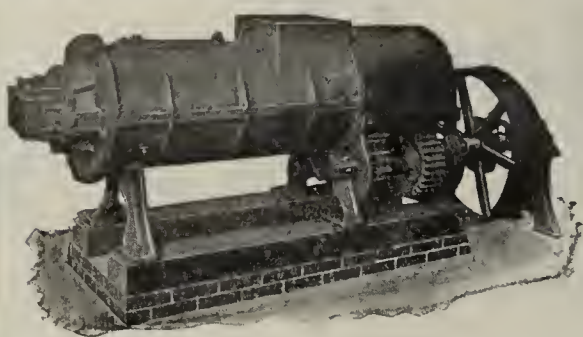
"New Haven" Horizontal Brick Machine.

"ENDURANCE THE CROWNING QUALITY"

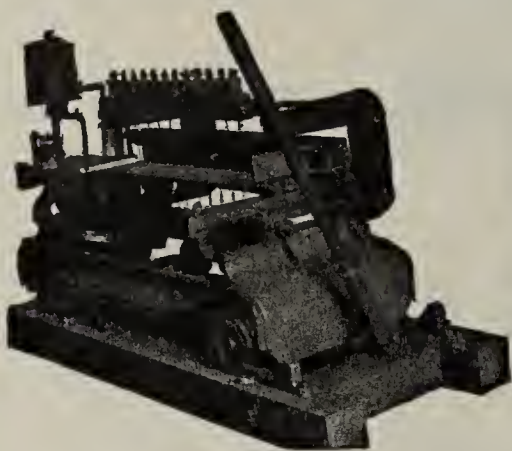
of the New Haven Brick Machines. Their economy does not begin and end with their purchase. It lasts as long as they are in operation. It is not in low first cost, but in efficiency, durability, economy in operation and lack of necessity for repairs. They earn a dividend every day.

The EASTERN MACHINERY CO.,

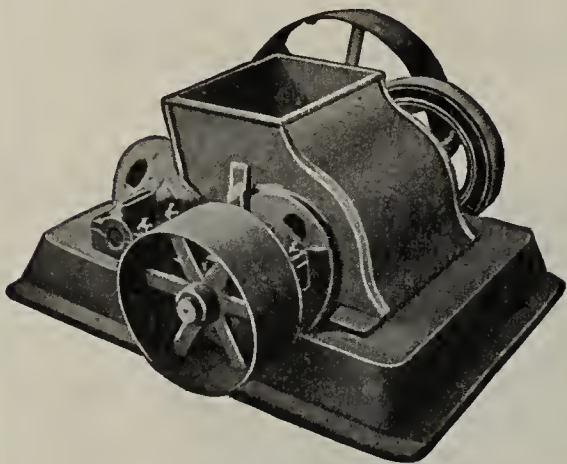
NEW HAVEN, CONN.



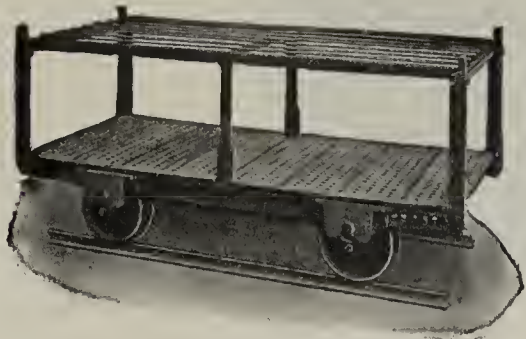
NO. 1 AUGER BRICK MACHINE



WIRE-CUT BRICK TABLE



HIGH-SPEED CRUSHER



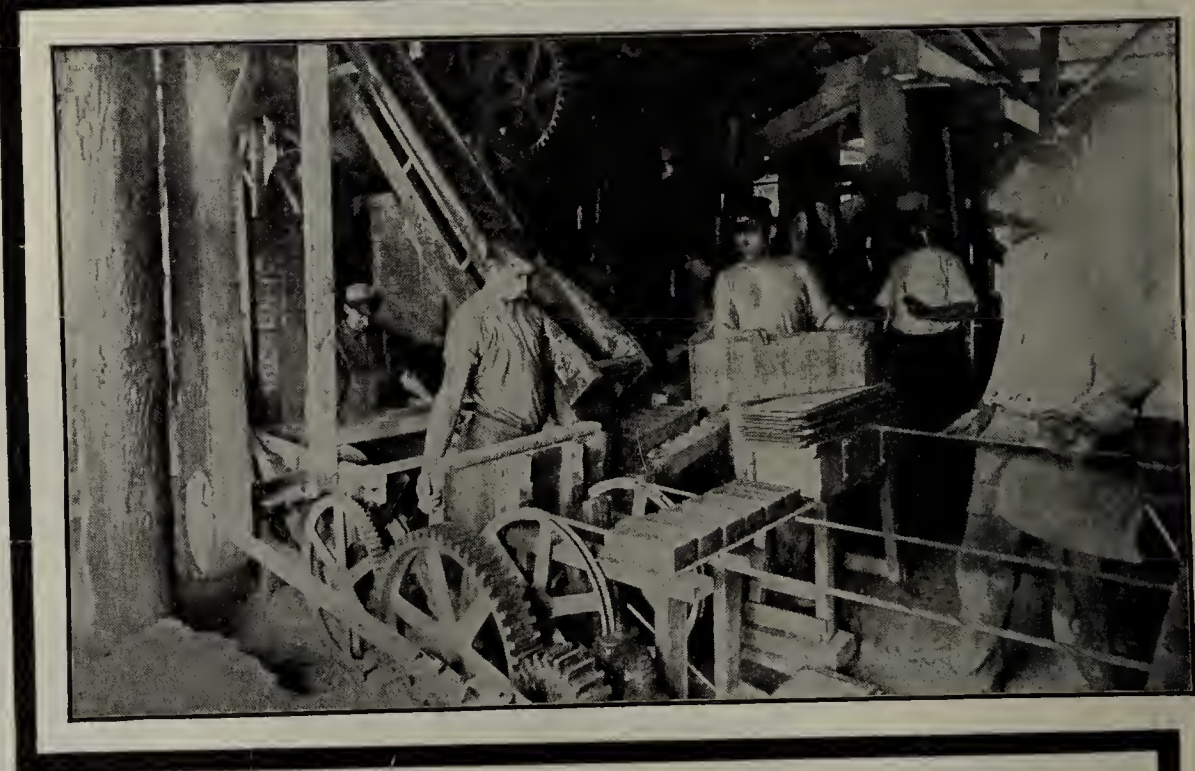
DRYER CARS



HAND REPRESSES



STYLE "A" BRICK MACHINE



HANDLING BRICK FROM THE MACHINE TO THE DRYERS.



HORSE POWER MACHINE

THE "MARTIN"

MACHINERY

IS FULLY GUARANTEED

TO MEET ITS

REQUIREMENTS

LET US FURNISH
YOU WITH A COMPLETE
SET OF DRAWINGS

LET US TALK OVER THE DRYER
QUESTION WITH YOU. THIS IS
NO EXPERIMENT BUT A PERFECT
SUCCESS. WE USE--NO CARS,
NO TUNNELS, NO FANS. DRYER
PRACTICALLY FIRE-PROOF.

WRITE FOR PARTICULARS
THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

THE "MARTIN"

BRICK DRYERS

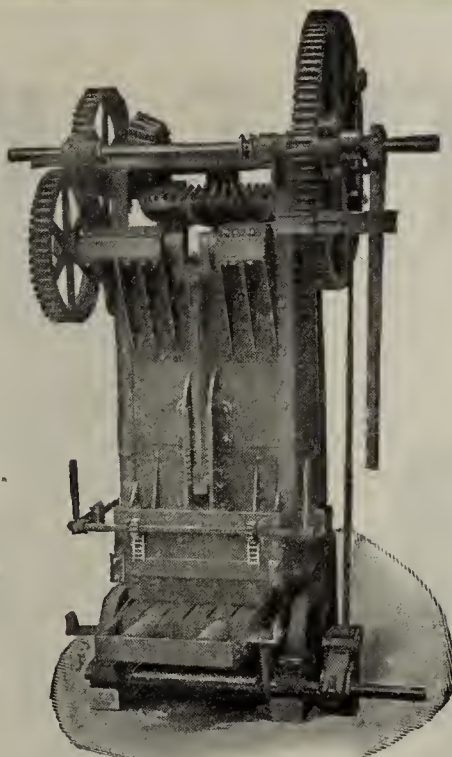
ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

FULLY COVERED BY PATENTS

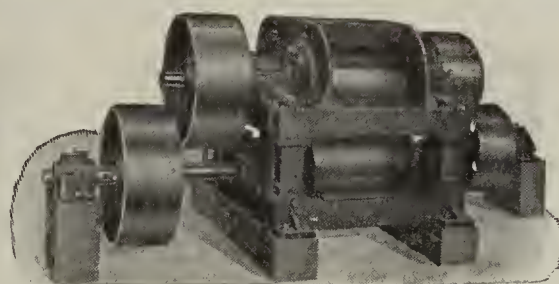
PATENTED

Feb. 22, 1898 -- 599509
Oct. 10, 1905 -- 95520
Nov. 14, 1905 -- 804489
May 26, 1908 -- 888831

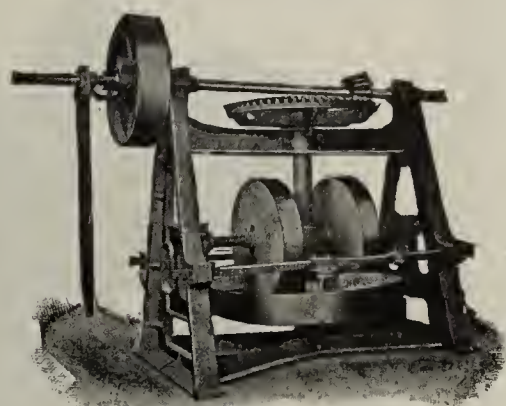
UNITED STATES & CANADA



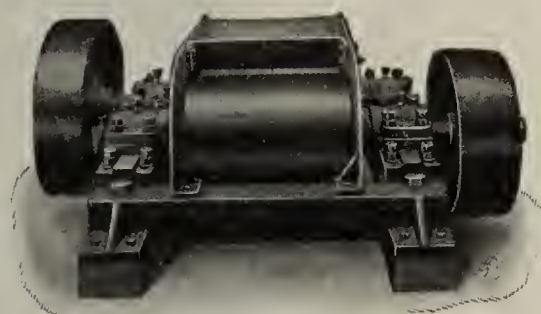
STYLE "P" BRICK MACHINE



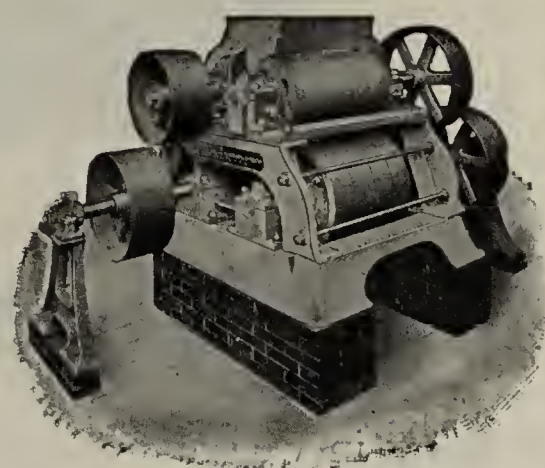
STYLE "P" CRUSHER



DRY OR WET PANS



DISINTEGRATOR



4-ROLL CRUSHER



THE BRICK COMING FROM A "MARTIN" PATENT DRYER

THE "MARTIN" COMPANY
AT LANCASTER, PA.

Own and Control These
Important Dryer Patents
and Have Authorized
— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

WRITE
FOR
PRICES

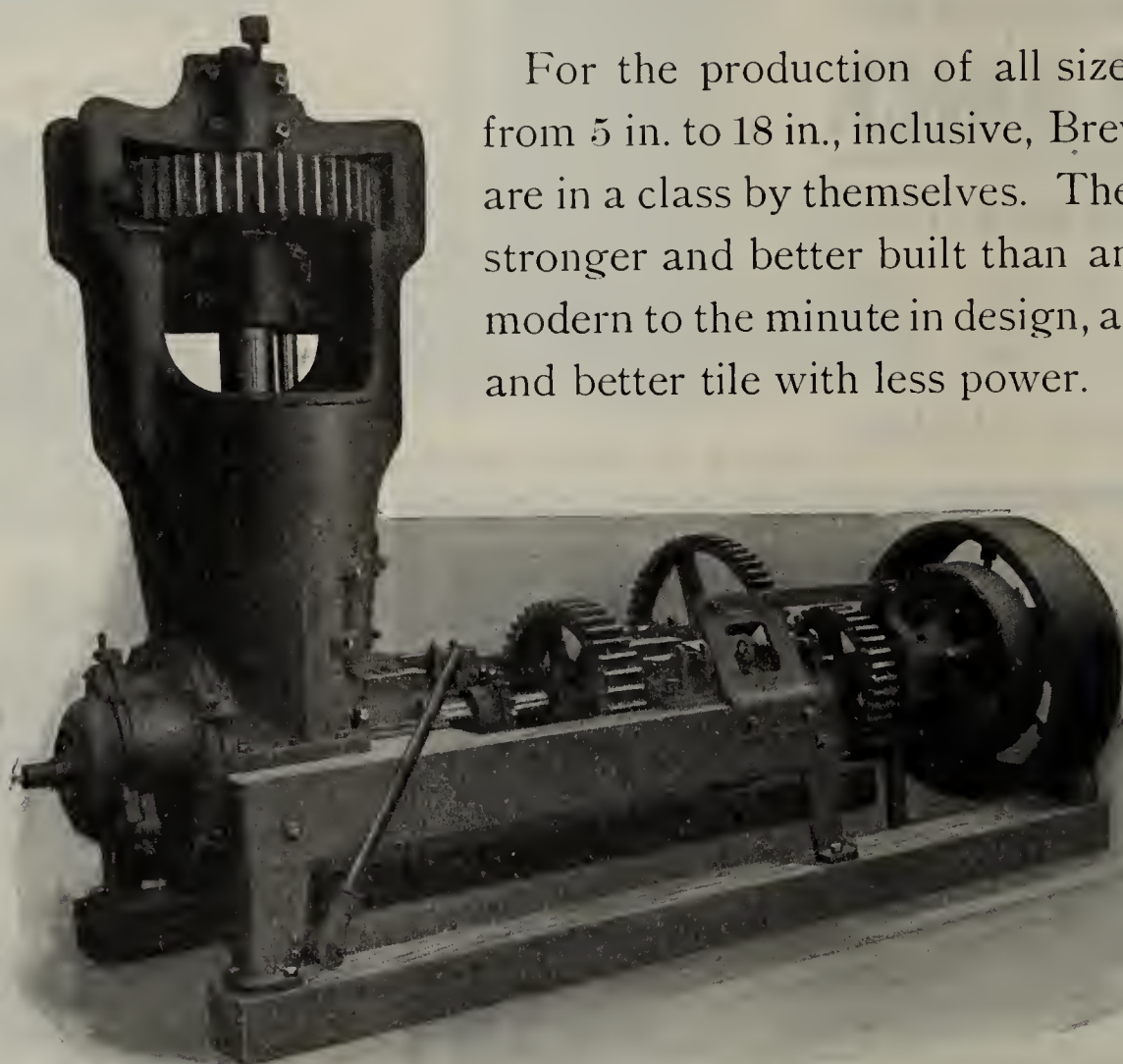


SAND DRYER



STEAM POWER REPRHSS

DRAIN TILE MACHINES



For the production of all sizes of drain tile from 5 in. to 18 in., inclusive, Brewer Machines are in a class by themselves. They are heavier, stronger and better built than any others; are modern to the minute in design, and make more and better tile with less power.

We Build Three Sizes

ranging in weight from 5,550 to 10,500 pounds and in rated capacity from 1,000 to 2,500 4 in. tile per hour. Record daily production under favorable conditions 5,000 4 in. tile per hour.

If interested in the production of drain tile it will pay you to get our catalog and bulletins which explain every detail of these machines.

If Marked



It's Good.

H. BREWER & CO.,

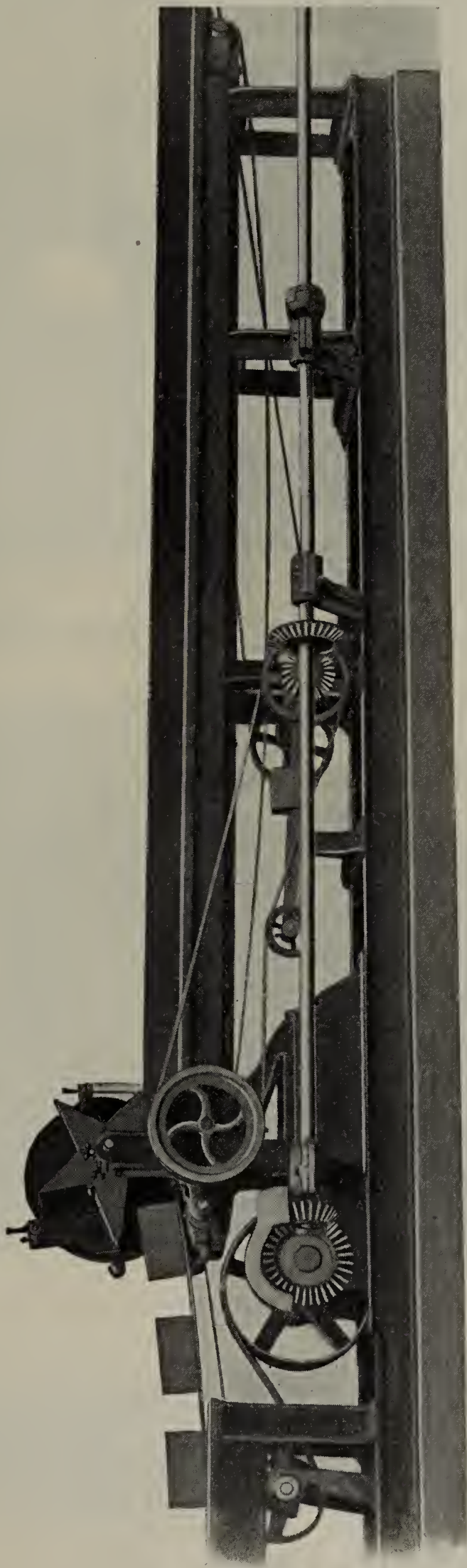
Tecumseh, Michigan.

If Marked



It's Good.

The Steele Automatic Cutter.



Messrs. J. C. Steele & Sons, Statesville, N. C.:

Lavonia, Ga., Dec. 9, 1907.

Gentlemen—It is pleasant and delightful work when operating your No. 3 machine with a 20 h.p. engine and making 3500 bricks per hour. Your rotary automatic cutter can't be beat; it cuts square and smooth, Messrs. Bowers Bros. of the Canon Brick Yard, came to my plant at Royston, Ga. to see my machine work and of course were so pleased they ordered one of your machines. I have run two machines of other manufacture and they were both more complicated and expensive to keep repaired. I recommend your machines to anyone entering the business.

Very respectfully,
W. E. STEVENSON.

(Signed)

We build a complete line of clayworking machinery.

Write for further information.

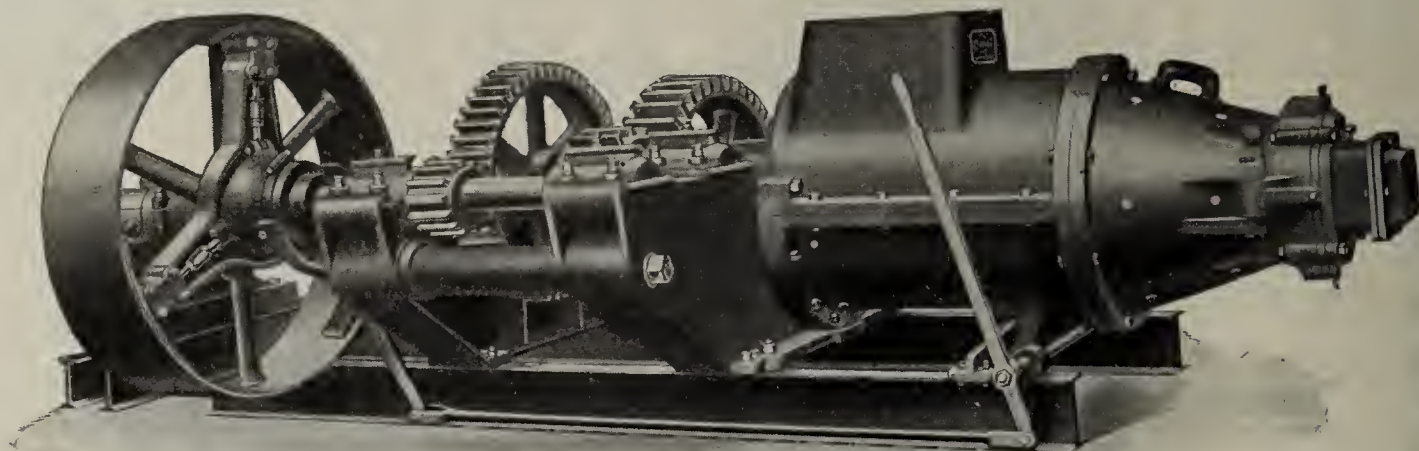
J. C. STEELE & SONS,

Successors Brick Machinery Co., Memphis, Tenn.,
Western Agents.

Mention The Clay-Worker.

STATESVILLE, N. C.

Modern Clayworking Machinery

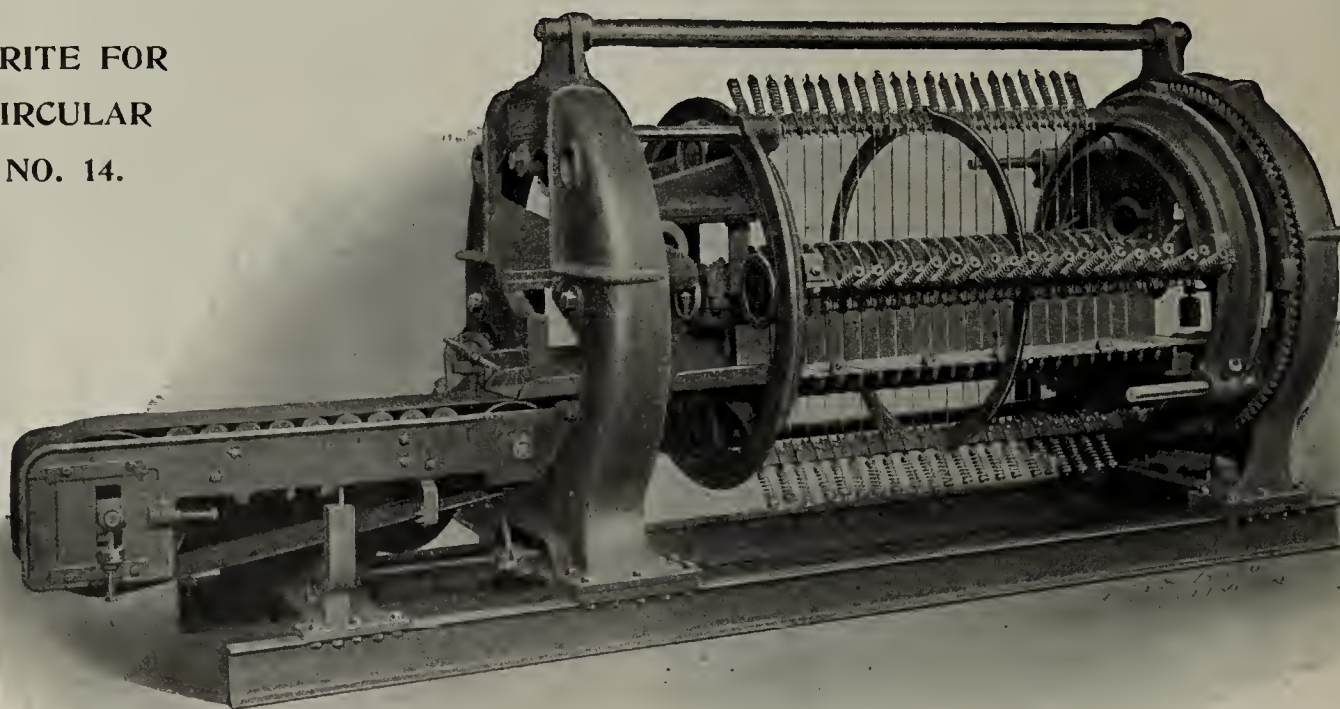


No. 10 Auger Brick Machine.
Capacity 50,000 to 75,000 per Day.
A GOOD MACHINE AND EASILY GET-AT-ABLE.

CANTON REPRESS is the Best of its Class.

ASK US FOR THE PROOF.

WRITE FOR
CIRCULAR
NO. 14.



Rotary Automatic Cutting Table.
Capacity Up to 100,000 Daily.

Cuts Brick Within 30 Inches of the Die. End Frames are Stationary.
COMPLETE LINE OF CLAYWORKING MACHINERY.

THE BONNOT COMPANY,

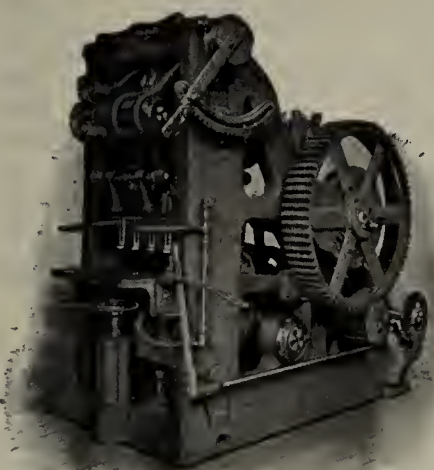
305 NEW YORK LIFE BLDG.,
KANSAS CITY, MO.

Canton, Ohio.

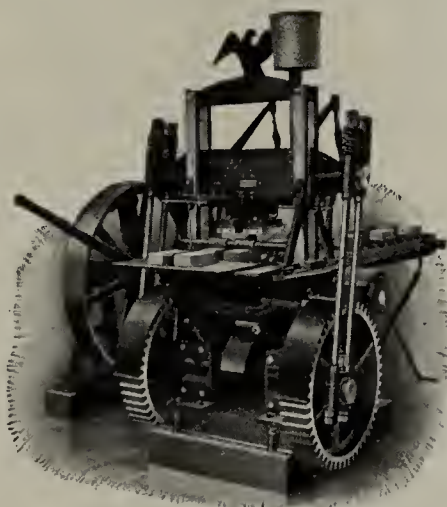
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

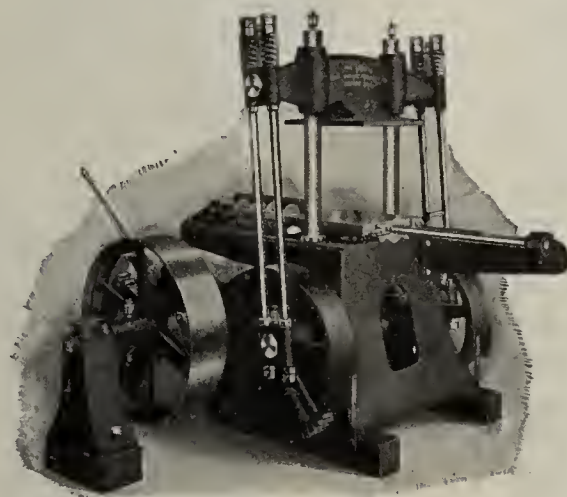
BUILT RIGHT
RUN
RIGHT



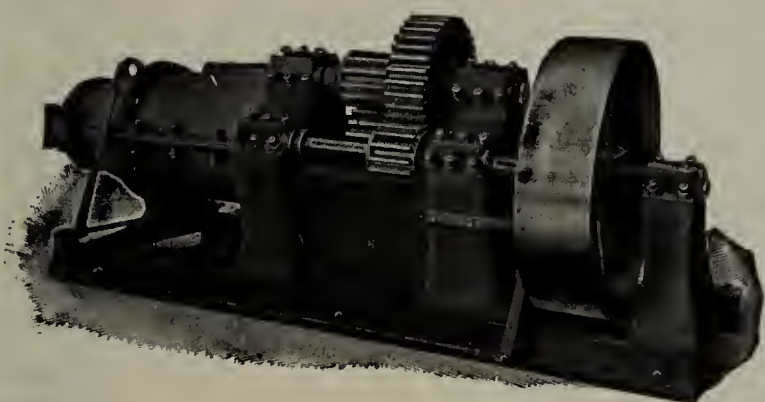
D-3 Dry Press



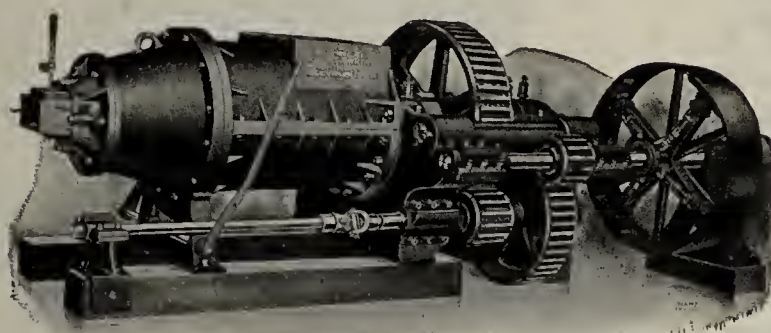
Eagle Reprass



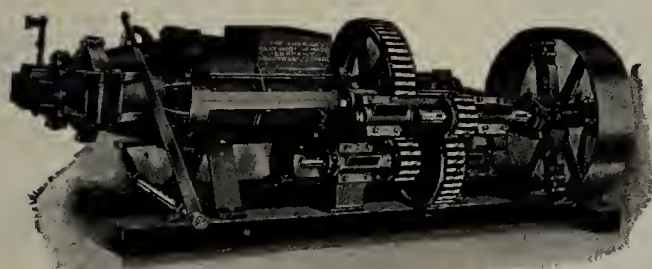
Roofing Tile Press



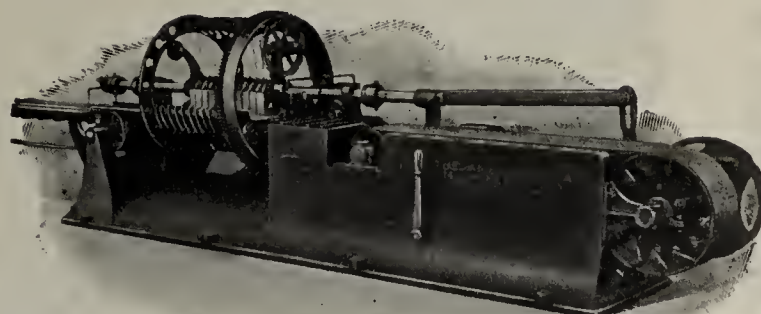
No. 65 Auger Brick Machine



Special Giant Brick Machine



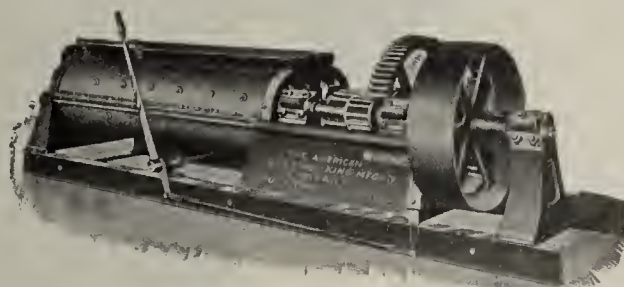
No. 2 Giant Brick Machine



No. 83 Automatic Cutter



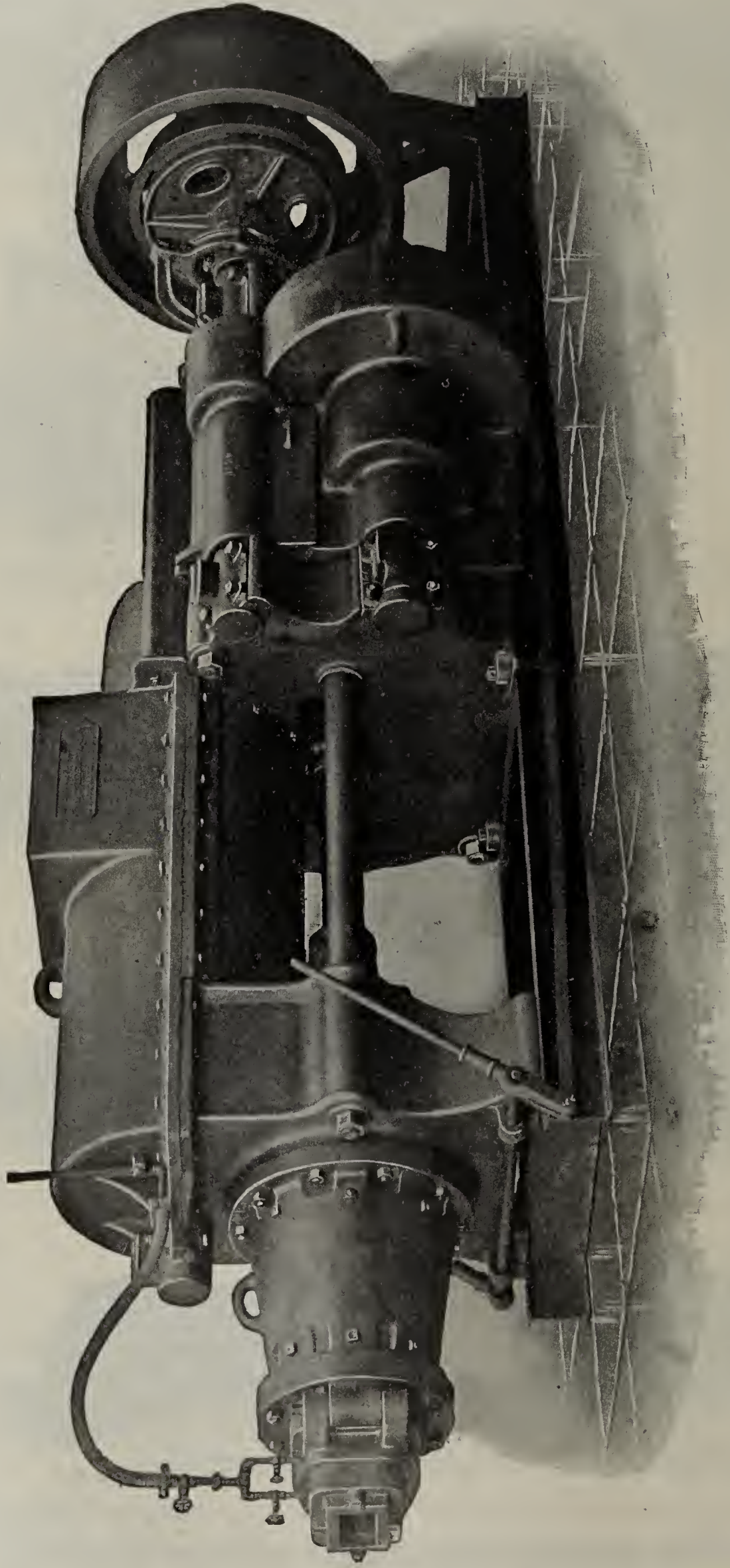
No. 51 Electrical Driven Pug Mill



No. 38 Double Shaft Pug Mill

We Build Every Machine and Every Appliance Needed for the Manufacture of Every Class of Clay Products by Every Process.

Another Brick Machine.



This is a Brick Machine of massive proportions and of modern construction throughout, designed for large capacity and severe service. The gearing, shafting and other parts are very heavy. The gearing is protected by a removable dust and accident proof covering, hinged for convenient access to the interior. The feeding chamber is of ample diameter and length, and this result is obtained without excessive overhang of auger shaft. The auger shaft is supported by three journal bearings of sufficient distance apart to give it a substantial support. The part of the auger shaft in the clay chamber is about 4 feet in length, while the part outside is more than 9 feet long.

The machine is mounted on steel "I" beam sills between which are placed heavy cast iron spreaders with flanges, affording a substantial method of attaching the machine to its foundation. The outer end of the pulley shaft is supported by a rigid stand having an adjustable journal box.

Height from floor to top of hopper, 5 ft. 8 in.

Weight of machine about 26,000 pounds.

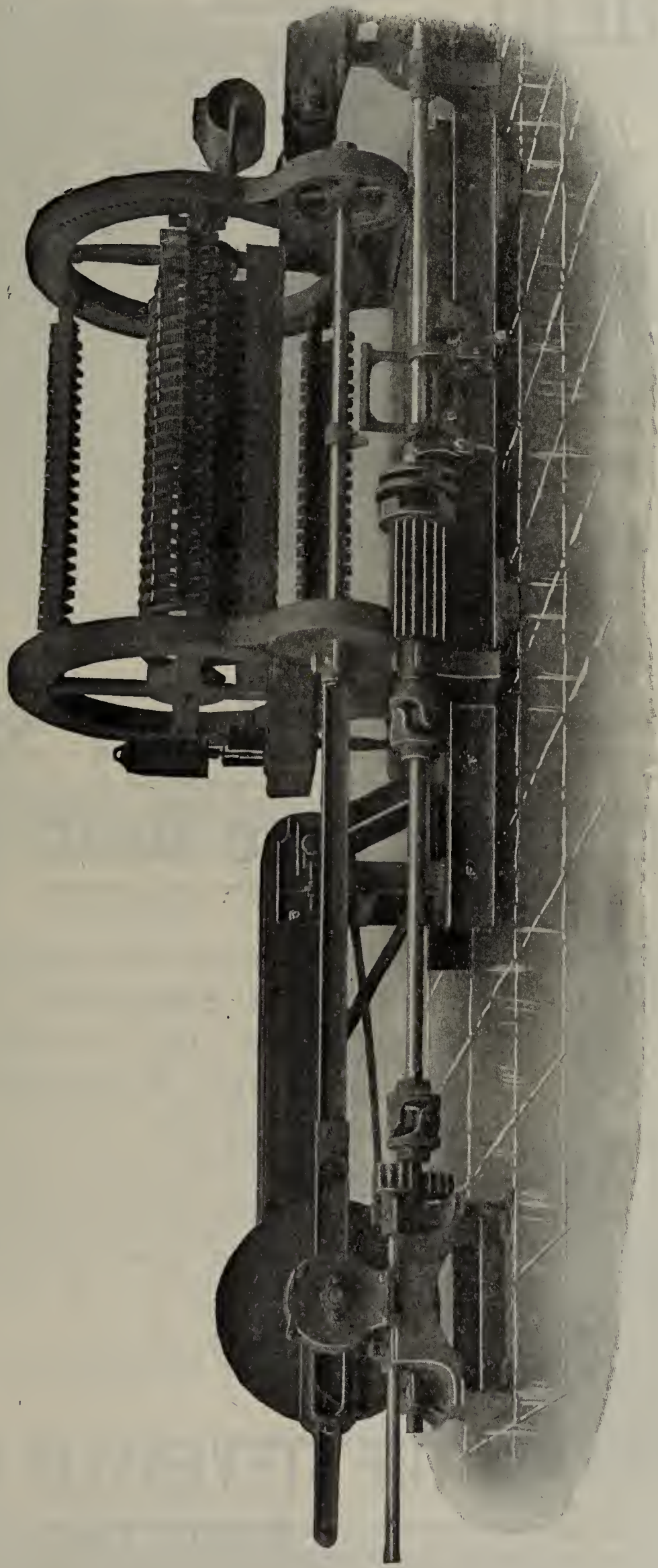
Length of machine over all, 19 ft.

Size of hopper, 26-in. x 26-in.

E. M. FREESE & CO., Galion, Ohio.

(Mention The Clay-Worker.)

An Improved Rotating Automatic Cutter.



Our Rotating Automatic Cutters are the result of many years' constant hammering at a single type of Cutter. One of the three sizes we are building will suit your Stiff Mud Brick Machine.

We ship on trial—YOU say whether our guarantee of "satisfactory operation" is fulfilled. If desired a man will be sent to arrange details of installation.

These Cutters will give you satisfaction when all others have failed.

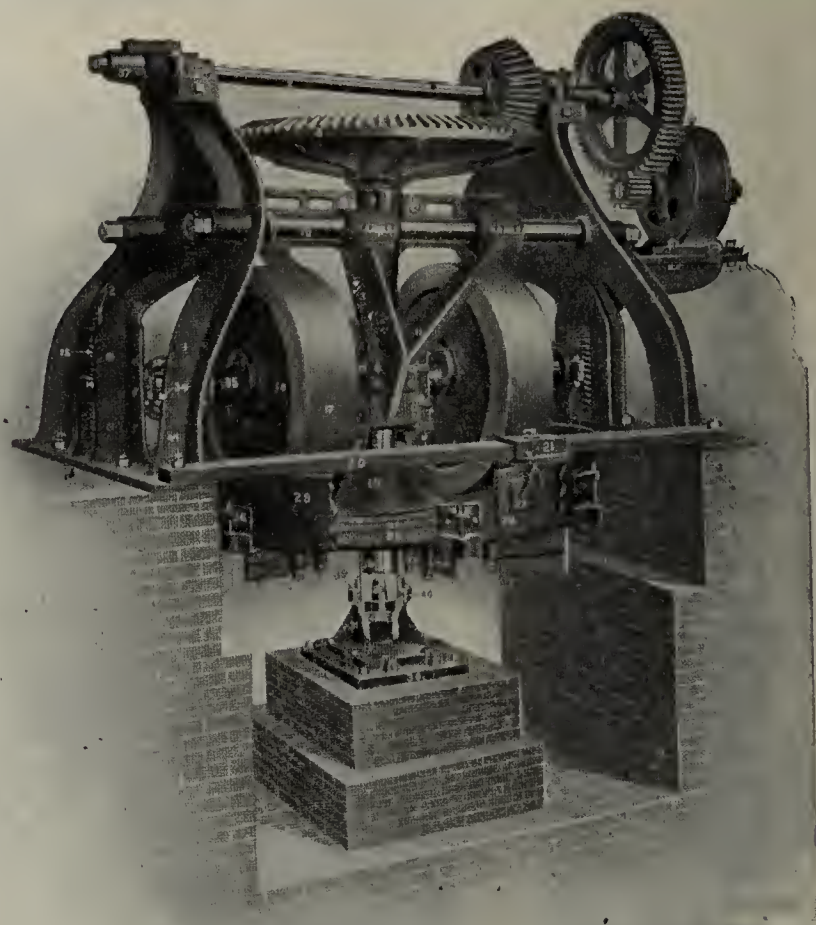
(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



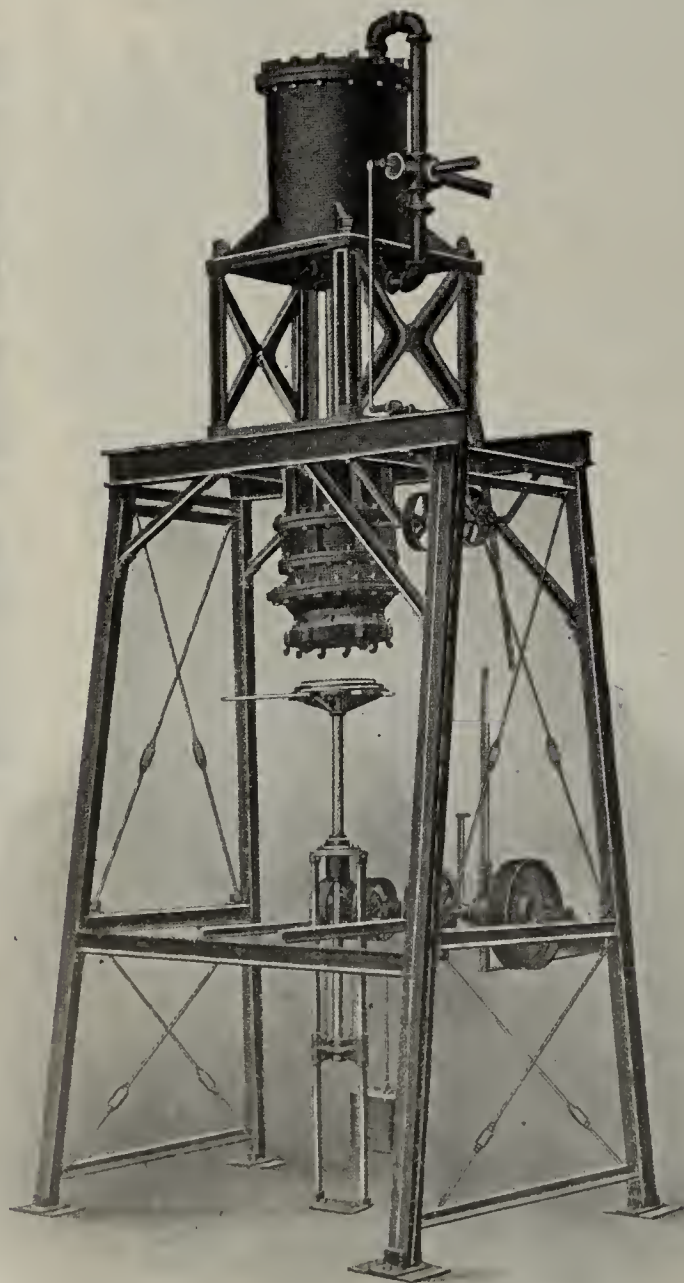
You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.



THE HARRINGTON AND KING PERFORATING CO

PERFORATED METALS

OF EVERY DESCRIPTION

AND

FOR ALL PURPOSES

FOR SCREENS OF ALL KINDS

PERFORATED STEEL FOR CLAY SCREENS.

Samples or blue prints with prices furnished on request.

For Chute or Gravity Screens, Shaking or Vibrating Screens, Revolving Screens, Dry Pan Screens.

For Cleaning and Grading Clay, Shale, Sand, Cement, Coal, Stone, Etc.

For Pallets or Trays, Car Bottoms, Drying Floors, Conveyor Bottoms, Separators, Etc.

NEW YORK OFFICE
No. 114 Liberty St.

No. 231 North Union Street,

CHICAGO, ILL., U. S. A.



Ready Made or Made to Order?

Which would you prefer for your Brick Plant, a READY MADE or a MADE TO ORDER Dryer?

READY MADE Dryers are built from "STOCK PLANS." The plan which "COMES THE NEAREST" to meeting the conditions which prevail at your Plant is the one according to which your READY MADE Dryer would be built. It MIGHT prove satisfactory—the chances are it would NOT.

MADE TO ORDER Dryers, which all

Rodgers Waste Heat Dryers

are, are built from INDIVIDUAL plans. The plan from which your MADE TO ORDER Dryer would be built would be drawn after a thorough inspection had been made and every condition prevailing at your Plant had been taken into consideration. The result would be the drying of your brick thoroughly, as rapidly as the clay would permit and at the least expense.

WHICH WOULD YOU PREFER?

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment
in the United States.

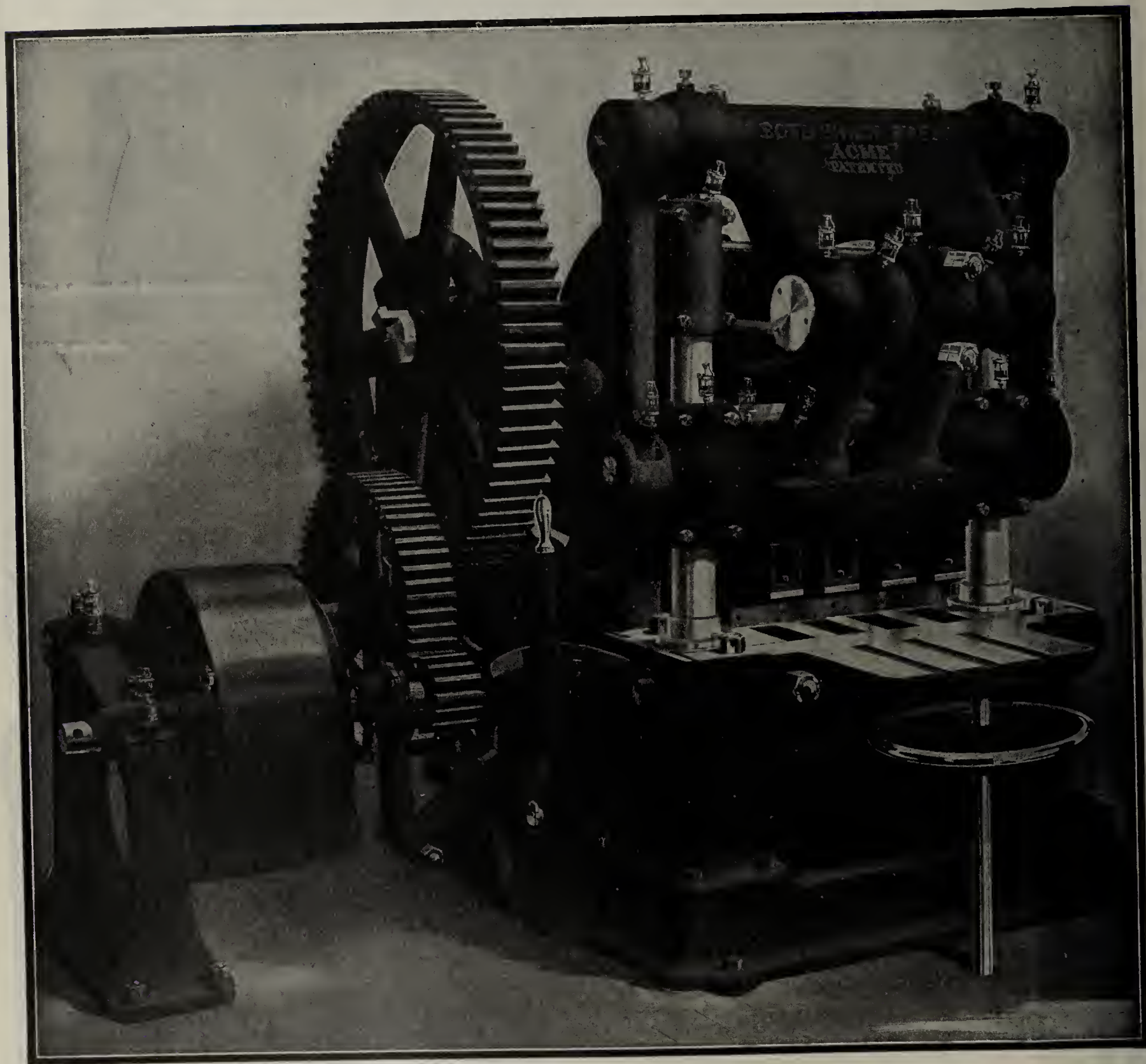
108 LA SALLE ST.

CHICAGO.



The Boyd Brick Press

Four-Mold "Acme."



We have been building this type of machine for over ten years. It has all improvements to date and embodies all the special features of the original Boyd Press.

Detailed perfection, strength, endurance and quality of product have made THE BOYD the Brick Press by which all others are judged.

We will send to any responsible party a *Boyd Brick Press on trial* under the broadest and safest guarantee. We take the machine back if not satisfactory.

Chisholm, Boyd & White Company,

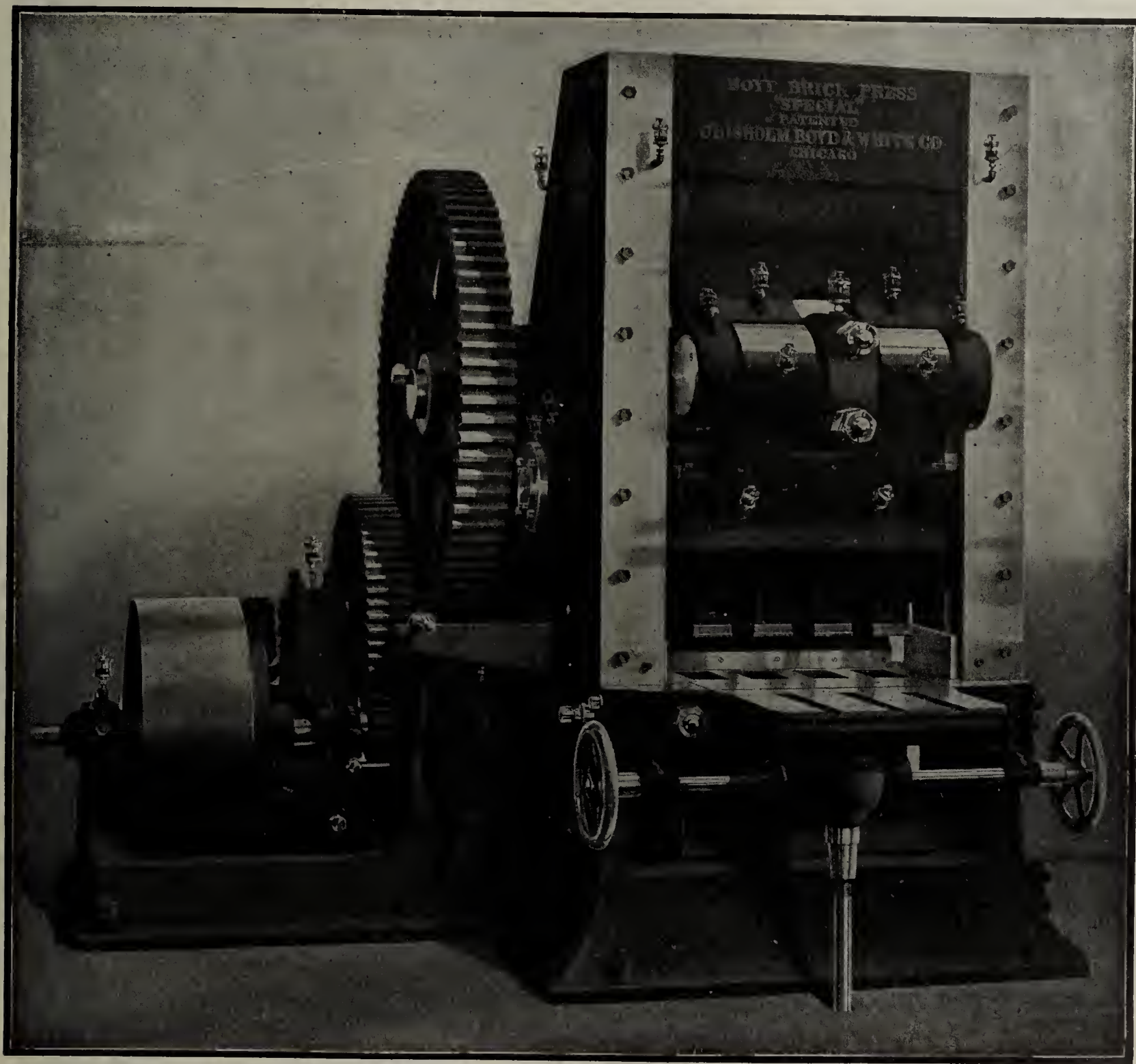
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Boyd Brick Press

Built in Two, Four and Six-Mold Sizes.



FOUR-MOLD SPECIAL.

BRICK PLANTS designed and complete machinery equipment furnished. Machinery and product guaranteed.

More Boyd Presses in use than all other Press Brick Machines combined.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 19 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Grath Special Brick Press

Patented.

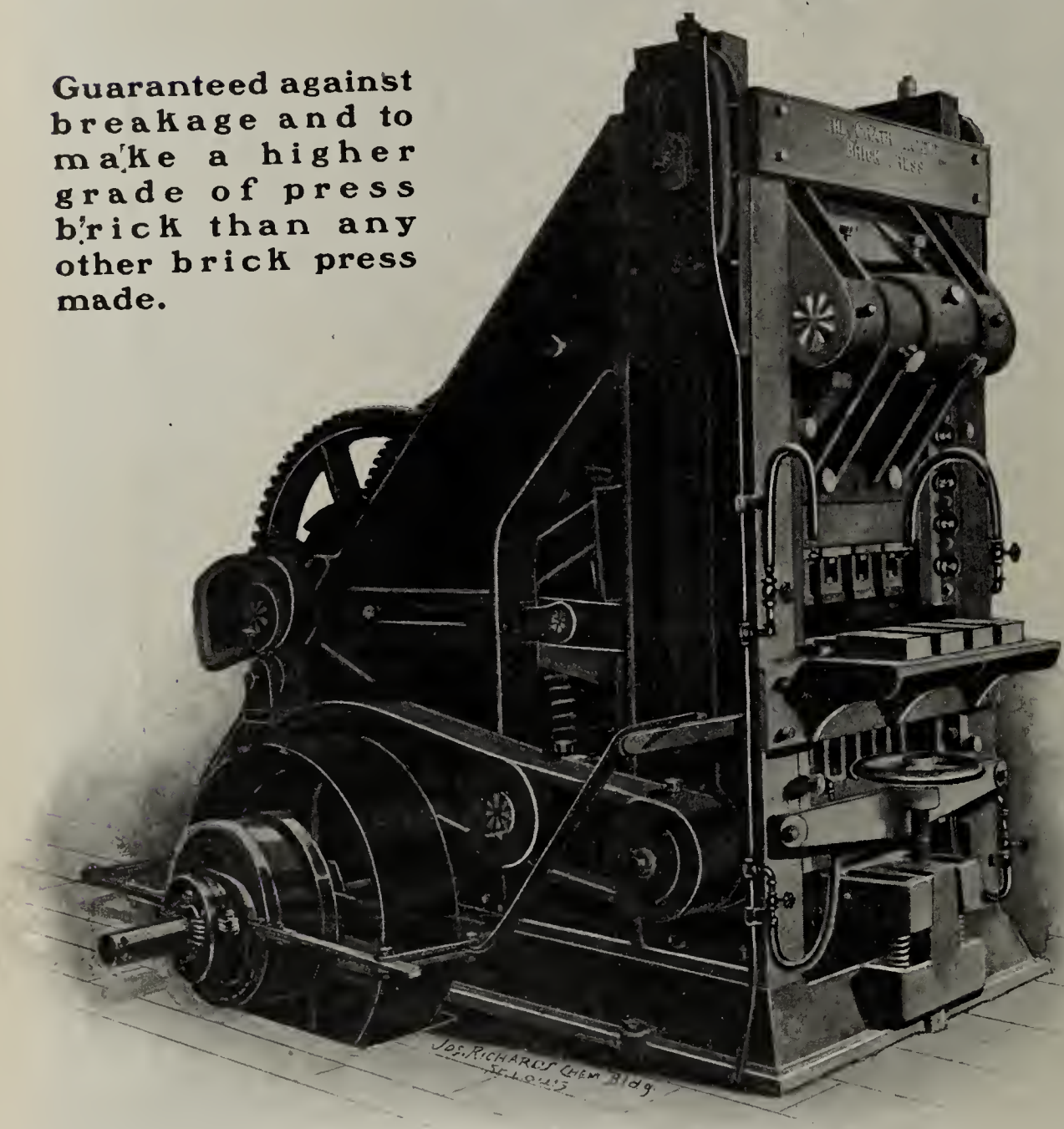
Made in Two, Three, Four and Five-Mold Sizes.

THE ONLY PERFECT BRICK PRESS

For SAND-LIME and DRY CLAY BRICK of Unequaled Quality.

FOUR MOLD MODEL.

Guaranteed against breakage and to make a higher grade of press brick than any other brick press made.



BRICKMAKERS

Do not buy Brick Presses every month or year.

When you **do** buy get a **modern** press. It costs no more than one which is **out of date**.

Unless the press is **double geared**, with gears between frames and bearings, which prevents all side strain and twisting of crank shaft, it is out of date and behind the times.

The above construction is contained in the **Grath Special** and is securely covered by patents. All infringements will be prosecuted.

THE PRESS OF TODAY.

THE ALBERTA PORTLAND CEMENT CO.

W. P. Grath, St. Louis, Mo.:

[Copy]

Sandstone, Alta., Sept. 26, 1907.

Dear Sir—Replying to your favor of recent date regarding Grath Special press purchased from you, would say that after working your press alongside another well-known make, your press has proved itself vastly superior in every way; it is stronger, simpler, easier of adjustment, makes more brick, and of much better quality.

After a long experience with presses, having operated five (5) different presses each of different makes, I consider yours "THE BEST YET," in short, "AN IDEAL PRESS."

Wishing you the success your press merits

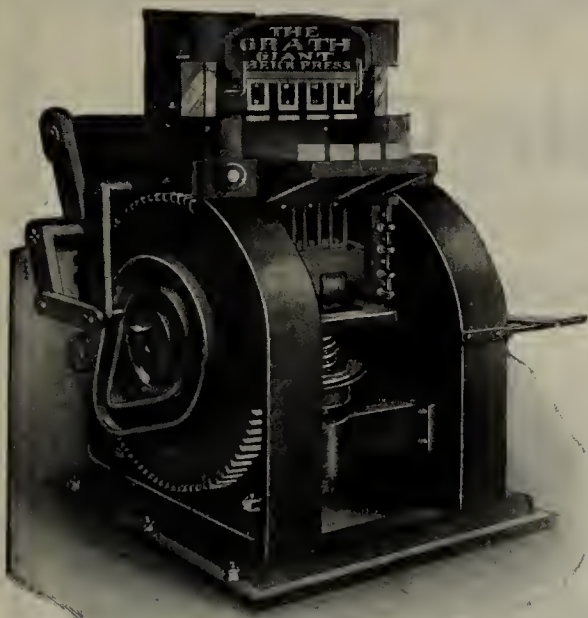
Yours truly, G. W. DELLER, SUPT.
Alberta Portland Cement Co., Limited

Illinois Supply & Construction Co.,

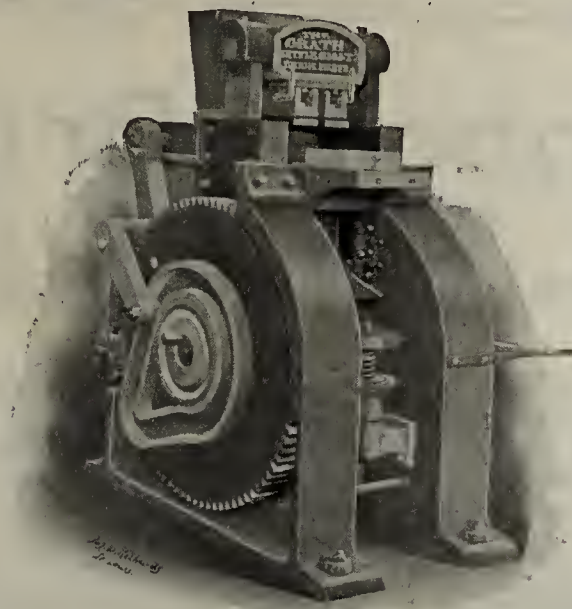
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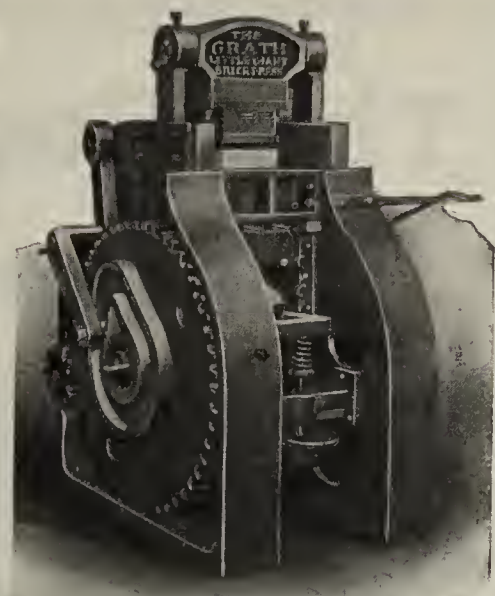
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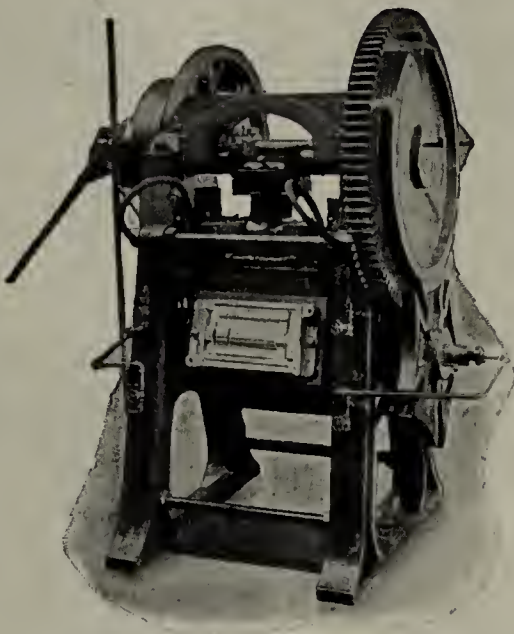
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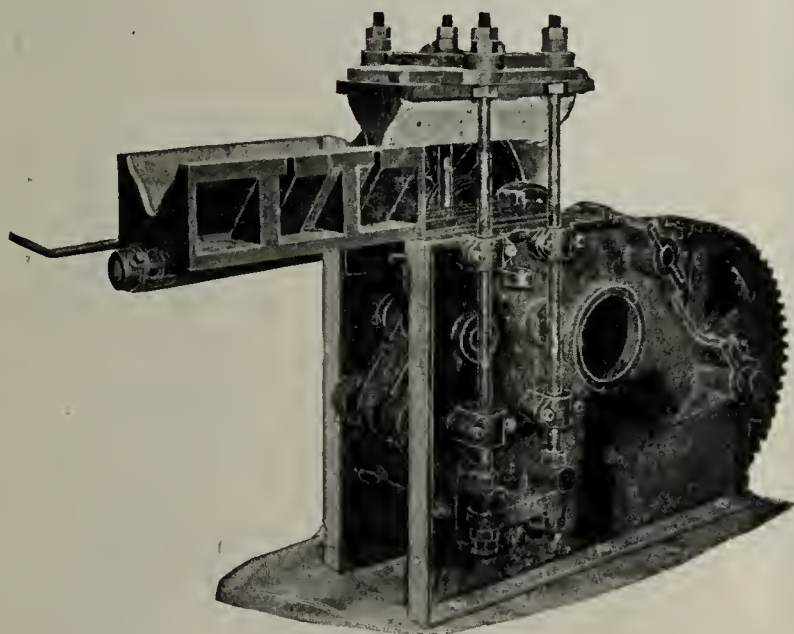
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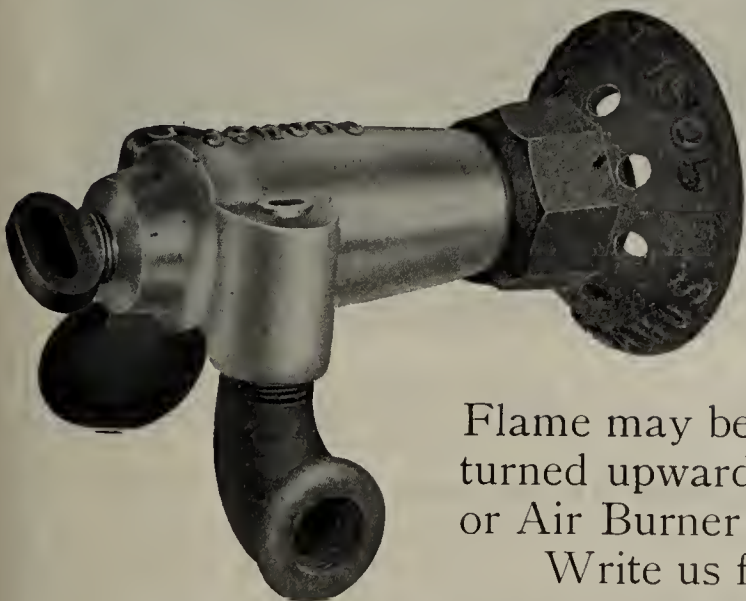


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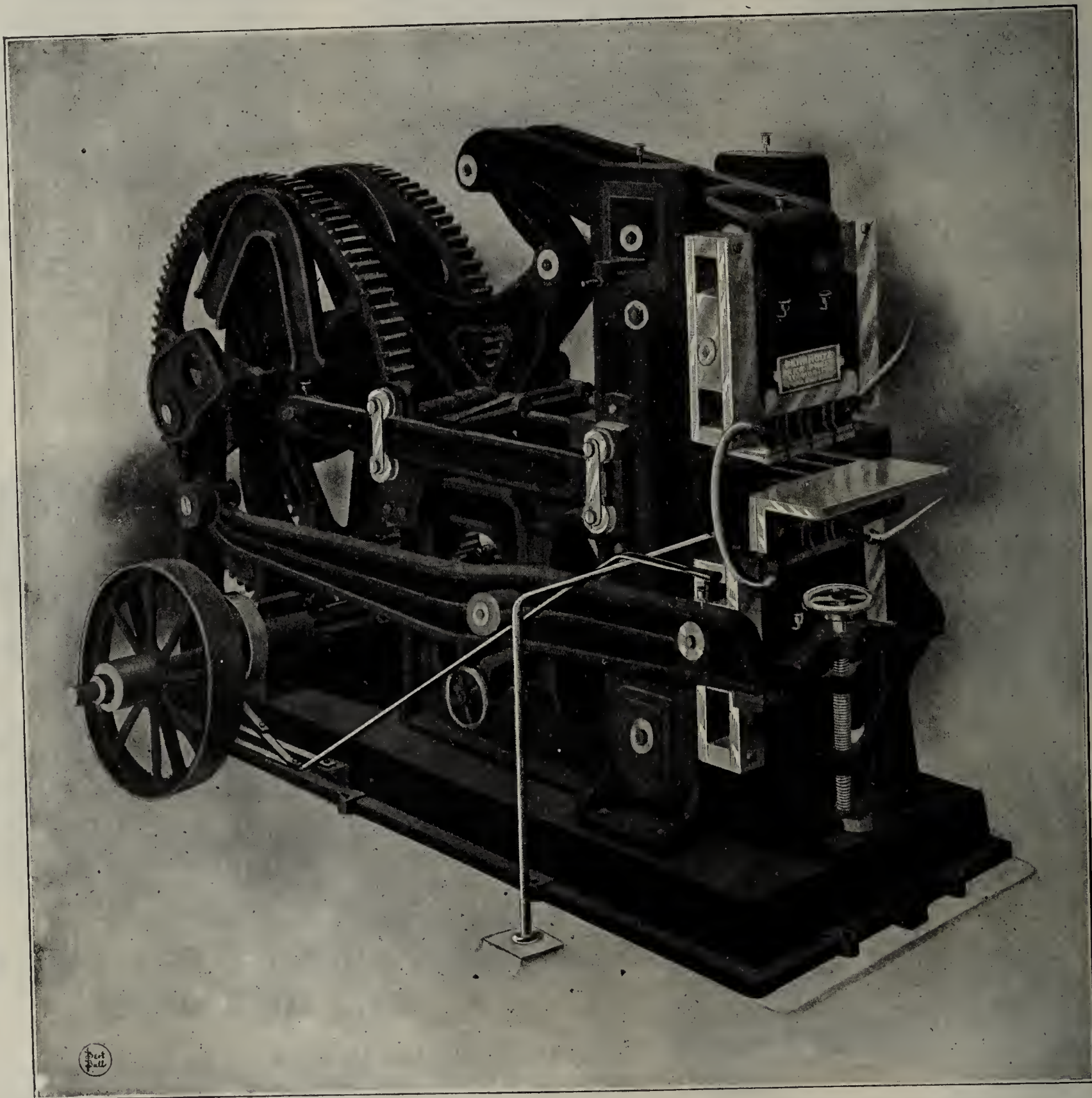
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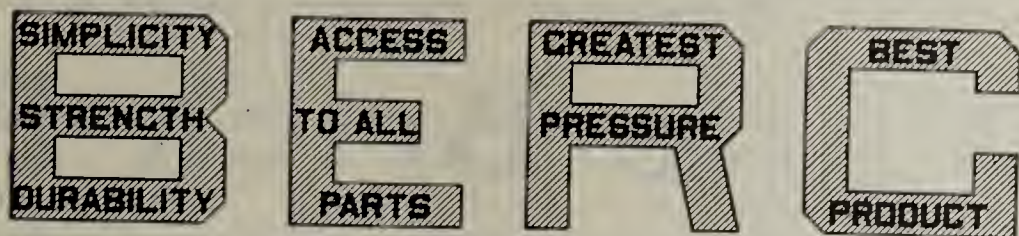


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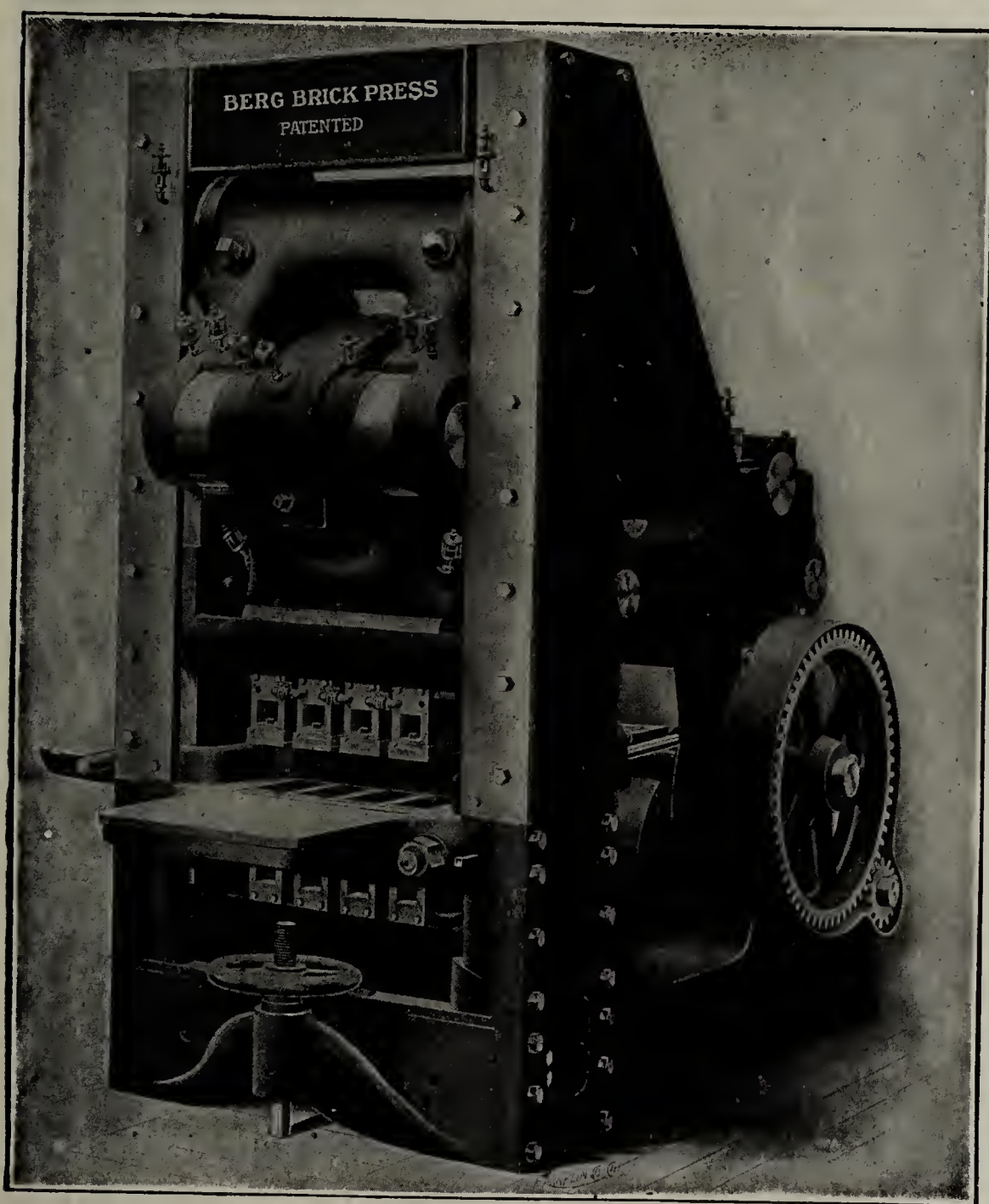
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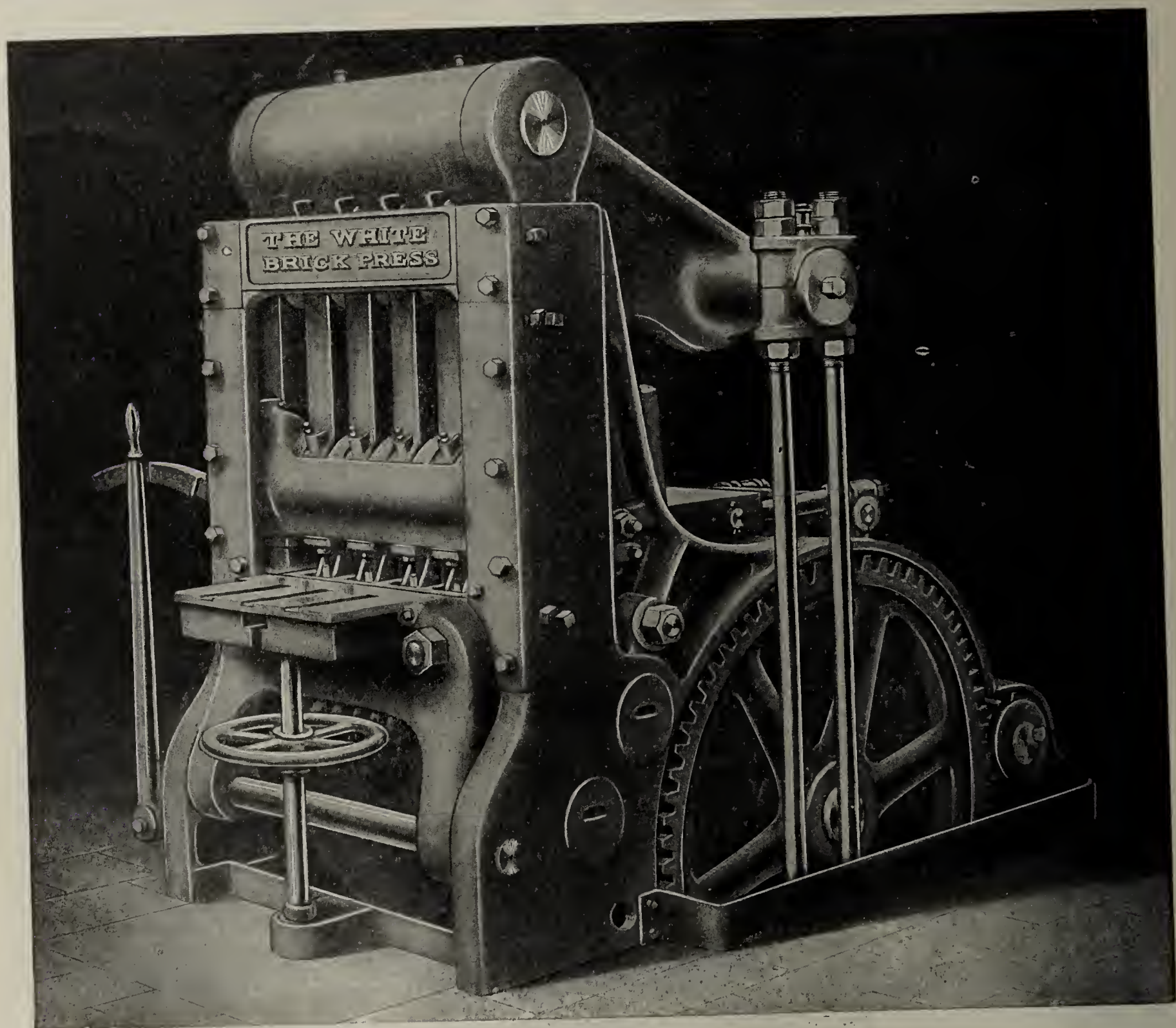
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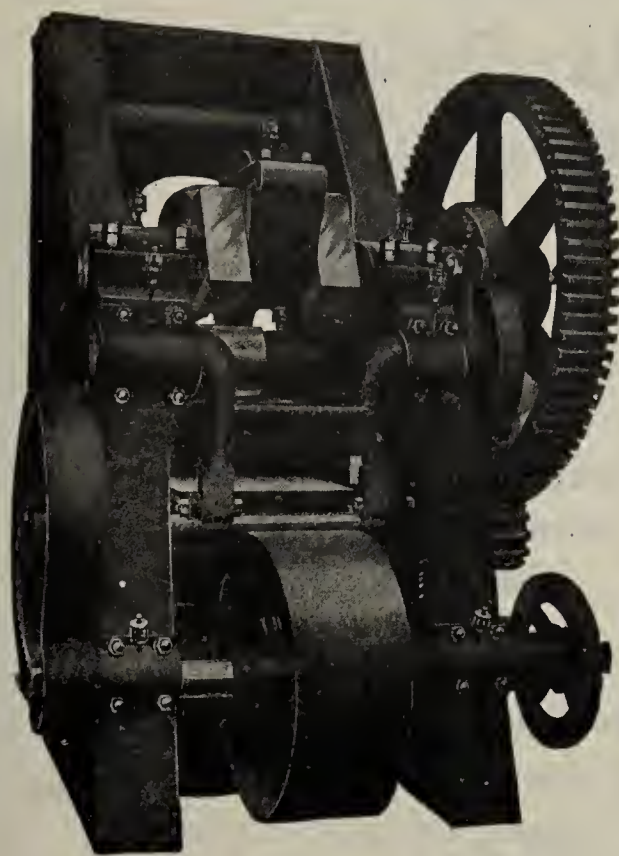
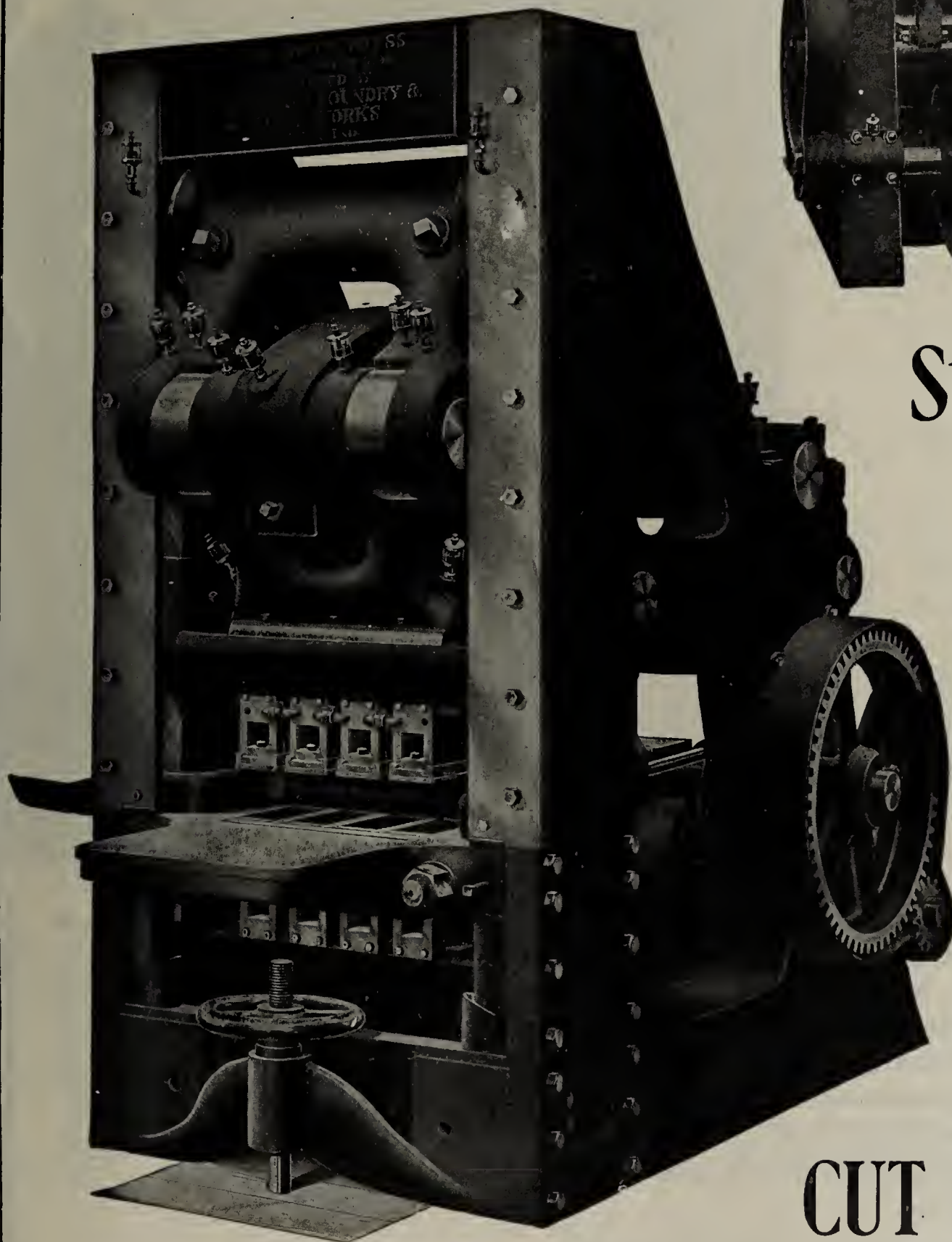
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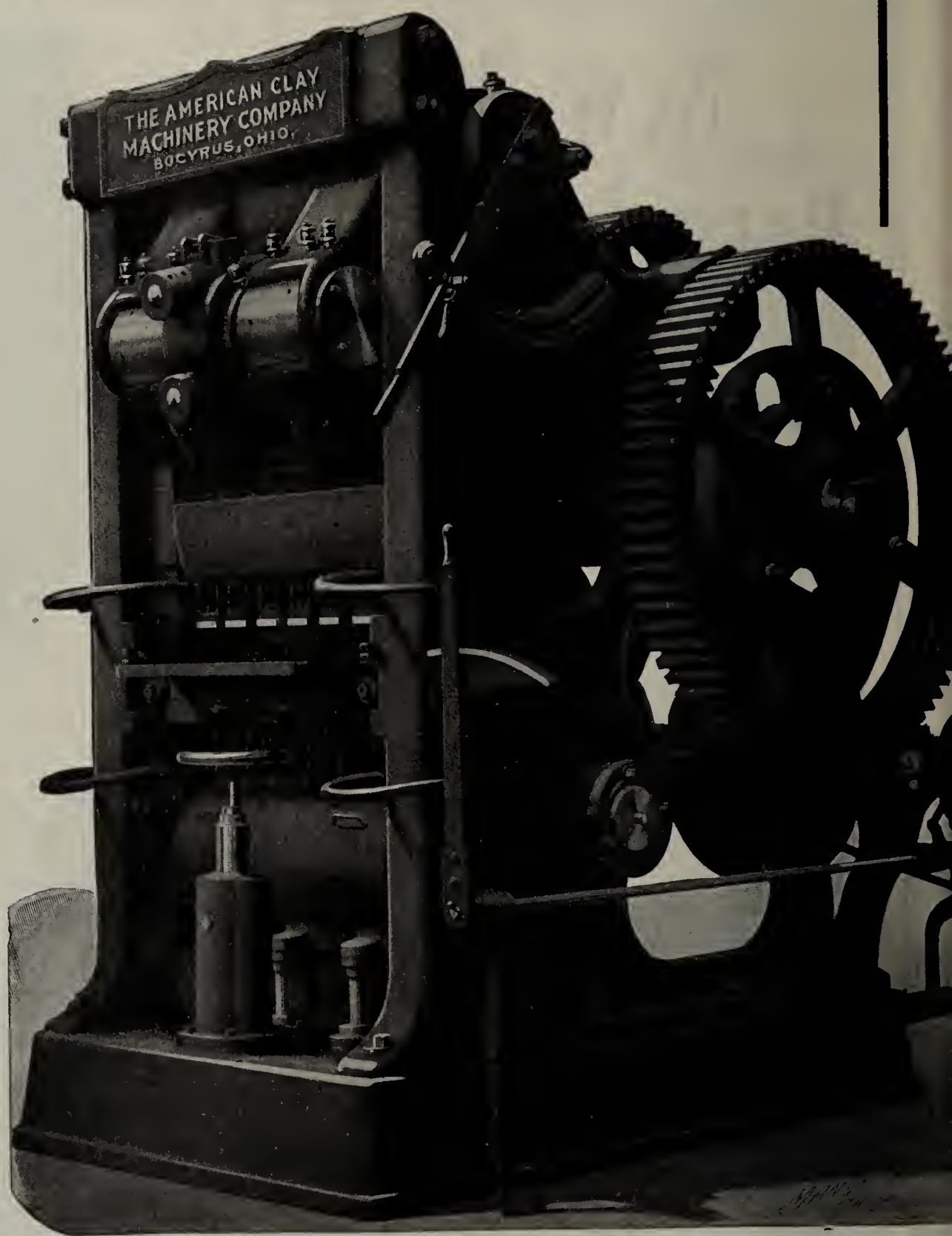
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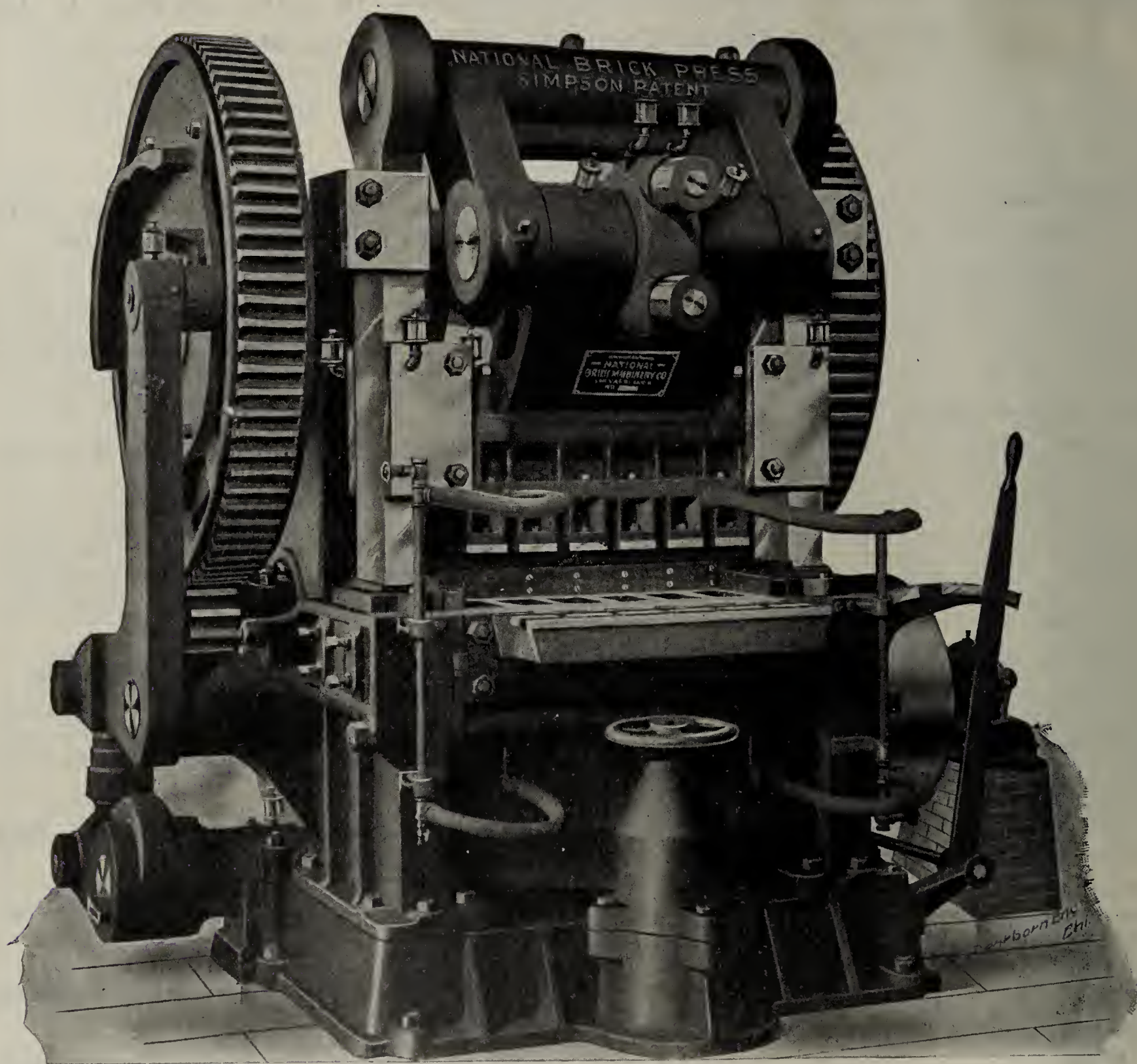
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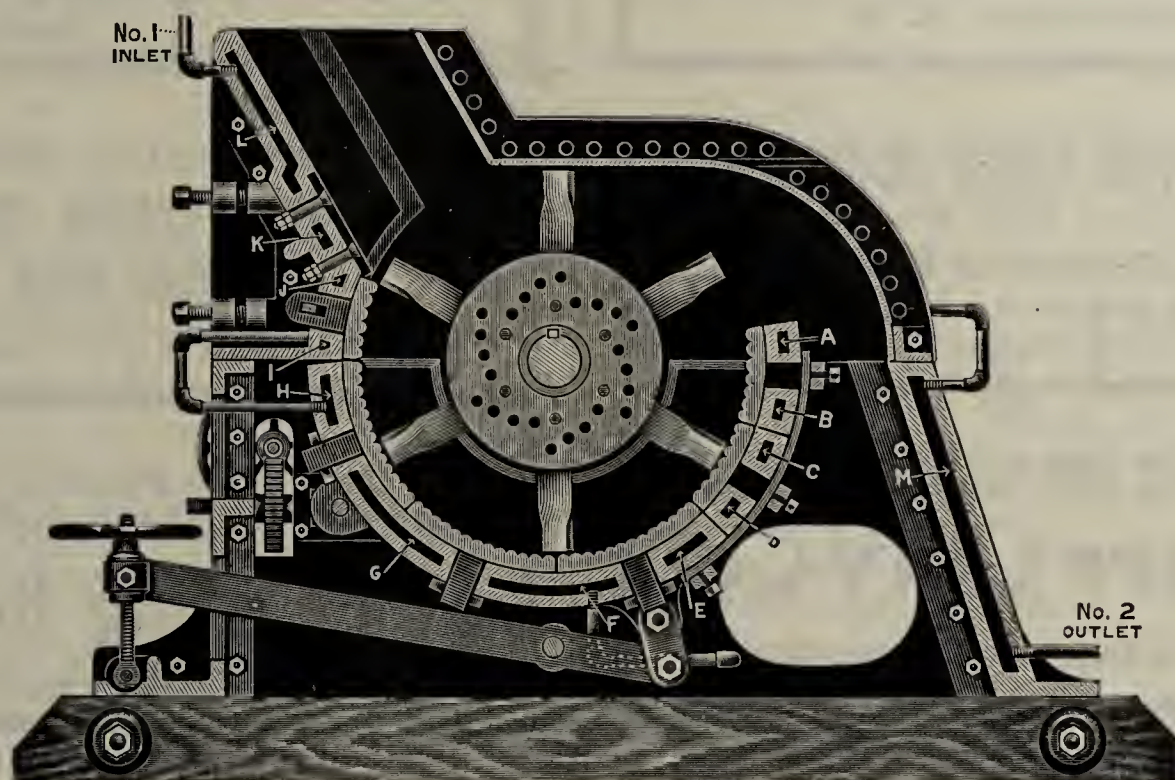
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WE OWN AND OPERATE EXTENSIVE DE-
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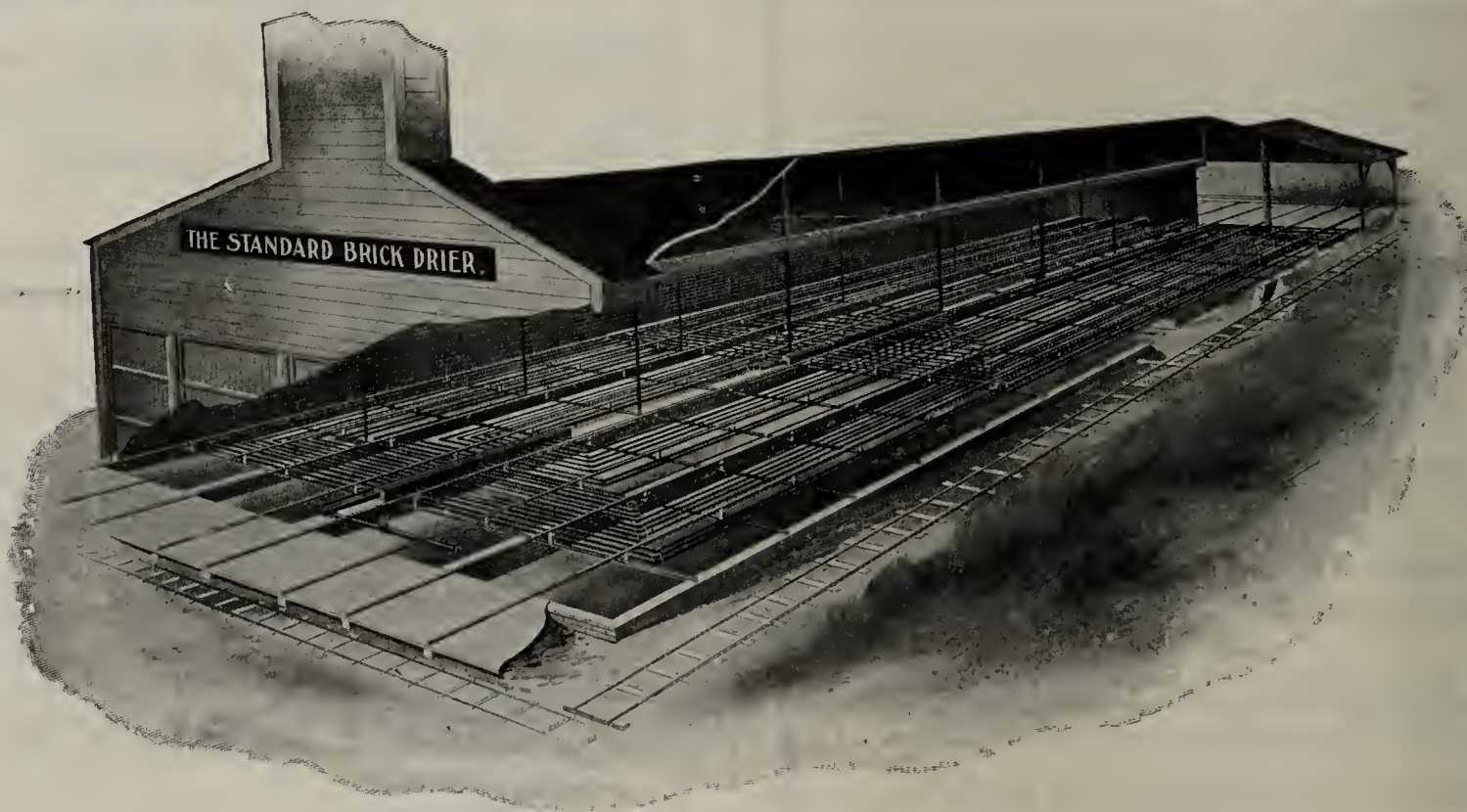
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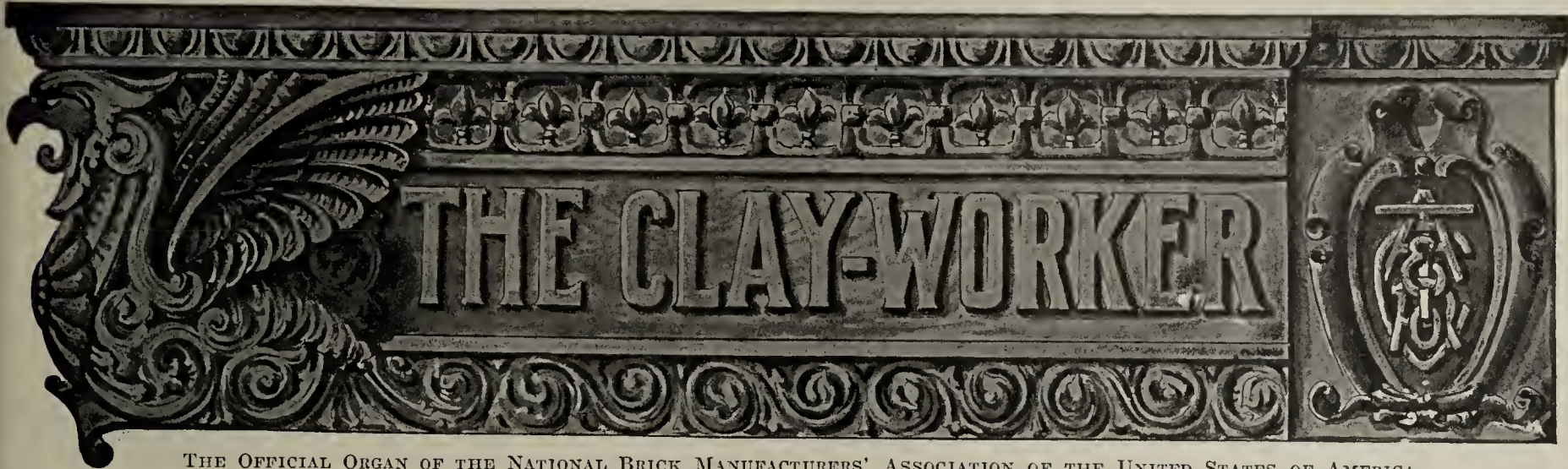


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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. L.

INDIANAPOLIS, IND., SEPTEMBER, 1908.

No. 3.

SUPERIORITY OF VITRIFIED CLAY SEWER PIPE.

Excerpts from "Facts About Sanitary Sewers," a Pamphlet
by A. L. Bowers, C. E. Copyrighted 1908.

THE PRIMARY OBJECT of a system of sewers is to conduct, as rapidly and continuously as possible, all waste matter from the place of its origin to an appointed place for its disposal. None of the sewerage should be retained in any part of the system for any considerable

health—and the second and more popular one—convenience; and each of these two purposes must be kept constantly in the mind of the designer, the first always being given predominance over the second where they in any way conflict.

A sewerage system is designed to carry away waste matter from dwellings, hotels, colleges, mills and manufacturing plants. In the first named, we have the most difficult form of sewage to contend with from a health point of view. In the last named, which contains mostly acids, the problem confronting us is the selection of a material for the building



Pieces of 18-Inch Cement Pipe. Removed from Coney Island Avenue, Brooklyn, N. Y., Which Had Been in Use for Only Nine Years.

length of time either in its polluted form or in the shape of deposits upon the walls of the pipe, for such retention will result in a rapid decay of the organic matter before it reaches the place assigned for disposal, and the pipes thus become in time an "elongated cesspool." The chief aim should be in the design of a sewerage system to guard against this condition with absolute certainty.

Communities demand a system for the removal of sewerage on two grounds: the first and most important one—public

of the sewers that will be practically indestructible in order that they may carry safely this excrete to a point where it may be taken care of properly. That the sewage and all the sewage be removed without delay to the place of disposal is the one important essential to sanitary sewerage. Fresh sewage is not very offensive, but after rapid decomposition has set in, immense quantities of poisonous gases are liberated. The generation of these gases is largely prevented by keeping the sewers clean. It is a scientific fact that leaky

sewers are the greatest menace to health. The liquid portions escaping pollute the soil, and the noxious gases arising from their putrifying contents contaminate the air, particularly so in cases where sewers are laid in a gravelly soil. Wells hundreds of feet from a leaky sewer have been tainted, and the air in the soil being polluted, finds its way underneath cellars and permeates the houses above, carrying with it the dreaded germ of disease.

The one important essential in the design of a sewerage system is the selection of a material that will render the system sanitary, and afford the greatest protection to public health. Sewer pipes should be of imperishable and vitreous material, strong and tough so as to resist fracture, shocks and destructive atmospheric and chemical influences, hard, tenacious in texture and of uniform thickness, straight and of uniform cross section, impervious, and glazed both inside and outside. Ordinary sewage contains a considerable amount of acetic, sulphuric and other mineral acids as well as a great variety of organic acids—sand, gravel, and stones find their way to the sewers, all of which have a damaging effect upon the pipe. Too much care cannot be given to the selection of a suitable material for the construction of a sewerage or drainage system.

Concrete vs. Vitrified Sewer Pipe.

Coming now to the major object of this discussion, which is essentially a comparison between concrete and vitrified sewer pipe, and wherein it is shown that vitrified pipe is superior to concrete pipe, it is not intended to convey the idea that concrete is to be condemned generally. Of all the building materials none are more important than Portland cement, and recognizing fully its great usefulness, the author wishes to be classed as its most loyal friend. Not willing, however, to stand by and allow cement to be used for purposes that will most certainly bring it into disrepute, and judging from his own experience, the experience of others, and the results of the tests hereinafter given, the writer feels it his duty to condemn most severely its use in the building of thin-walled sewers and drains.

To determine the durability of the lining in cement and vitrified pipe under the action of the sand, gravel and dirt with the solid matter contained in sewage, several samples of cement pipe, properly cured, eighteen months old, and an equal number of samples of vitrified pipe, each having a diameter of 12 inches, were sent to the New York University and tested by Collins P. Bliss, director of testing laboratory. (The cement pipe referred to was lined with a coal tar product which was applied hot for the purpose of waterproofing and protecting the pipe from the destructive effect of the sewage).

Forming a charge that could be exactly duplicated, each pipe tested was filled with 17 pounds standard white sand, 14 pounds of large sized buck-shot, and one-third its volume of water. Two cast iron heads were placed with suitable packing, one on each end of the pipe and held in place by four tie rods. The pipe was rotated on suitable journals at the rate of thirty-six revolutions per minute, giving to the mixture a velocity of 1.83 feet per second, which is near that usually allowed for sewerage flow. Two runs were made on cement pipe and two on vitrified pipe of three and eight hours duration each, and the pipe then subjected to a hydraulic pressure with the following results:

Cement pipe, sample No. 1, was tested under abrasion for a three hour run, the lining being worn smooth, but covered the surface apparently as thoroughly as before. Hydraulic pressure was then applied gradually, and at twelve pounds pressure there was no leakage of any kind, but upon increasing this pressure gradually to 30 pounds per square inch, water appeared through the surface generally and in considerable amounts. At 50 pounds pressure per square inch the pipe ruptured longitudinally along its spring line.

Vitrified pipe, sample No. 1, was then tested in the same

manner and under the same conditions as the above sample of cement pipe, and after an abrasion test of three hours the lining was found somewhat worn, but in good condition. The hydraulic pressure was then applied to 80 pounds per square inch, at which the vitrified pipe showed a general porous condition, but no sign of leakage before this pressure was reached. The pressure was then carried to 90 pounds per square inch, which was the capacity of the apparatus, small drops appearing, but no sign of weakness or cracking at any point.

Cement pipe, sample No. 2, was then tested applying a hydraulic test of 30 pounds per square inch before subjecting it to the abrasion test, at which several small drops appeared, but no leakage of any kind. It was afterwards tested under abrasion for eight hours. A smoother effect was noticed on the inner surface than appeared under the three hour run on sample No. 1. To this sample of cement pipe, after having been tested for abrasion for eight hours, was then applied a hydraulic test in five stages as follows:

6 pounds pressure....Showing leakage in small streams.
12 pounds pressure....Streams increasing in size.
21 pounds pressure....Entire surface streaming water.
30 pounds pressure....Water from leaks increased in volume.
41 pounds pressure....Pipe burst, cracking out a large piece at the side, and when lifted fell apart generally.

Vitrified pipe test No. 2 was made on sample No. 1 by running it under abrasion test for five hours longer, making eight hours in all, and applying the hydraulic test in four stages, with the following results:

6 pounds pressure....No sign of leakage.
12 pounds pressure....A slight dripping at one point, which was noted before the pipe was tested as a blister in the pipe.
21 pounds pressure....No leakage except at blister.
30 pounds pressure....Conditions same.
60 pounds pressure....Small drops appearing generally over the surface.
90 pounds pressure....No apparent increase, the leakage referred to remaining about constant.

From these tests we find in the case of the vitrified pipe, although the abrasive action seemed to affect the lining to a certain extent, there was apparently no difference in the leakage at the maximum hydraulic pressure of 90 pounds between the three and eight hour abrasive test.

In the cement pipe it is apparent that the lining is seriously affected by the abrasive action, and the pipe itself becomes porous, permitting leakage through its walls generally.

A series of acid tests were made at the laboratory of the University of New York by Mr. Bliss, which, as a comparison between cement and vitrified pipe, prove very interesting, and are given herewith. Small pieces were cut out from samples of 12 inch cement and vitrified pipe, and immersed in nitric, hydrochloric, and aqua regia solutions, and at the end of one year's time were examined, showing the following results:

Nitric solution 100%.....Cement pipe entirely disintegrated.
Vitrified pipe unaffected.
Nitric solution 75%.....Cement pipe disintegrated.
Vitrified pipe unaffected.
Nitric solution 50%.....Cement pipe generally soft with small solid core.
Vitrified pipe unaffected.
Nitric solution 25%.....Cement pipe surface slightly disintegrated.
Vitrified pipe unaffected.
Hydrochloric solution 100%...Cement pipe absolutely disintegrated into a soft mixture.
Vitrified pipe unaffected.
Hydrochloric solution 75%...Cement pipe small solid core, outside gone.
Vitrified pipe unaffected.

Hydrochloric solution 50%....	Cement pipe apparently more affected than in previous solution.
	Vitrified pipe unaffected.
Hydrochloric solution 25%....	Cement pipe slightly disintegrated.
	Vitrified pipe unaffected.
Aqua regia 100%.....	Cement pipe entirely disintegrated.
	Vitrified pipe unaffected.
Aqua regia 75%.....	Cement pipe entirely disintegrated.
	Vitrified pipe unaffected.
Aqua regia 50%.....	Cement pipe eaten away, leaving small gravel and sand disintegrated.
	Vitrified pipe unaffected.
Aqua regia 25%.....	Cement pipe a little more solid than above with surface solid.
	Vitrified pipe unaffected.

The illustration herewith shows four pieces of 18-inch cement pipe which were removed from Coney Island avenue, Brooklyn, N. Y. These pipes had been in use for about nine years. In the same city, on North Sixth street, near Metropolitan avenue, a 12-inch concrete sewer was totally destroyed by the action of acids passing through it coming from a color works. A piece 6 inches by 8 inches of the concrete pipe, the largest piece left of the sewer, showed that it had been worn away at the invert to within one-fourth of an inch. It also showed an excellent piece of concrete work; had it not been, it would have failed long before.

The borough of Brooklyn has about 800 miles of sewers, 60 per cent. of which is concrete pipe. The borough was first sewerred with imported vitrified pipe, none of which has ever been repaired, and it is now in excellent condition. Cement pipe was introduced at this time, and owing to its apparent cheapness it was tried and great quantities were used.

With great difficulty I was able to obtain from the department of sewers, borough of Brooklyn, the following information, as regards repairs that have been made in sewers in that city for the past seven years.

The repairs gang records show that during the last seven years 95 per cent. of all the pipe repairs made were made in cement pipe. The foreman of the gang attributes these failures to the effect of steam, trade-wastes, acids and poor quality of pipe.

In comparing cement and vitrified pipe for absolute strength of materials, two lengths—one of each kind—having an internal diameter of 12 inches were selected, and two samples were cut from each, squared, bedded in plaster of paris, and crushed. The first sample of cement pipe tested, having an area of 56-10 square inches stood a load of 11,250 pounds, which gives a maximum stress per square inch of 2,009 pounds. The second samples, having the same area, carried a load of 12,000 pounds, which gives a maximum stress of 2,250 pounds per square inch. The two samples cut from the vitrified pipe, each having an area of 45-10 square inch of 4,955 pounds for the one sample, and 5,000 respectively, from which we obtain a maximum stress per square inch of 4955 pounds for the one sample, and 5000 pounds for the other.

Averaging the above results we find:

Cement pipe, maximum stress per. sq. in. 2129 lbs.

Vitrified pipe, maximum stress per. sq. in. 4977 lbs.

Showing the vitrified pipe to be twice as strong as the cement pipe. Each sample tested was about the same thickness, not varying over one-sixteenth of an inch. Noting the wide difference in the two results obtained in the crushing of the cement samples, ten other samples were cut from different sections of a cement pipe, squared, and bedded in plaster of paris as before and crushed with the following results: The loads applied averaged between 10,080 and

12,600 pounds, and the maximum stresses obtained were 1,800, 1,929, 1,865, 2,030, 1,950, 2,142, 1,826, 2,209, 2,213, and 2,250 pounds per square inch. This great variation was caused no doubt to some extent by the unequal thickness of the pipe in different sections as well as the lack of care in the mixing and tamping of the material.

In conducting a comparative test for external crushing strength, each pipe was placed in a box containing sand, covering the lower half of the pipe up to the horizontal diameter, and having a 3-inch cushion of sand on the sides. The load was applied on top on the center foot of length of pipe through a hard wood block 3x3 inches by 1 foot long, and an average taken from four tests on each kind of pipe showed the cement pipe failing at 3,460 pounds per lineal foot and the vitrified pipe at 5,600 pounds. The external pressure brought to bear upon a pipe, as laid in a trench occasioned by the back filling of the earth upon it, depends, of course, upon the depth of the trench and the nature of the earth used in the back filling. To get as near as possible to the exact conditions that exist in a trench refilled, specimens of each kind of pipe having a diameter of 12 inches were buried in a box containing sand, having 8 inches of sand on top and bottom of the pipe, and 4 inches of sand at the sides. A uniformly distributed pressure was applied on top, and out of four tests made of the vitrified pipe, three stood a pressure of 5500 pounds per lineal foot without breaking and one failed at 4900 pounds per lineal foot. Of the four

EXTERNAL CRUSHING TESTS - 1907 -

SIZE	TOTAL NUMBER TESTED	NUMBER TESTED TO REQUIRED PRESSURE WITHOUT BREAKING	NUMBER TESTED TO DESTRUCT- ION	AVERAGE PRESSURE IN LBS. PER LIN. FT. OF PIPE	HIGHEST RESULT IN LBS. PER LIN. FT. OF PIPE	LOWEST RESULT IN LBS. PER LIN. FT. OF PIPE	NO OF FAIL- URES	PER OF FAILURES	NO. PASSED TESTS	PER PASSED
6"	417	291	126	4275.51	7167	2128	12	2.86	405	97.14
9"	7	4	3	3983.00	4845	2852	1	14.29	6	85.71
10"	4	3	1	5593.00	5593	5593	0	0.00	4	100.00
12"	433	299	134	4696.00	7144	2244	4	0.92	429	99.08
15"	125	68	57	5045.80	6755	3218	16	12.80	109	87.20
18"	91	52	39	6311.20	12211	3230	8	8.79	83	91.21
24"	34	24	10	9866.30	14239	7780	0	0.00	34	100.00
TOTAL	1111	741	370				41	3.69	1070	96.31

TEST FOR WATER DEPARTMENT

30	1	0	1	9088						
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specimens of cement tested, two stood a pressure of 1,800 pounds per lineal foot, and two 2,250 pounds per lineal foot without breaking. In calculating the pressure per foot of pipe, it was assumed that only that portion of the load falling within the vertical projection of the pipe was borne by it.

Thorough tests of the external crushing strength of vitrified pipe have been made by the departments of sewers, borough of Brooklyn, under the direction of Mr. Fort as chief engineer. These tests were all made by placing a pipe in a box of sand in such a manner that 8 inches of sand extended over and above the top, under the outer surface of the bottom, and a distance on each side equal to one-third of the internal diameter of the pipe, which, to pass the tests, the various sizes of pipe were required to withstand the following pressures:

6 in., 8 in., 10 in., 12 in. diameters....3000 pounds per sq. in.
15 in., 18 in., 20 in., 24 in. diameters....4500 pounds per sq. in.

The results obtained by these tests are given in detail in the above table.

Conclusions.

The facts previously brought out enable us to draw the following conclusions:

That concrete pipe is porous, and being porous will permit of leakage, contaminating the surrounding soil and becoming a source of danger to the public health; that it will not resist chemical decomposition and is readily disintegrated in coming in contact with the acids in the sewage; that it has a low resistance to crushing as compared with vitrified pipe; that

it will absorb the liquid portions of the sewage, forming deposits upon the walls, which make it difficult to clean and render the sewers unsanitary and greatly decreases its carrying capacity. Further there is great uncertainty in the inspection of the pipe, it being practically impossible to tell the faulty from the perfect until it has been tried in the sewer and then is too late to remedy. The materials from which concrete pipe is made are subjected to all sorts of variations in character. Each of its ingredients should be exact. There must be just enough cement to properly fill the voids in the sand, and in turn there should be just enough of the cement and sand to properly fill the voids in the gravel. Any variations in the one causes like variation in the other. Furthermore the amount of water used mars or makes a perfect concrete, thus reducing the art of its preparation to a fine mathematical problem. In work of importance, such as sewer construction, concrete should be mixed and placed, not only under an experienced superintendent, but actually by experienced workmen. In sewer construction the value of cement or concrete pipe is overestimated. The slightest flaw will destroy the whole system. Like a chain, its greatest strength lies in its weakest link. Any one experienced in handling concrete well knows the vast opportunities there are to "skimp," and the results that inevitably follow such practices would be disastrous to a sewerage system.

In cities where sewage disposal plants are in operation and where cement pipe is used in the "separate system," their one great source of trouble comes from the increased volume of sewage, due to the surface water being admitted through the top and sides of the pipe. This increases the expense of operation and makes it necessary to enlarge the



Tilemaking is Taught in Cleveland High School.

plant. There have been many failures of cement pipe, the cause of which we are unable to determine. In work so important the best should be demanded.

Vitrified pipe is practically indestructible, except by breakage, and is at the same time very strong, showing in the previous tests to have 40 per cent. higher resistance to crushing than cement pipe. Moreover, it will resist atmospheric and chemical influences, and does not have the tendency to corrode and is readily cleaned by flushing. Being economical in material, strong in texture, smooth in surface, resisting chemical decomposition, vitrified pipe meets every requisite of a sanitary sewerage system.

Vitrified clay is among the most durable materials known. Its merits have been recognized for the past two thousand years. Let us observe with D'Agnicourt, that soft clay of all substances, being closest to the hand of man, should have been found most available for an infinite number of objects of first necessity. To this Gruner adds the obvious consideration that the first inhabitants of the earth, by kindling a fire on the clayey soil, must have found that the underlying clay becoming heated acquired hardness and cohesiveness, and it is natural that, pondering over this most simple phenomenon, they should have rounded and hollowed a lump of clay soil, using it first for carrying and holding water and afterwards having tempered it by fire in the cooking of food. First in antiquity we may refer to the use of vitrified clay as a material for drain pipes, and for proof of its durability we have only to refer to the excavations of the cities of Herculaneum and Pompeii, destroyed by an eruption of Vesuvius, A. D. 79. In these ruins vitrified pipes used for draining tombs and vaults have been uncovered and found as sound

as when laid. The use of terra cotta for statues, ornaments and vessels of different kinds dates back to remote ages. Marble temples, palaces and tombs of ancient cities have crumbled to dust, while those built of terra cotta remain intact. Gruner, speaking of the Cathedral of Crema, says, "The fine material, terra cotta, remains to the present day in excellent preservation, and the angles are sharp as if newly built." In the ruins of the Church of San Gattardo, there now remains only the terra cotta apse behind the choir. The Church of Carmine, a vast edifice erected in 1373, through the excellence of its material, which is brick, endures as though it were formed from hewn stone, and so in these, as in many similar cases which might be cited, we have the undisputable proof of the durability of clay products.

Written for THE CLAY-WORKER.

BRICKLAYING AND PLASTIC ARTS WILL BE TAUGHT IN CLEVELAND'S NEW TECHNICAL HIGH SCHOOL.



AT A COST of over half a million dollars the city of Cleveland, Ohio, is providing for its citizens a technical high school which is expected to serve as a model for institutions of this kind the country over. The new school, in course of erection for the past six months, will be ready for occupancy, it is believed, on September 1, when the regular fall course is to start.

A building unsurpassed for the purpose any place on earth is being provided. It is of a dark brown brick, four stories



Examples of Pottery Work Done in Cleveland High School.

high, with long two story workshops in the rear. All the shops will be provided with power for machinery and other purposes. It is to be a technical school in reality as well as in name. Engineering, designing, and construction work of all kinds is to be taught.

Realizing that no builder can excel unless he knows the business he has in hand a class in bricklaying is to be introduced. This is largely for the benefit, also, of the trade in Cleveland. The classes will be held at night, in connection with the night course, and any bricklayer wishing to advance, or any apprentice desiring to learn more of his work will be given instruction.

Special attention is being given in the applied arts course to tile making, pottery, and clay modeling. A fully equipped plant will be provided for this work.

James F. Barker has been chosen as principal of the new technical high school and is at present engaged in rounding up his instructors and preparing his course of study to be followed when the new building is fully equipped and ready for service.

"This school," said Mr. Barker to a representative of the CLAY-WORKER, "will be free to pupils from all parts of the city. Primarily it is not intended as a trade school, although it is true that at least half of the student's time during the four years will be given over to instruction in the industries.

"In the course of study the applied arts are given unusual

prominence. They are open to both boys and girls. The importance of the plastic arts entitle them to the prominent place given them.

"In addition to the usual studio for clay modeling a complete experimental pottery plant is being installed. Two kilns are to be provided, in addition to a small slip house outfit for preparing clays and glazes. Both under and over glaze work will be undertaken. The department may later develop porcelain work.

"The art side of pottery will naturally receive the greatest attention and in that respect the greatest development is looked for as time goes by. Modeling of pottery forms, casting and throwing will be taught. Power machinery will be provided for this work.

"The desirability of teaching the building trades has been strongly advocated by many interested organizations in Cleveland. In response to this demand instruction along that line will be given. We expect the most important of this work to be done in conjunction with the evening trade classes.

"One room, forty by fifty feet, and another thirty by twenty-two, have been set aside for this practical work. Bricklaying will probably be the most important of these.

is to continue the work of the manual training classes now in progress in the schools. Pottery making, wood turning, and other forms of mechanical work are now done in the high school training classes, but form only a very small part of the course.

The new school will mark the beginning of specialization in Cleveland through separate schools devoted to special purposes. Within the new Technical High School will be organized two schools; a boys' class of 650 students, and a girl's class of 350. The courses will provide the mechanical arts for boys, and the domestic and applied arts for girls. The usual college preparatory course will not be offered at this school. It is intended as a finishing school to fit men and women for industrial pursuits and homemaking. Cleveland is a manufacturing center, and more than 90 per cent. of its high school pupils who do not go to college make industrial occupations their life work.

The new Technical High School will be utilized to the fullest extent. It will have no playgrounds, as there will be no time to play. Many of the courses do not even allow time for summer vacations. By passing up the vacations, the student is enabled to graduate in three years instead of



The New Technical High School in Cleveland, East Fifty-Fifth Street, Between Scovill and Portland Avenues.

Practical work in building walls, flues, chimneys, fire places, arches, and ornamental brick work of a variety of types will be undertaken, under the direction of a practical and competent teacher.

"Classes reporting three times a week will be formed, and, allied with the practical bricklaying, will be given instruction in such elementary arithmetic as is essential to the trade. Joined with this will be a course in reading and interpreting architectural drawings.

"Only men working in a given trade are to be admitted to the evening classes. Where trade instruction has been offered in the evening, it has been found to have been most effective only when thus limited.

"In addition to the building trades, patternmaking, cabinetmaking, machine shop practice and mechanical drawing for men, and dressmaking, millinery, and cooking for women, are among the classes planned for the course of study in our new school."

According to Principal Barker, who was formerly the head of a great manual training school at Muskegon, Mich., donated by a wealthy lumberman, the Technical High School

four. There will be night school six nights a week. The aim is to make them better men as well as better workmen. It is an advance step in adjusting instruction to the needs of the community, and Cleveland has taken it. There is even talk of establishing another school of a similar character on the west side of the city. This may be done as soon as the money is available.

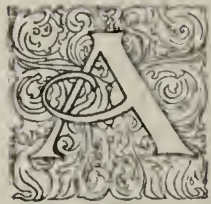
The pottery department of the new school is to be in charge of R. G. Cowan, a practical potter, who spent years at the trade before going to Alfred University to study ceramics. He was for a year assistant in ceramic chemistry at Alfred. Pottery is one of the great industries of Ohio, and it is believed that the course will prove extremely popular.

A New Ceramic School in Selb.—The Bavarian Government has decided that on account of the large amount of porcelain manufacturers in the northern part of the State, it would be advisable to create a new ceramic school in Selb, which will take special care of the porcelain industry. The school will be opened either on October 1, 1908, or January 1, 1909. Mr. Fritz Klee, of Munich, has been appointed director of the new institution.—Tonind. Z., No. 66, 1908.

Written for THE CLAY-WORKER.

THE ILLINOIS CERAMIC SCHOOL.

One of the Most Successful Though Youngest of American Ceramic Schools.

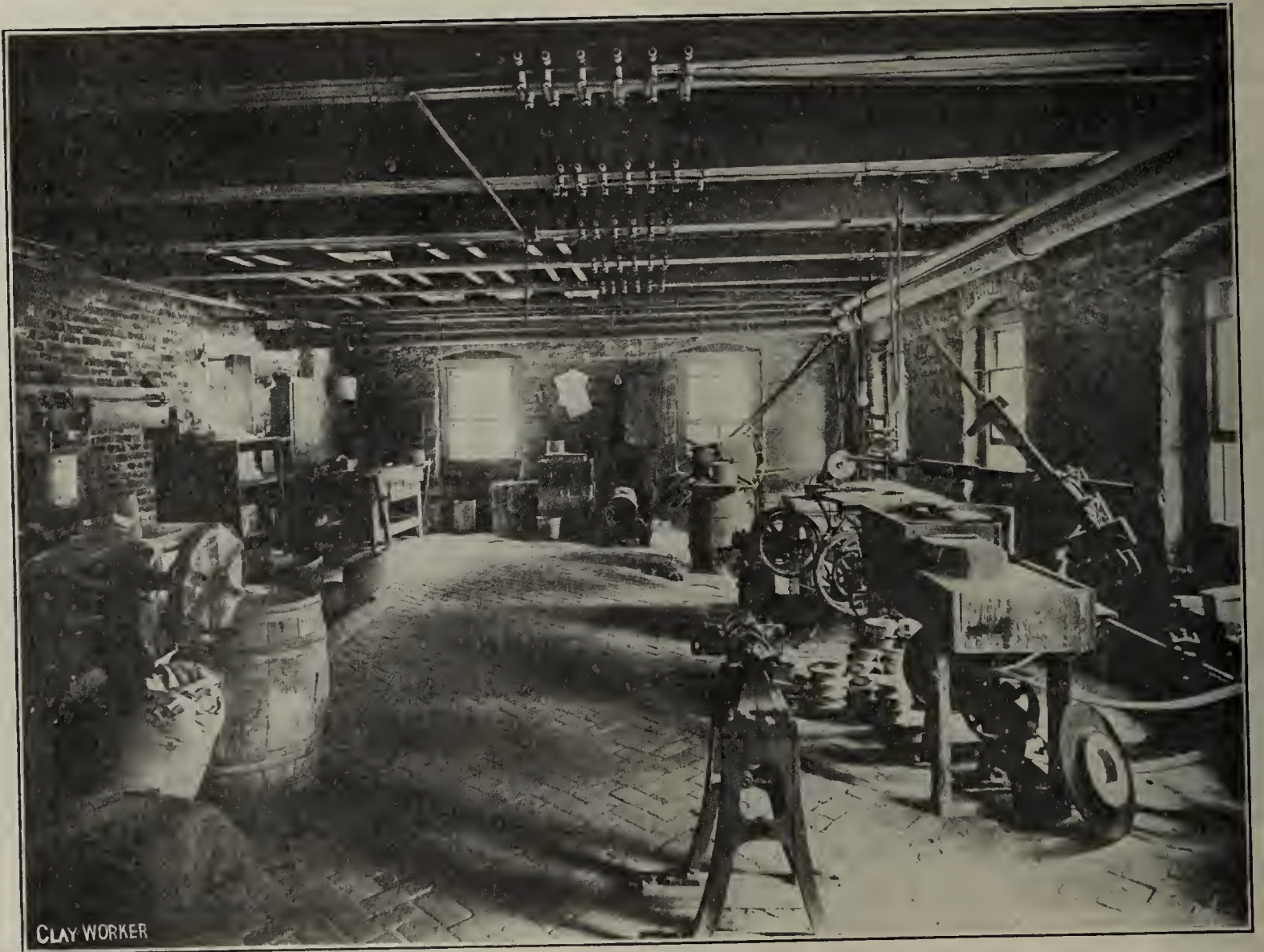


AT THE UNIVERSITY of Illinois there was installed, in the fall of 1905, a department of ceramics under the instruction of Mr. R. C. Purdy, who had been Prof. Orton's assistant for three years at the Ohio School for Clayworkers, and had had four years' practical experience in clayworking plants. In March, 1906, Mr. J. K. Krehbeil was appointed an assistant to Mr. Purdy. He was also a graduate of a ceramic school, taking his course at the New York State School of Ceramics.

The establishment of this ceramic school was due in a

the benefit of the clayworkers of Illinois, the purpose of which was to demonstrate what the university was doing for the younger minds. Most of the lectures were given by members of the University of Illinois faculty, while a few were by such prominent ceramists as W. D. Richardson, A. V. Bleininger, and A. S. Watts. This did much in promoting the ceramic school, as it showed to the men most benefited by the department (the clayworkers) how valuable such a school was to them. This institute was repeated last year with even more pronounced success.

At the end of the second year the school lost the services of Prof. Purdy, who took up a position at Ohio State University, but he was succeeded by a man as equally capable, who worked wonders in the department. Prof. Bleininger, the man who succeeded Prof. Purdy, had been an instructor at the Ohio State University Ceramic School, so the work went on with renewed zeal, and as the State legislature ap-



CLAY WORKER

Grinding and Preparing Laboratory, Illinois Ceramic School.

great measure to the untiring efforts of Prof. Rolfe and the committee appointed by the Illinois Clay Manufacturers' Association, who promoted the idea and succeeded in getting suitable appropriations from the State for necessary equipment, etc. The beginning was certainly a fine one, and the selection of Prof. Purdy proved to be of invaluable importance. Due to his excellent work, the school developed wonderfully, so that at the end of the first year the school was on an equal footing with the other ceramic schools.

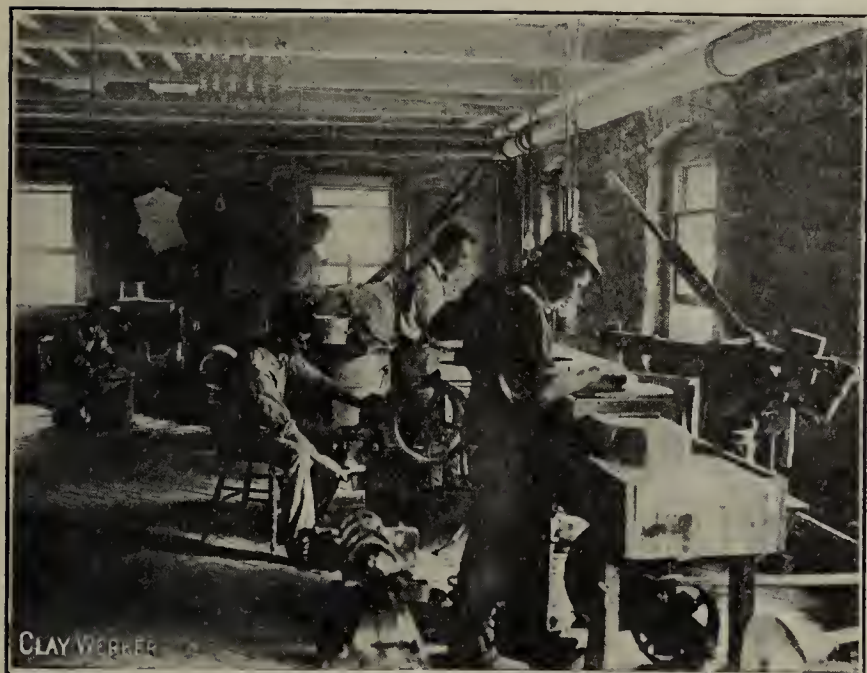
At the beginning of the second year the enrollment included a larger number than any of the other ceramic schools at the start of their second year. It was during the fall of that year that the students formed a ceramic society at the University of Illinois, which did much for them in the study of the deeper subjects in the various clayworking branches.

Beginning January 24, 1907, the department held for eight consecutive days a course of instruction, given entirely for

propriated a large fund, the department was able to add to its strength by increasing its force of instructors and installing more much-needed apparatus.

Prof. Bleininger had an excellent staff in Messrs. R. T. Stull and Herford Hope. The former, besides taking a share in the regular instruction, specialized in the field of terracotta manufacture and chemical stoneware, handling the technical problems of these industries, such as molding, shaping and glazing, while Mr. Hope acted as an assistant instructor, besides helping in the laboratory and specializing in the manufacture of pottery, teaching all the practical steps in the processes of pottery, dealing with all the various branches.

Prof. Bleininger, through his knowledge and previous experience in teaching, proved to be an excellent man for the head of the ceramic school at a most critical time. He is, without doubt, one of the most capable ceramists in the country today, knowing thoroughly not only every phase of



Machine Room.



Molding Room.



Mineralogical Laboratory.



Ceramic Lecture Room.



Natural History Building.



Ceramic Chemical Laboratory.

Snap Shots Taken in and About Illinois Ceramic School.

the many clayworking industries, but being an authority on cements and an unusually fine chemist. He is president of the American Ceramic Society, one of the most scientific and exclusive bodies in the country. Prof. Bleininger carried a large part of the lecture work, and gave the foundational work in a consistent course of studies. He did a great deal of research work, and was a valuable addition to the Illinois Geological Survey.

At the start of the third year the department had an enrollment of twenty-one students, a gratifying increase of six over the previous year, and a remarkable showing, considering the fact that the school was only two years old. The two years' work of Prof. Purdy, in building up the school to what it was when Prof. Bleininger took charge, deserves much praise. Prof. Bleininger spent most of his summer vacation prior to taking up his teaching at Illinois in making preparations for the year's work and laying the foundations for experimental studies, which resulted in the reports written on "The Study of Firing Conditions of Various Kinds of Kilns," and "The Study of Viscosity of Clay Slips."

During his year of teaching at Illinois, Prof. Bleininger made many friends, and it was with some regret that he resigned to take up a more lucrative position at Pittsburg, Pa., as a member of the United States Geological Survey. It is rumored that Mr. R. T. Stull will succeed Prof. Bleininger. Whoever is the successor, he will find the department in excellent condition for the start of the fourth year.

The ceramic school at Illinois has three well-equipped laboratories and an excellent lecture room. The mineralogical laboratory is used for fine clay testing, the chemical laboratory for special work, while the third laboratory is for clay grinding and preparation.

For the testing of the firing qualities of clays the department has two electric furnaces, one a low temperature furnace, which tests clays requiring a temperature below 1,200 degrees, and a high temperature furnace for fire clays. This furnace will test up to 1,900 degrees Centigrade. There are also two gas furnaces for general burning tests. In the grinding and preparation laboratory, where the molding and glazing room is also located, there is a fine equipment, including a five-jar ball mill, a Bonnot ball mill, an iron mill for cement grinding, two jiggers, one whirler, a small brick machine for making tubes, tiles and half-size brick, and a vibrating screen. In the molding and glazing room there are twelve clay bins and numerous receptacles for chemicals for making glazes. They have here working benches with sets of brass sieves (all meshes), a Fairbanks tensile strength machine, seven sets of scales, and a fine set of plaster tools of all kinds. Two small blungers were installed last year.

A little laboratory at the end of this room is fitted up with mechanical analysis apparatus, such as Schoene and the Nobel apparatuses. They have here a steam bath, an 18-inch square dryer, distilled water still, a complete equipment of molds for jiggering pressing and casting, and a gas analysis apparatus. In the laboratory in the chemical building there is a complete set of chemical apparatus for analytical work, including a volumometer, accurate gauges for measuring shrinkings accurately to one-tenth of a millimeter, in addition, a calorimeter, a colorimeter. (for measuring solutions of color), and apparatus for testing viscosity and expansion, including viscosity burettes and specific gravity balances. The department has access to the university assay furnaces.

In the mineralogical laboratory there is the usual apparatus for mineralogical research, such as microscopes, spectrum apparatus, and apparatus for determining the index of refraction. Here they have access to a large collection of minerals.

In the lecture room, which is large and seats comfortably fifty students, they have a lantern (opaque projection) for

illustrated lecture work. The kiln house, which is across the road from the building in which the ceramic laboratories are located, contains three kilns, one down-draft for burning ware in saggers with fine coke, a muffle kiln with a 24-inch square muffle, also fired with coke, and a third kiln of the Caulkins coal oil muffle type for firing pottery and decorative work. In the kiln house is also a dry pan, one screw press, sagger benches, with tools for same, pyrometers, two sets of Le Chatelier, one electrical and one Wanner, and also an optical pyrometer. Bins for coke, coal, etc., are conveniently located back of the kilns. The department has access to the civil engineering laboratory, which consists of crushing machines, a rattler, and an impacking machine.

This year there has been assigned to the ceramic department three rooms in the law building, which have been equipped for class room work in general clayworking. One of these rooms is used for modeling. This, however, is under the supervision of the art department.

The school is doing considerable research work, most of which is devoted to the fundamental principles underlying the production of pottery (porcelain, whiteware, etc.). The



Kiln House of Illinois Ceramic School.

properties of kaolins and clays are being studied in an endeavor to establish a uniform system of comparison. Experiments have been performed in working out new types of glazes for the Illinois stoneware clay, and a large series of experiments is now being worked out for the purpose of finding the best treatment for the Illinois joint clay, which show very gratifying results pointing towards the improvement of the working quality of these clays by the use of an artificial clay dryer, such as the rotary type. They have carried out an experiment relating to the bonding of clays at high temperature. This last work was carried on by F. E. Layman, a graduate of Ohio State University.

Mr. Stull carried on a series of many hundreds of trials of white slips applied to Illinois clays, and also studied closely the best method of application. J. K. Moore, who has written a number of interesting papers for the American Ceramic Society, worked out an experiment relating to head radiation conductivity of fireproof bodies using Illinois clay.

Last year Prof. Bleininger handled all theoretical work and technical problems, besides giving lectures on prepara-

tion, drying and burning, while Mr. Stull had charge of classes in construction and designing of all clayworking apparatus, as well as giving a course in practical glazing and coloring. Prof. Bleininger remodeled the entire course of ceramics and strengthened it by the introduction of more mathematics, mechanics and ceramic engineering. The one gratifying feature last year was the presence of three post graduate students, who took work in ceramics leading to a doctor's degree.

The university supports the ceramic school in every respect, and the faculty is justly proud of this splendid department. Numerous samples of clays are received at the school from all parts of the State for testing, so that special attention is given to the co-operation with the manufacturing concerns in the troubles they are constantly meeting. This school is certainly a most helpful institution to the Illinois clayworkers.

J. E. R.

Written for THE CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND THE NORTHWEST.



BUILDING SEASON in the northwest has reached another stage in its development, and from now on, owing to the fact that winter is approaching, construction work will consist largely in rushing to completion the work already started, and in laying plans for the coming year. Owing to the hard winters which the northwest experiences, there

must necessarily be a cessation of work for several months, and nothing further in new buildings will be started except to erect foundations in order to be ready to start on the superstructures early in the spring. It is now possible to make some sort of an estimate on the season's business, and the well-informed are of the opinion that the end of the year will see a better record than the early months of the year promised. During the last month or two several large buildings have been started, which will aid materially in bearing out this feeling. A good many of the larger structures, which had been tentatively figured on early, were, it was thought, going to be held over until another year, but general conditions have been such that the start on a number of them has already been made. It is evident that there has been quite a return of confidence of late among investors and this section of the country, at least, it is recovering from the semi-panic conditions. This feeling will also, undoubtedly, make itself felt still more for the coming year. The crops this fall are excellent, and, with the present high prices of grain, the northwest is experiencing a state of prosperity which the uncalled feeling of unrest can not successfully cope with. The usual uncertainty of an election year, will, it is thought, cause less trouble than usual. Neither party has taken a radical position, and this, together with the chastening and clarifying influence of the trouble last fall, will prevent any serious trouble.

The present price conditions are also exerting a strong influence in bringing about a revival of building. Prices are at a level where the average level-headed business man is able to see that it is clearly to his advantage to institute any construction work he may have in mind before there is a revival of high prices. The decline has evidently been checked, and, with slight likelihood of prices going lower, the reasons for waiting longer have been done away with. Contractors are helping considerably in bringing these facts to the eyes of prospective builders, and there seems to be quite a general inclination to prepare for the future by starting new work. Much of this will have to be delayed now until next season, but enough will result this year to make the present year's record far from a bad one, although it is too late to even approximate the big figures hung up in 1907.

Minneapolis.

The effect of this feeling finds an illustration in the change of plans contemplated by I. E. Andrus for an office

building on Sixth street, between Hennepin and Nicollet avenues. It had been planned to make this only six stories high, but Thorpe Bros., Mr. Andrus' agents here, have recently considered the matter with Long & Long, architects, for making it a twelve-story building instead. Geo. Archer has the contract.

Work has started on the new brick and concrete hotel to be erected at 45 South Seventh street for Mrs. Edna D. Kruse, on plans by Long & Long, architects. It will be twelve stories high, and will cost \$450,000.

The Farmers and Mechanics Savings Bank has begun work on a \$70,000-addition to its bank building on Fourth street, South. Work has also been commenced by the city on a fire station costing \$23,000 at Third street and Sixth avenue, South.

A number of fine brick residences for Minneapolis are shortly to be erected. Among them will be a \$25,000 pressed brick dwelling for F. H. Carpenter on plans by Wm. M. Kenyon, architect, and another by the same architect for Mrs. Wm. Donaldson, to cost \$30,000. C. B. Chapman, architect, has prepared plans for a brick residence for T. E. Cootey, to cost \$18,000.

Minneapolis building permits for July showed a falling off of 4 per cent. from that of July, 1907, the total this year being \$945,485. J. G. Houghton, the city building inspector, recently issued his annual report, which shows the total work for 1907 amounted to \$11,721,150. A noticeable feature is the fact that the fire-proof construction work was over 20 per cent. of the total.

St. Paul.

Work is progressing on the new Emporium Building on Seventh street. The Northwestern Fire-proofing Company has secured the contract for the hollow tile and porous terra cotta work. Buechner & Orth, architects.

The Minnesota Transfer Railway Company has prepared plans for a brick freight depot to be built at Charles and Hampden streets. It will be 60x800 feet and will cost over \$30,000. The St. Paul Union Passenger Station Company is also making arrangements for the new union depot.

F. E. Weyerhaeuser, the lumberman, is having plans prepared by Wm. C. Whitney, architect, of Minneapolis, for a modern residence to be erected at Grand avenue and Lawton street, at a cost of \$60,000. It will be 60x80 feet, of red pressed brick.

The city hall and court house commission will apply to the next Legislature for permission to erect a million dollar addition to the court house and city hall. Buechner & Orth, architects, have completed plans for a new fire station to be built at Ashland and Snelling Avenue.

The contract for the erection of the Heck Building at Fifth and Main street was let to the St. Paul Building Company, at \$27,000. Hermann Kretz & Co. are the architects. Twin City pressed brick will be used.

Barrett & Zimmerman have contracted with the Memomonie Hydraulic Press Brick Company for brick for their new hotel at Midway. The National Woolgrowers Association is also talking of building a \$100,000 brick warehouse in this section.

St. Paul building permits for July were \$778,524, a decrease of 26 per cent. from July, 1907.

Notes From the Northwest.

Chas. Messerknecht, the Waseca (Minn.) brickmaker, died from dropsy recently. He was nearly 70 years old, and well known throughout the Northwest.

The Fort Pierre (S. Dak.) Brick Company is installing two more permanent kilns, which will about double the capacity of the plant.

The Jackson (Minn.) Tile and Brick Company may put in an artificial clay drying plant.

There is talk of starting a brickyard at Jamestown, N. D. R. L. Hall, of Minneapolis, is interested.

The Northern Pressed Brick Company, of Crookston, Minn., will double the capacity of its plant. A new kiln of 1,000,000 capacity is being erected.

The Minneapolis Sewer Pipe Company is rushing work on its large new plant at Hopkins, or West Minneapolis.

T. WIN.

Written for THE CLAY-WORKER.

SUMMITTVILLE FACTORY OF THE NATIONAL DRAIN TILE COMPANY.



A MILE FROM SUMMITTVILLE, Ind., plainly visible from the Big Four railway track, from which a siding extends into the plant, there stands a fine, up-to-date factory that might well be called the Phoenix Tile Factory, for it has risen from the ashes now four times since it was originally built twenty-five years ago. On the seventh of February last, the factory was almost totally destroyed by fire. While the ruins were still smoking the indomitable manager began clearing away the wreckage and arranging for rebuilding, and now within less than six months' time, there has been erected an immense four story frame factory building in which has been installed an entire equipment of new and up-to-date tile making machinery.

The most imposing feature of the new plant is a large Youngren continuous kiln, which was recently burned for the first time. The ware turned out was of the highest quality and the management is more than pleased with the saving in fuel compared with the old style kilns. It was while superintending the first burning of this kiln that the inventor,

Drain Tile Company and incorporated under that caption. The present officers of the company are S. C. Cowgill, president, S. M. Cowgill, vice-president, James Luther, secretary, and L. R. Whitney, treasurer.

A Trip Through the Plant.

After we leave the main tracks of the Big Four Railroad, and walk for a short distance along the spur that leads to the company's property, we come in full view of the large red painted factory building standing out boldly in the sun. The company's name appears in large white letters on the sides of the structure and Old Glory proudly flutters in the breeze from a flag staff erected on the highest point of the factory.

Prior to our trip through the factory proper, we clambered aboard a Davenport (Iowa) Locomotive Works "dummy" engine, with Manager Carey and the engineer, and glided along over the narrow gauge tracks winding in and out of several fields until we finally reached the clay field, which is a mile and a half northeast of the plant. The raw material is a black, loamy surface clay, running on the average thirty inches in depth. No stripping is necessary as there is not an inch of sub soil. There are seven men employed in the clay field, six of whom are shovelers, while the seventh has for his duty the scalping off of weeds and spading and dampening the clay. The surface is spaded over and wet by means



General View of Summittville Drain Tile Factory.



A Snap Shot of the Clay Field.

Mr. P. L. Youngren, was unexpectedly and fatally stricken with apoplexy August 10. Mr. Youngren was a kindly man and was deservedly popular with all the workmen, who, though they had known him but a few short months, took his untimely death much to heart.

The Summittville plant is one of five large factories owned by the National Drain Tile Company. The four other plants are located at Hillsdale, Montezuma, Terre Haute, Ind., and Streator, Ill. The five plants have a total annual capacity of over 6,000 carloads of high grade tile. The Summittville plant is the oldest of the five, having been built originally twenty-five years ago by Mr. S. C. Cowgill, who came to Summittville from Ohio, where he had been engaged in the tile business for a number of years.

The site for the plant was well chosen, as there is an abundance of good clay in the neighborhood suitable for the manufacture of drain tile, and it is in close proximity to a good drain tile market. The plant was successful from the start and is today one of the foremost manufacturing enterprises in Indiana. The rebuilding and equipping of this plant in less than six months' time is a feat of which the manager, Mr. C. E. Carey, may well be proud.

Seven years ago Mr. S. C. Cowgill formed the National

of hose, and allowed to stand two days before loading into the wooden dump cars, which hold almost three cubic yards of clay each. When six cars are filled they are drawn to the plant and six empties returned, the dummy engine proving very satisfactory and economical for handling the raw material from field to plant in this way. In the fall straw is thrown over the portion of the clay field to be used for the winter run and when the freezing season is at hand the straw is removed only as the clay is needed. The dummy engine makes, on the average, seven trips a day, totaling in the neighborhood of 250 car loads weekly. The cars of clay are pulled to the door of the plant where a cable takes a car up an incline to a platform above the clay feeder where the car is automatically dumped, after which it is returned by means of a spring switch.

The clay is dumped into a Marion Foundry and Supply Company's Rust clay feeder, which consists of four spirals or augurs resting horizontally on an oblong frame. The revolutions of these spirals grinds and feeds the clay to a forty-five-foot conveyor belt, which elevates the material to the third floor, where it is dropped into a No. 4 Pott's disintegrator, and thence directly through two Madden & Co. mills, one of which is on the second floor while the other is on the

first. These mills pug the clay and make tile of any size from four to twenty-four inches.

On the third floor they have a Taplin-Rice press, which is used for the manufacture of the largest tile. There is an automatic Bensing cutting table attached to the mill on the first floor, while an old-time hand power cutting table is employed on the second floor. The green tile are loaded on to roller-bearing wagons and pushed to the dryer floors. There are four floors, each containing 18,000 square feet of floor space. The tile are dried by means of steam, exhaust steam being used by day and live steam by night.

The factory proper is four stories high. There are five elevators; two steam elevators are employed on the third and fourth floors to elevate tiles to upper dryer floors, while three gravity elevators are employed to bring the tile down.

In rebuilding the company abandoned the old kilns and had them torn down replacing them with an excellent Youngren gas fired continuous kiln. This kiln is 243 feet long and 50 feet wide, consisting of twelve chambers, each 16x41 feet. The kiln is fired with producer gas, the kiln and gas producer being the invention of the late P. L. Youngren, who was among the first to adopt the gas fired continuous kiln for tile burning in America.

Between the kiln and the building is a twelve foot concrete platform which affords ample room for wheeling the barrows of tile to and from the chambers. The tile are set eleven feet high in the chambers. One of the illustrations of this

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE BUILDING situation from a clayworker's standpoint is not very rosy right now in this section. We hear the cry everywhere of cheaper building, but this mostly applies to other materials than brick, and consequently there is not much moving in the brick line. The general impression, however, that wood is cheaper than brick for



The Large Youngren Continuous Kiln.

building in this section, where lumber is so plentiful, is not borne out by contracts where alternating bids were asked for frame and brick construction. The Seattle School Board has gone on record that all school buildings hereafter will be erected of brick, as the small difference in cost of erection between frame and brick does not warrant the greater risk in frame as compared to brick buildings. The local brick

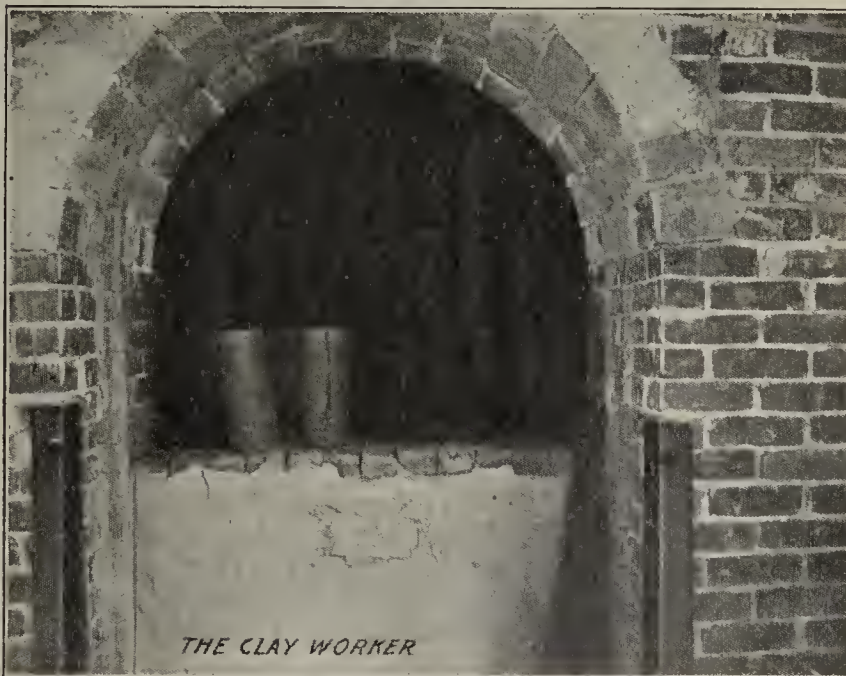


Manager Carey Holding Down a Tile on the Fourth Floor.

article shows a cooling chamber of tile which was the second to be opened on the first burn. All of the tile were excellent and proved the adaptability of the gas producer and continuous kiln in the manufacture of drain tile. Every chamber was opened with like results, much to the pleasure of the manager and company.

On the south side of the kiln the company is at present constructing two solid concrete platforms, leaving sufficient room for depressed tracks. The platforms are to be five and one-half feet high and 300 feet long, with enough space for yarding the tile. The depressed tracks will hold twelve cars. When the new track is placed it will make the total trackage on the yard nearly 2,000 feet. This includes tracks to clay field, switch to producer and switch to loading platform. The power of the plant consists of a 150 h. p. Chandler & Taylor engine, which runs the main machinery, a 35 h. p. Atlas engine, which runs a dynamo for lighting, and a 15 h. p. engine for the operating of the dryer fan, made by the Green Fuel Economizing Company, of Mattewan, N. Y. Four boilers are used, two of 54 foot length and two of 60 foot length.

The company owns 160 acres of land, forty acres of which have been stripped of clay. There is an abundance of clay land in the vicinity so that the company does not lack raw material. The only real trouble they have experienced is in the matter of freight rates.



An Excellent Chamber of Tile.

manufacturers are well pleased with the decision of the School Board.

The total permits issued for Seattle for August amounted to \$1,882,678, with 1,349 permits, which included one permit for a seven-story steel building.

The Granger Brick and Tile Company, of Granger, Wash., was served with injunction papers by the North Coast Railway Company, enjoining the company from completing a

spur which they were building to the Northern Pacific tracks. While the brick company says it needs the spur to handle its output, the building of the spur is believed to be merely a scheme to prevent the North Coast from building its road through the Yakima valley.

Louis Grosjean, an employe of the Denny-Renton Clay and Coal Company, at its Van Asselt plant, lost both arms in one of the machines. He is in a fair way to recover.

The Northern Clay Company was incorporated with a capitalization of \$100,000, and takes over the business of the Northern Clay Products Company, of Auburn. The plant has several large school contracts in Seattle and Spokane. Paul S. MacMichael, of Pittsburg, and S. Geijsbeek, of Seattle, are the main parties in the reorganization.

The Washington Brick and Lime Company, of Spokane, has obtained a large contract for terra cotta in competition with stone for the Missoula Court House, in Montana.

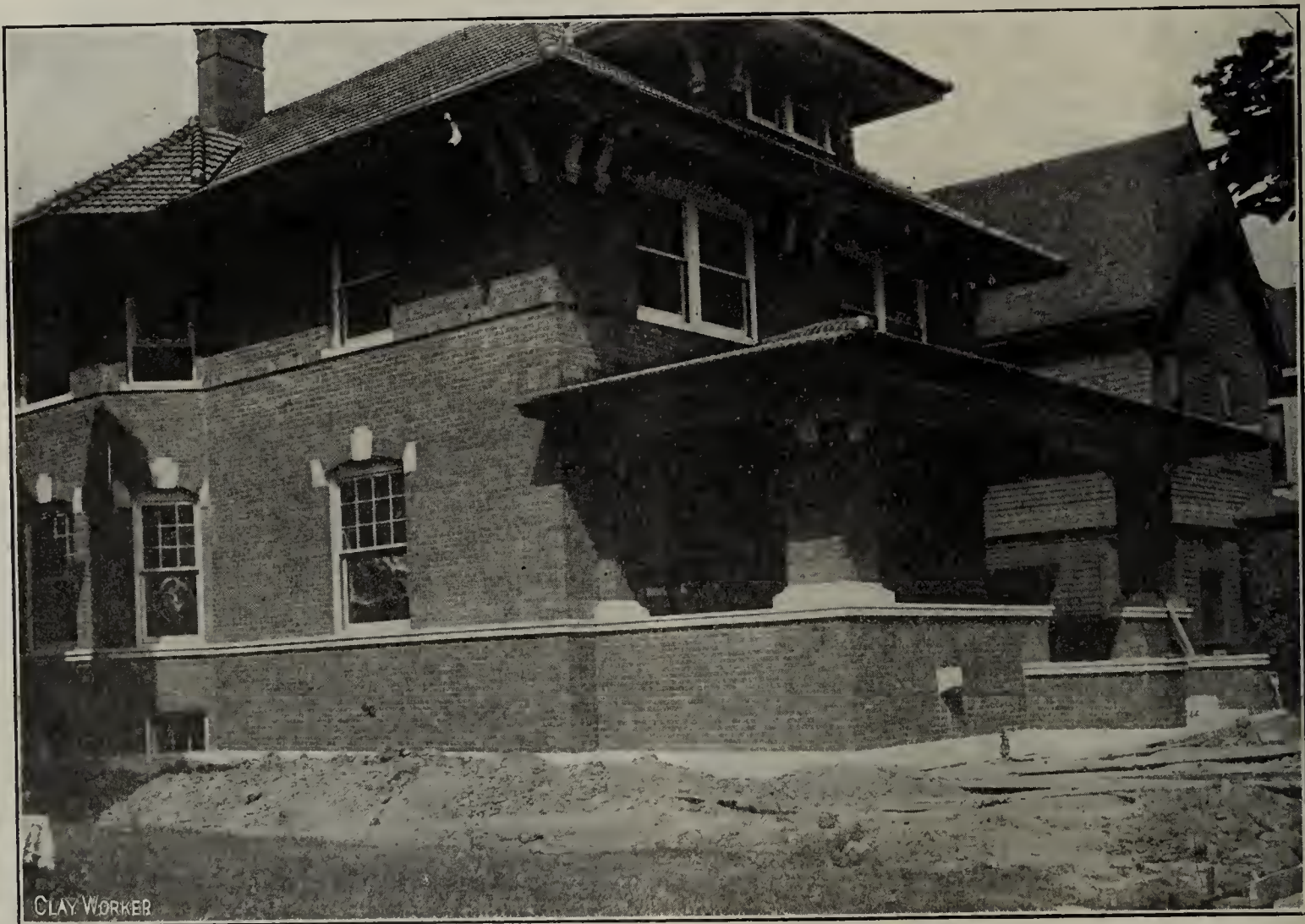
The method of raising money by selling brick has been adopted by a committee of women to build a home for boys

Written for THE CLAY-WORKER.

SCHOOL FOR BRICKLAYING.

THE BRICKLAYING SCHOOL of the Winona Technical Institute has been in operation since the first of last March. The school started with six students, all of whom have taken hold of the work very readily, and their progress has been very good. After two months' practice in the school, during which time numerous practice walls, arches and chimneys were built, the students were able to go outside the school to work on regular building construction. During the past four months they have built foundations for four frame houses. Each one requiring from 25,000 to 30,000 brick. They have also built the chimneys and cisterns for these houses, and have built the walls of a two story brick house which took 120,000 brick in the construction.

The last but not the least of their work was the veneering of a large two story house with pressed brick, requiring 25,000



A FINE BRICK RESIDENCE ON BROADWAY, INDIANAPOLIS, IND., THE BRICK WORK

near Seattle. "Won't you please buy a brick today?" was a question asked by several women who collected money for the building purpose. In handing out a dime as a contribution, you received in exchange a miniature paper-mache brick. The scheme worked fine, and the necessary funds were raised in a very short time.

Seattle will have a new industry, which proposes to manufacture a fireproof and waterproof brick known as enamel concrete. A site has already been procured, and brick will be manufactured in a short time. SIWASH.

The Northern Clay Company, which was recently organized at Auburn, Wash., has taken over the plant and business of the Northern Clay Products Company of the same place. The new management announces that the business of the works will be extended. The plant is equipped to make brick and ornamental terra cotta. The officers of the new company are president, Paul S. MacMachiael; vice-president, Robert Nielson; secretary, Samuel Geijsbeek, and treasurer, H. H. Howard.

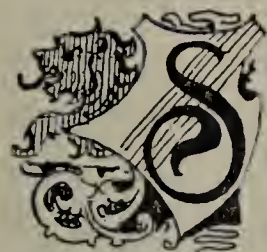
brick, which were of the very best quality, costing \$28.00 per thousand. The accompanying cuts are pictures of this house, and give some idea of the character of the work.

Architectural drawing is taught in connection with this course, which enables the student to make and read plans readily. The laying out of work from plans and estimating costs of materials and labor is another important feature of the course.

The school is now open to receive students, this being the beginning of the school year. The complete course is for a term of nine months, and the tuition for the course is \$60.00. Young men of good habits who are ambitious to learn a trade and are industrious, but lacking in means, will be assisted through the course, funds having been supplied for that purpose by the N. B. M. A. scholarships. This is an opportunity to learn one of the best of the building trades, and young men should take advantage of this now. Applicants for admission to the school should call at or address the Winona Technical School, 1500 E. Michigan street, Indianapolis, Ind.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

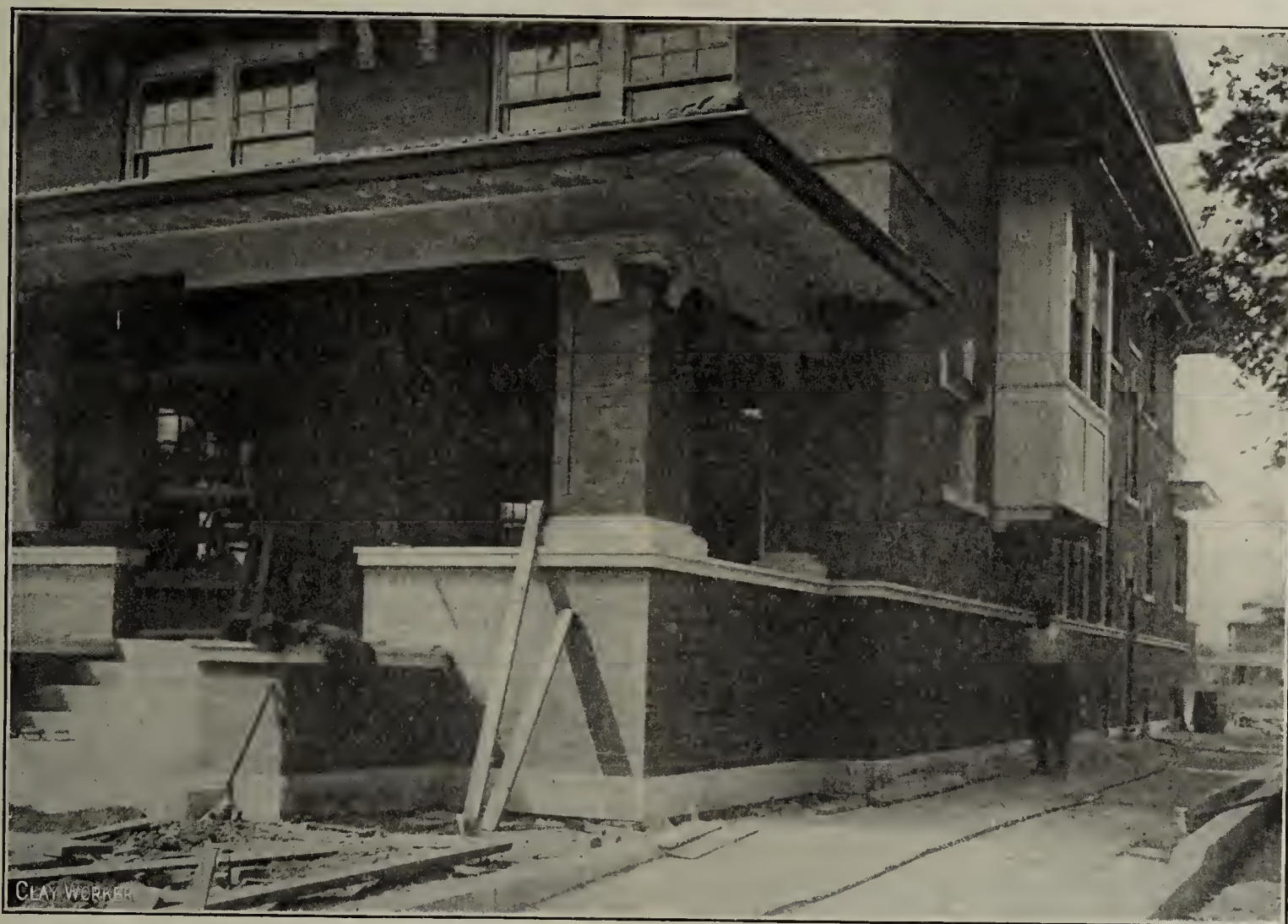


OME OF THE New Jersey terra cotta manufacturers are busy with contracts for the sky scrapers which are projected for New York. Some of this stock will have to be ready for delivery this fall, though it will not all be used before next spring, perhaps not then. In some instances the old buildings have not yet been torn down and it is obviously impossible to say when operations will begin. Nevertheless, contracts for terra cotta have been placed and work on the material has begun. It is a welcome addition to the orders received by the New Jersey manufacturers. In some instances these orders keep the plants going through what might otherwise be an idle period.

Along the Hackensack river operations are not upon a

any rain and all conditions favorable for economical work. Lack of orders alone has prevented operations to the fullest extent.

Governor Fort is advocating a boulevard from New York to Cape May, which will be 120 miles long and forty feet wide, to connect all seaside resorts, and be the one road in the State that is perfect. He is talking it wherever he goes and he suggests that the income from the automobile tax be utilized in its construction. Here is an opportunity for brick men to get in their work as effectively as they can. No material for the construction of this model roadway has been suggested, but there is no reason why an experiment should not be tried with brick. New Jersey roads, which were formerly the best in the Union, have been literally ground to pieces by heavy automobiles and some material more substantial than macadam is required to replace them. Brick seems to be the logical road to build, but so far it has not been mentioned. With the enormous deposits of clay, which underlie some parts of New Jersey, this material could be



OF WHICH WAS DONE BY STUDENTS FROM THE WINONA SCHOOL FOR BRICK LAYING.

very extended scale. All the yards are doing something, but compared with some previous years, operations are light and output is small. Nevertheless, they are all doing something, and the tendency is to increase rather than otherwise as the season advances. Prices do not vary from those prevailing in New York and sales are governed by exactly the same conditions. It is, to all intents and purposes, a part of New York, though located in another State. A good many barge and schooner loads have gone down the Hackensack river to New York and adjacent markets, and several more schooners are loading as this is written for the same destination. One or two manufacturers have contracts which they are filling and these absorb the bulk of their output.

In the Perth Amboy district substantially the same conditions prevail. The manufacture of brick has been light all this season and no yards are running full now. Meanwhile orders are increasing, and the situation is considered more promising than at any previous time this summer. The weather has been ideal for the manufacture of brick, scarcely

used economically and its adoption would strengthen a local industry of importance and profit.

Paterson has reopened the subject of the trunk sewer and wants a rehearing upon this project. It is understood that it is not going to obstruct, but merely suggest methods for improvement, and that construction is likely to begin within a comparatively short time.

A. L. B.

GREAT POTTERY CENTERS.

The two leading pottery States—New Jersey and Ohio—produced in 1907 more than 68 per cent. of the pottery of the entire country. In New Jersey 93.32 per cent. of the total for the State was made in Trenton; in Ohio the great pottery center is East Liverpool, but its proportion of the State's total in 1907 was much less than that of Trenton, being but 42.33 per cent. In 1906 these cities produced, respectively, 93.25 per cent and 43.98 per cent. of the State totals. Together the two cities produced 40.63 per cent. of the value of the pottery for the whole country in 1907, Trenton contributing 21.63 per cent. and East Liverpool 19 per cent.

Letters from a Young Clayworker to His Younger Brother.

Different Methods of Burning—Letter No. 2.

CLAYBURN, IND., February 13, 1908.

Dear Jack:

When you wrote me some time ago that you had finally got a place on the burning, I rather expected that it wouldn't be very long until I got another letter, and in a different vein from the last. During the few months that have elapsed since you got through school, I have seen that you were more or less discontented and impatient. I thought you would be all right when you got a crack at the burning, and I wasn't disappointed. Now that you are at it and interested in it, I hope you'll have a chance to stick to it till you are the best burner on the job, and can show the old-timers some points they haven't discovered yet. Only don't tell them about it now.

I note that you have been brushing up on the theory of burning and trying to connect up your theory with the experience of the burners you are working with, and that you seemed to strike a snag when you came to the question of drafts and dampers. You had your own ideas, based on theory and a little previous practice, and now you find that the burners differ from you; and when you try to find out just what the practical burner's ideas are, you find such a variety of opinions, all based on more or less successful practice, that you are unable to sort out the sound doctrine from the other, and either verify or modify your own conclusions without any degree of assurance that you are right at last. Well, I know just how you feel, for I have found it so myself, and I am free to confess that I'm still looking for information on this same subject. On the other hand, I have had more opportunity for observation than you have had so far, and if I can put my mental notes into such shape that they will be of any service to you, I shall be very greatly gratified.

In order to get at this draft problem in such a way that we can tell where we are when we stop to breathe, we had better divide it up a little. Say we take it in three parts:

1. How much draft is best to use.
2. How to measure the draft.
3. How to control the draft.

Knowing that you are depending on ordinary stack draft in the burning of down-draft kilns, it seems hardly necessary to say anything about how much draft you should give the kiln in the earlier stages. Burners pretty generally agree that you can't get too much draft at the beginning. There may be some exceptional cases where it is possible to account for cracked brick or crazed sewer pipe by an over-strong draft, with its attendant fluctuations of temperature at the beginning of the burn, but if there be such they are so rare as to be negligible in considering burning in general. What it amounts to in all ordinary cases is that you have a kiln full of more or less imperfectly dried clay, and even if it is perfectly dry it is harboring a quantity of water just the same—at least two kinds of it, and when you go to heating up your kiln of brick, or whatever you are burning, that water will come out of its hole, and you have to get it out of the kiln. No need to tell you that though—you are posted on that, and if you weren't, any burner would tell you that you can't get too much draft in the water smoking. They will tell you, also, what will happen if you start to heat up the kiln before the water smoke is off. But that is another matter. Suffice it to say that the ware has to do a certain amount of steaming before you can do anything else with it, and the more draft you have the more quickly you can get through this stage of the burning and proceed with the next. If there are more kilns than one on a stack and the water smoking kiln happens to be on the same stack with a hot kiln, the former will get the benefit of the high draft produced in the stack by the latter, and the hot kiln will not, as a rule, be any the worse off.

It is frequently the case on a yard that has several kilns on one stack that the kilns can be made to come along in such rotation that this feature may be taken advantage of. Or, even if there is no hot kiln on a stack, if the stack is still hot from a kiln that has recently finished, the water smoking kiln will get the benefit. If, on the other hand, the stack is cold and your kiln capacity is limited, so that you are in a hurry to get kilns burned in as short a time as possible, it sometimes pays to build a fire in the flue from

the kiln to the stack and keep it going until the stack gets to pulling in good shape.

There is one thing in this connection that I almost forgot to mention; if you are troubled with scum, and particularly if the scumming occurs mostly in the lower part of the kiln, it will be well to see whether you aren't heating the kiln up too fast, and with insufficient draft in the water smoking stage. It is not necessary for me to tell you the whys and wherefores of this matter—you probably know as much about it as I do—and if you don't, you have some good discussions on scumming available and can brush up on that for yourself.

If everybody does a thing, there must be some good reason for it, and the fact that practically all burners leave the draft on full until the kiln is at least red throughout is pretty good evidence that that is good burning practice. Of course, if you have a clay that contains so much carbonaceous matter that you have to shut off the air supply as soon as the fuel in the ware itself commences to get into action, that is another thing. Generally speaking, you won't go far wrong in using plenty of draft at this stage. If you remember the published results of the exhaustive experiments that have been made along the line of the oxidation of clay wares, you will recall that there are two essentials to rapid oxidation—a sufficiently high temperature and a large proportion of air in the kiln atmosphere. In the nature of the case, you need a reasonably good draft to get these two conditions, and it is usually safe practice not to choke it down any until the oxidation is complete. You can regulate the temperature by the method of firing. It may be that in a case where it is necessary to split hairs on fuel consumption; that is, where fuel is dear and where the oxidation requires a long time at best, the matter of heating up fresh air and pouring it through the kiln to assist in oxidation might be overdone. It might be less expensive in some cases to oxidize with a lower draft and take a little longer time for the operation, but until somebody does some work along that line the presumption will be that hot air for oxidation purposes is a good investment, and I would advise you to use it generously until you have occasion and opportunity to demonstrate that it pays to cut down the proportion. I judge you know how to tell when the oxidation is complete. All you need to do is to have some large trials placed in with the ware, well away from the door near the bottom of the kiln, and where you can get at them during the burning. Pull one out and break it open about the time the kiln becomes red. Presumably, the piece will show a black center. If you are burning brick and use a whole brick for a trial, you can get a pretty good line on the condition of the kiln of brick by an inspection of the trial. But you want to make allowance for brick set wet, possible unevennesses of draft in different parts of the kiln, etc. Until you have brought a few kilns through safely it would be well to oxidize a while longer after you think oxidation is complete. Of course, if you happen to be burning one of these clays that never give any trouble in that respect, you have a somewhat different problem. Once you have your kiln past all danger, so far as oxidation is concerned, your task is to get the burn completed; that is, to heat up all the ware to the finishing temperature without overburning any portion of it, and to do it with a minimum of time, labor and fuel. As you have doubtless observed, there is a wide difference of opinion among burners as to how much draft to give the kiln during this portion of the burn. Some experienced burners, who get good results, never check the draft at all. They believe in what they call a "flying draft." I know a man who gets good burns that way, and, after a good many years of experience, has no use for a damper. If you ask him why he prefers so much draft he will tell you of disastrous experiences in burning with a low damper—of "crippling" the ware and having it "go down." His explanations of this trouble are possibly not correct, but the fact remains that he gets good burns. As to the amount of coal his method requires, the quality of the coal and the time required for oxidation are such that no reliable conclusion could be reached by a comparison of the amounts used in this case with those consumed elsewhere.

In one sewer pipe works that has been in operation for

thirty odd years, and where an intelligent study is made of problems of this sort, the practice that has been adopted is to carry a high draft throughout the burn. The only limit that is placed upon it is that the stack draft shall not be so great but that if the cover be removed from a crown hole, the kiln gases will pour out; in other words, if the draft is sufficient to suck in air at the top of the crown, it is too strong. If you haven't learned it already, you must take my word for it that it takes a strong draft to do that. Now the amount of coal required to burn a ton of clay at this works is pretty high, and it is very probable that they are overdoing the draft proposition, so far as fuel economy is concerned. Yet these people study their costs, and they undoubtedly believe that they gain in the aggregate by this method. They certainly do get good burns, and they attribute it largely to the fact that they keep the gases moving in the kiln. They do not believe in stagnation. At another sewer pipe plant, where the burning has been made the subject of careful and intelligent study, a very different sort of practice is followed. Draft gauge and pyrometer are used, coal is carefully kept account of, and it is fair to suppose that for the conditions existing the method used is as good as could be devised. When I say that draft gauges are used, I should qualify the statement, for they don't use them all the time, but merely for purposes of comparison and to feel the pulse of a sick kiln, if the term may be permitted; that is, of one that is behaving strangely. So far as using them regularly is concerned, it has been observed that the same draft gauge reading for two different kilns will not usually give like results. The kilns are unlike in construction, and this is to be expected, as a further study will show. At any rate, since individual kilns have to have different amounts of draft, the burners prefer to be guided by other observations than the gauge readings. In this works the main considerations are:

1. To get the bottom hot enough to take the glaze without overburning the top.

2. To avoid reduction at high temperature.

Now with some clays the attainment of the first of these two conditions is a matter of no great difficulty; in fact, in many plants a failure to get what is considered an even burn can result only from gross mismanagement. But with the material which must be used in the works under consideration, there is no margin—nothing to go and come on between overburning the top pipe and getting a glaze on the bottom ones. And in this connection I must ask you to pardon a digression. I want to explain that in referring to the overburning of the top pipe, I mean the production of conditions in the kiln which cause the pipe to lean, pressing each other out of shape. The temperature may not be sufficient to affect the soundness of the material, to produce honeycombing or glassiness, and it is the side pressure, due to leaning, that damages the pipe. This leaning, or "going over," in the kiln, is the result of the burning shrinkage, which leaves the stands of pipe separated by considerable distances from each other, so that if one stand starts to tip over it will push over other stands after the manner of a row of dominoes. Now the longer the time that elapses after the pipe begins to vitrify and soften, and the higher the temperature of the burn, the worse the pipe go out of shape. And if, during this stage of the burn, the conditions are reducing; that is, if the kiln gases are smoky, even part of the time, not only is the appearance of the fracture of the pipe changed, but the tendency of the pipe to go over and go out of shape in the kilns, is very greatly increased. This is not true to the same extent with all clays, but I am telling you about it to give you a more comprehensive idea of the problems with which the burner of this particular material has to deal. Obviously, he wishes to get his finishing temperature down to the bottom without allowing the temperature to go much beyond that in the top, and the less time occupied in bringing about this condition, after the top pipe have once reached a vitrifying temperature, the better they will stand up. At the same time he must avoid prolonged reducing conditions.

I am not going to attempt at present any discussion of the solution of such a problem. Suffice it to say that men of intelligence have given their careful attention to getting the best results they can, anyway they can, under the conditions, and that they have finally settled on a certain procedure. After the oxidation is complete they try to fire so as to get as little excess air into the kiln as possible and yet to avoid the other extreme; that is, reducing conditions. They keep the temperature rising at a good rate, dropping the damper as much as is necessary. It is well to state that with these kilns there seems to be a happy medium; that is, a certain draft range within which the

burners can "get the heat" better than with either more draft or less. It is different for different kilns, and as the burner knows his individual kilns and their little whims and peculiarities, he is able to judge by the way "she comes along," and the way the fires burn out, etc., whether the kiln has got too much or too little draft. And just here let me say that you can save yourself a lot of trouble if you will render due respect to the skill, or instinct, or whatever you wish to call it, of the intelligent, experienced burner. He may not be able to give you a scientific explanation of everything he does, and his theories, for all burners have theories, may be absurd, but what he has learned by intimate association, day after day, and night after night, with the same lot of kilns, is of value, and the fine sense which he acquires for judging conditions (he can't tell you just how he does it), maybe almost incredible in its accuracy. I believe in draft gauges, properly installed and kept in condition, but if a burner who burns without one tells me he can tell when he has his damper right, I know what he means. Your grandmother never used a thermometer in her oven, though she might have found one a great convenience, particularly in teaching her art to the younger generation.

Well, after the temperature of the kiln (measured by a thermo-electric pyrometer, with a 50-inch couple extending in through the door at a level about 4 feet above the floor) has reached a point about 100 degrees C. below the finishing temperature, the damper is dropped to a point at which, with careful firing, the temperature will rise at the rate of about 10 degrees C. in three hours. If the kiln has a tendency to "smoke," the draft may be increased somewhat, but the rise in temperature is limited in rate, as it has been found that the sort of firing which brings the temperature up more rapidly makes a less even heat, that is, the pipe go over before the bottom is properly burned. It is also observed that once the top gets very much ahead of the bottom in point of temperature, it is very difficult to even the kiln up. The best success is attained by beginning sometime before the finish to give the bottom time to catch up, simply by keeping the kiln heating up gradually rather than rapidly. Possibly with tighter kilns and with coal that would admit of open firing with a higher draft and still keep up the temperature, other practices than that now followed would be an improvement. I can only give you the facts and let you form your own conclusions.

In the finishing of brick kilns, I have in mind two experienced burners who use widely different methods, and both get good results. Both use a high damper until after the finish of the oxidation. One of them keeps the damper up during the remainder of the burn and governs the temperature by the firing. The other keeps the draft on full, or nearly so, until the kiln is a good bright red to the bottom. With the clay he is burning it is a delicate matter to get the bottom brick hard enough without spoiling the top brick. This burner says the time to get the bottom is early in the burn, and that if you don't get the kiln to coming along evenly at that stage it is next to impossible to even it up at the finish. He believes that he accomplishes this better with a moderately strong draft. On the other hand, a comparatively low draft is used toward the finish, in the belief that it requires a certain amount of time to finish the bottom properly, and that it is useless to carry so high a draft during this time, that a large proportion of excess air must be allowed to enter the kiln to prevent overburning the top portion of the kiln of brick. The draft is kept at such a point that the temperature will progress at a moderate rate, with a method of firing which does not admit a great deal more air than is required for combustion.

Now I have described to you several methods of kiln burning, all of them successful, and yet differing widely in the amount of draft used during the latter portion of the burn. These different burners, with their apparently contradictory ideas, are all holding their jobs down, and I firmly believe that if you behave yourself and use some horse sense you will be able to hold yours for a while, even if you aren't able to decide offhand from what I have written just how many units your draft gauge should show when the kiln has reached a certain temperature. After what I have written has soaked in and you have done some further thinking along this line for yourself, write me again and tell me what you think. I purposely refrain from expressing any opinion on the relative merits of these various systems in order that your mind may not be hampered by any preconceived ideas. Better draw conclusions from your own reasoning than to fit your reasoning to my conclusions.

Your loving brother,
ST ENTIFIC.

Written for THE CLAY-WORKER.

A FIRE-PROOF AND SANITARY SCHOOLHOUSE.

Brick and Terra Cotta Construction for Future Indianapolis School Buildings.

SCHOOLHOUSE No. 44, which was but recently completed in Indianapolis, at the southeast corner of Sugar Grove avenue and Twenty-first street, affords a good example of an absolutely fire-proof structure. It is built of brick and terra cotta, with tile and reinforced concrete floors, and is not only the most fire-proof, but also the most sanitary type of building that can be constructed. It is pleasant to note the evolution of the brick school building exemplified in this structure in which burned clay building materials have come into their own, and stand today head and shoulders over all other building materials in sanitation and fire prevention, as well as beauty and strength.

This school building is a beautiful structure, the outer walls being constructed of red hard-burned brick, with white

eleven. Each flight is broken by a wide platform half way up. Hand rails are provided on both sides of the stairs. These rails return to the newel posts, both at top and bottom of stairs. The school rooms are 24 feet wide and 32 feet long, and will conveniently seat fifty scholars. The light comes from one side and to the left of the pupils. The glass area of the windows in each case exceeds one-sixth of the floor area of the room. The cloak rooms are at the end of the school rooms and open into the rooms only by means of two doors, one at each side. By this means the teacher at all times has complete control of the cloak rooms and nobody can enter without being seen.

All of the school rooms and corridors have twelve feet eight inches clear ceiling height. The rooms are plastered with hard sand finish, and are painted with Bay State cement coater, which finishes dull and makes the wall impervious. The jambs and heads of windows are plastered, the corners being protected by metal strips, which are embedded in the plaster. The only wood trim around the windows are the sills and aprons, all interior finish is of oak-stained dark, commonly called mission. The surface floors are of hard



An Absolutely Fire-Proof School House Built of Brick and Terra Cotta.

terra cotta trimmings. The brick are set in Flemish bond with white mortar. The terra cotta is employed with pleasing artistic effect on the three sides of the building that face the streets. The accompanying illustration shows in detail the architectural beauty of the building, the white terra cotta being in pleasing contrast with the brick work.

The building is two stories in height with a high basement, and provides for nine school rooms, three recitation rooms, an assembly hall with a seating capacity of 500, the principal's office and teachers' room on the first floor, and three manual training rooms and a branch library in the basement besides the boiler rooms.

There are three entrances to the building on the ground floor, one at each end of the corridor, and the main entrance at the center of the building. There is a stairway at each end of the corridor, which is 16 feet in width, being well lighted and ventilated. The main entrance is 20 feet in width and is lighted by transom lights above the entrance, which gives direct light into the hall. The stairways are 8 feet wide, two in number, giving a total width of 16 feet. The risers and treads are easy, being six and one-half and

maple. All rooms and corridors are provided with picture molding and dado rail.

Each school room is provided with a bookcase, built in with glass doors and shelves above, and closets and drawers below. Each school room has also one closet with shelves for storing supplies, etc., and one closet at the end of the cloak room for the teacher.

The assembly room is well lighted and ventilated and has exits at both ends which open direct to the stairways. The same principle of lighting is carried out in this hall as in the school rooms, the light coming from the left, thus the speaker does not face the light. The hall is closed off from the corridors by accordion doors, which, when open, make large exits. The ceiling is 16 feet 2 inches in the clear.

The basement ceiling is 11 feet 8 inches in the clear, the first story being 8 feet above grade, allowing the windows of the basement 5-foot space. Therefore, the basement rooms are all well lighted and ventilated. The four corner rooms in the basement are reserved for school purposes, three of them for manual training and the fourth for a branch library. An outside stairway is provided for the library room which

permits access to this room when the balance of the building is locked up.

All doors in the building open out, the cloak room doors being double acting and open either way as are also the main vestibule doors.

Spacious toilet rooms are provided in the basement, one at either end, both well lighted and ventilated. Drinking fountains are located in the open corridors at either end.

The floors and stairways of the building throughout are built of reinforced concrete. The floors are 15 inches thick, being designed with concrete joists with hollow terra cotta tile between. This makes a flat ceiling, which is plastered direct to the hollow tile, lightening the weight of the floor and making it sound-proof. This is one of the features of the building and well adapted for such a building in which quiet is necessary. A 3-inch cinder concrete filler is laid on top of the floor in which are embedded all conduits and pipes and the railing strips for the finished floor, which is of hard maple. In the corridors the floors are finished with a Grecian tile called "Terrazzo." This is a cheap grade of tile floor, made out of marble chips laid in cement, rubbed down with sandstone.

All the partitions throughout the building are made of hard burned, hollow terra cotta tile. These partitions find a footing direct on the reinforced concrete; therefore they are perfectly solid and can not be undermined. The partitions between the school rooms and the corridors are double, leaving an air space of about 20 inches. The space is divided up into a succession of flues running to the roof. These flues are used to ventilate various rooms and corridors. The partitions are absolutely fireproof. There is no other class of partitions used inside the building.

The building is heated by steam, with what is known as direct-indirect system. In this system radiators are set in the rooms below the windows. Fresh air is taken in through wall boxes located just above the floor level back of the radiators. The radiators are enclosed by a base which directs the fresh air upwards through the coils into the room. Ventilation is accomplished by means of flues in the walls. The inlets to these flues are large registers, located about a foot above the floor. Upward lift of the air in the ventilating ducts is produced by means of a steam coil placed in the duct. This heats the air and causes it to rise. These ducts are sufficient in number to change the air every twenty minutes. They are always on the opposite side of the room from the radiators. Each room has three ventilating ducts, and an additional one for the cloak room. The system has an advantage over the indirect as it is simple and has no working parts to get out of order. The direct gravity system of piping is used, as the boilers are located near the center of the building; the steam main divides and makes two circuits, one in each direction, returning to the boilers again at a sufficient height to blow into the boilers. The condensation flows in the same direction with the steam.

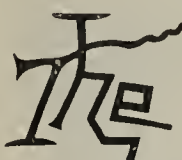
The equipment of the building is modern in every detail and of the best possible quality. Every convenience necessary for the health and comfort of the scholars has been provided. One thing which shows the completeness of the equipment in this regard, is the fact that foot warmers have been built in the first floor corridors. These comprise registers set in the floor near the walls with indirect radiators below. The purpose is to dry and warm the feet of the children during damp and cold weather.

This building is the first absolutely fire-proof building to be erected in Indianapolis, and has made such an impression on the public officials that they are determined that all future schoolhouses shall be constructed in a like manner, with hard burned brick, terra cotta and tile as the principle building materials.

Much credit must be given to the Henry C. Brubaker Company, architects, who drew up the plans and specifications and exercised great care in seeing that every detail of their plans were worked out correctly. Mr. Brubaker has long been recognized in Indianapolis as a most capable architect, and has been successful in all his undertakings. He has to his credit the building of a number of fine structures in the Hoosier capital, the most noteworthy of which is the Board of Trade Building, which is, without doubt, one of the finest office buildings in the State.

Written for THE CLAY-WORKER.

ST. LOUIS BRICK AND BUILDING NEWS.



CLAY MANUFACTURERS, while not doing the amount of business that they would like, are not making any complaint, for business has been just about as good as could be expected under the present conditions.

In spite of the fact that August is considered one of the dullest months in the year by contractors, figures compiled by the building commissioner for the month of August show that there were more brick building permits taken out during August this year than during August of last, but that the aggregate cost of construction was considerably less.

There were 263 permits issued this August, with an aggregate cost of \$1,216,396, against 248 permits and buildings to cost \$1,211,061 in August last year.

The brick additions fell short of last August, the cost being \$179,174, against \$68,474 this August. There were fewer frame buildings built last August than this and the aggregate cost of construction was about \$8,000 less.

The total amount of construction, including all classes of buildings, whether new structures, additions, or alterations, for the month of August this year was \$1,415,684, against \$1,515,855 for August of last year. The falling off on the total amount of construction is accounted for by the few additions to brick structures this season.

The building commissioner predicts a general increase in the building line this fall, to begin shortly.

Building construction in 1908 probably will exceed that of 1907, is the statement made by a large contracting firm. It was a startling prediction, yet after a careful investigation in the Building Commissioner's office, where permission to build must be obtained before construction can begin, the prediction can be substantiated.

During 1907, the amount invested in construction, including every class of new building, additions and alterations to old ones, amounted to less than \$22,000,000. The amount actually expended and the estimated cost of construction as indicated by owner, contractor and architect in the applications for building permits filed with building commissioner up to September 1, this year, is more than \$14,500,000. Added to this are many large structures, for some of which permits have been issued and contracts let since September 1. These include the new public library building, to cost \$1,372,267; the insane asylum, the contract price of which is \$962,841.48, and the summer high school, to cost approximately \$300,00.

One of the largest buildings to be erected this year, the plans and specifications for which have been approved and for which appropriation has been made, is the new postoffice. This will cost more than \$1,250,000. These figures will bring, to be expended in building during 1908, more than \$18,300,000, and this does not include the cost of the new municipal building, for which \$2,000,000 bonds have been issued and sold. Then there is the addition to the City Hospital, to cost nearly \$800,000.

With these buildings included in the estimate, the difference between the expenditure for building this year and last is very small. And still four months in the year remain. On the basis of the building in July, amounting to \$1,415,684, the \$22,000,000 mark easily will be passed.

The "building now" campaign, begun by contractors under the auspices of the Builders' Industries Association, it is expected, will give an impetus to build this fall.

Realizing, they say, that the building industries of St. Louis have been sadly neglected, contractors and manufacturers of building materials have determined to bring outside "home builders" here to purchase material. The movement has been started by the Builders' Industries Association, an organization recently formed by the contracting and building material firms. The plan to be followed is the same as now is in operation by the wholesale merchants, under the auspices of the Interstate Merchants' Association.

The association is perfecting plans to establish a permanent exhibit of building material. There are more than 300

members in the organization and more than thirty exhibitors have made application for space in the exhibition room.

A builders' exchange will be opened in conjunction with the exhibition rooms, and each day the various members will meet, exchange ideas and bid on contracts. The exchange room will be in the center and the various exhibits around it. About 12,000 square feet of floor space will be used for the exhibit.

A. SAINT.

ROAD PROBLEMS FOR AUTOMOBILISTS.*

By R. D. Beman, Deputy State Highway Commissioner of Pennsylvania.

ONE OF THE SOURCES of complaint against automobiles is that popularly known as the "dust nuisance." This suggests to the road builder not only the condition thus described, but what is of vastly greater importance, the rapid loss of valuable road material. I believe all observant automobilists will agree that automobiles damage macadam roads to a greater extent and destroy them more rapidly than any other vehicle which traverses them. The rapid movement is partly responsible, as it produces a partial

increased cost of maintenance caused thereby, I believe that instead of a curse the automobile is a blessing in disguise, for I am firmly convinced that its coming will stimulate the search for a method of obtaining a dustless road—and a dustless road means a durable road. The ultimate result will be a road from which each passing breeze or each summer shower will not remove the fine particles of stone. The consequent enhanced durability will in the future reduce the cost of maintenance, even below that existing prior to the advent of the motor car, as there will be less rapid loss of material from the road surface than before the days of the automobile.

This problem in road maintenance is essentially a problem of the present day, because it has remained for a modern means of highway transportation to aggravate an existing defect in our road building system, until the more rapid loss of material practically compels our attention to a subject which we did not formerly consider of much importance. We viewed this loss under slow-moving horse-drawn vehicles with comparative equanimity, but now it has grown, like a gourd in a single night, until in some localities the total destruction of our roads is threatened. Nor is the problem one that will become less in the future. On the contrary,



BRICK PAVEMENT ON CLINTON STREET, BUFFALO, N. Y.

This Six-Mile Stretch of Brick Pavement Was Inspected by Delegates to the Good Roads Convention, Held in Buffalo, July 7th and 8th, and Pronounced an Excellent Pavement.

vacuum into which the air rushes from every side, lifting, as it does so, the fine dust from the road surface and placing it at the disposal of any breeze which may be blowing. The greater part of the destructive effect, however, I believe is due to the friction caused by the tractive force applied to the rear wheels, combined with the suction of the rubber tires. When compressed under heavy weight the convex surface of the tire becomes to some extent concave, its convexity being reversed and forced inward, and a close approach to a perfect vacuum being formed. Under rapid motion this vacuum is abruptly expanded by the sudden removal of the tire from the road surface, and the suction thus caused lifts the cushioning coat of screenings and dust which is needed to prevent the stone below from exposure to the grinding action of the wheels, and the raveling or loss of bond which ensues when the finer particles are removed.

The excessive damage caused by automobiles is too thoroughly established to admit of doubt. Despite the suddenly

the continual increase in the number of motor vehicles will cause more rapid destruction of stone roads. In the year 1906 Pennsylvania issued 14,082 motor vehicle licenses, in 1907 the number increased to 19,780, and this number has already been equaled in only half of the year 1908. This means a proportional increase in the damage done to our macadam roads. Succeeding years bid fair to still further swell the ranks of motorists, with still greater damage to the highways. * * * In looking about for other possible means of solving the problem the use of brick suggests itself. * * * In localities where good paving brick can be procured at low cost, I believe brick will come into quite general use on rural highways and that we will sooner or later find that the roads which we improve will be divided into two classes, one macadamized, the other bricked. In the former will be all strictly rural highways, not adjacent to the larger towns or cities; in the other will be all roads which we might class as suburban, lying near and leading toward the larger centers of population. In the latter class will also be included sections of the rural macadam roads where the grade reaches or exceeds 8 per cent., as I believe it unwise to lay

*Excerpts from paper read before Good Roads Convention at Buffalo, N. Y., July 7, 1908.

ordinary macadam on any grade greater than that. There are other factors entering into such a question, such as wear and tear on vehicles, horses, etc., but for ordinary purposes it is needless to consider such matters when comparing brick and macadam pavements.

Here is a way in which the members of the automobile fraternity may, if they will, expend some of their abundant energy and means. If the American Automobile Association will first experiment until the best dust-laying means is found and then assist financially in the initial treatment and subsequent maintenance of our macadam roads, or assist in bearing the additional expense of laying brick pavement, it will not only earn the approval and thanks of the road building fraternity, but will do much to create better feeling among our rural friends, who are now tormented by clouds of dust, and financially damaged by reason of the increased cost of maintenance. Some such co-operation has already been seen, but automobilists as a rule have not contributed financially to any project designed to prevent the dust nuisance or promote longer life for the road.

Another direction in which a most laudable effort might be put forth is in reference to railroad freight rates on road materials. In some other States the railroad companies have realized the fact that it is to their interest to aid in the construction of good roads by making as low rates as possible on all forms of road building materials. In Pennsylvania it has seemed that freight rates have been increased to keep pace with the greater activity in the improvement of the highways. Why cannot the American Automobile Association organize a concerted campaign for a reduction of rates on materials used in road construction.

The railways depend largely for their revenues upon hauling farm products. When the country roads are bad, business with the railroads is slack, and when the rural highways are good the railroads are often overcrowded with freight. The wholesale improvement of the country roads would tend to equalize the freight movement which is now crowded into the months when the roads are usually good. Freight rates on trap rock from the nearest available sources in Southeastern Pennsylvania to the northwestern part of the State would make this kind of material cost from seven to eight dollars a cubic yard, laid and rolled. There being no trap nearer, we are forced in that vicinity to use other material of less durability. A general reduction in freight rates would result in the construction of more and better roads at less cost, and this reduction would be more than offset by the revenue from an increased output of road building materials, while the more uniform movement of farm products would at the same time be an advantage to the railroads. I would urge automobile associations to commence a campaign for the reduction of rates.

MARTIN COMPANY PURCHASES CEMENT MACHINERY PLANT.

The Henry Martin Brick Machine Manufacturing Company, of Lancaster, Pa., have taken over the manufacture and sale of the cement brick machinery, including cement mixers, crushers, etc., formerly manufactured by the Reading Brick Machinery Company, Reading, Pa., and hereafter all correspondence pertaining to the Reading cement brick machinery should be addressed to the Martin Company at Lancaster.

The Reading cement brick machine has attained a wide popularity among the users of this class of machinery, and this addition to the Martin famous line of brick machinery and brickyard supplies, etc., forms a combination that is hard to beat.

A striking feature of the Reading machine is that hollow porcelain-faced cement brick can be made on it. Literature and full particulars will be sent interested parties, on request, by the Henry Martin Brick Machinery Manufacturing Company, Lancaster, Pa.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NOTES FROM PITTSBURG AND WESTERN PENNSYLVANIA.



HERE HAS BEEN a general brightening up of the brick and other clayworking industries throughout this end of the State during the past month and the outlook is now better and brighter than it has been at any other time this year. Building has taken such a strong spurt that the record for the year is but about 7 per cent. below the excellent figures of 1907. Manufacturing plants all over this end of the State are now resuming operations, and as these works and factories are in many cases the largest users of brick and other refractory materials, this has added to the general prosperity of the clay manufacturing business. This is particularly true of the iron and steel plants in the Pittsburgh district.

The paving brick business is now on a better footing than it has been at any other time since last summer, owing to the large amount of street and road paving, for which the vitrified paving brick has become very popular. Fine building brick is in very fair demand for the better class of residences, while there is about a 25 per cent. increase in the demand for red building brick as compared with last month.

Sewer pipe business in this section has also continued to increase, and is still expected to grow steadily for the next two or three months, as large amounts of vitrified clay sewer pipe are still being specified for sewerage systems and extensions to be constructed this year.

The local fire-proofing business is jumping ahead at an unusually rapid rate for this time of the year, and several large contracts for business blocks in this city will be awarded the latter part of this month or the early part of next month. The business awarded to local manufacturers during the month has far exceeded any other month of this year, some of the largest contracts of the season having been placed.

Refractory manufacturers are again very hopeful over the increase in business that has been recorded during August and September, and new plants will be started up in the immediate future. There was very little business of any size placed with them during the past five months, owing to the stagnant condition of the iron and steel market, which, however, is now beginning to assume its normal healthy proportions. Coke oven owners are again placing orders for fire brick and bottom blocks for new coke oven construction and repairs, as the demand for coke is increasing at such a rapid rate that it will be but a short time until practically all of the ovens are again in blast and manufacturing coke.

The City Council of Lock Haven, Clinton County, Pa., has awarded the contract for furnishing the vitrified fire brick for paving several of the streets in that city to the Penn Vitrified Brick Company, of Cameron, Pa. The award is an excellent one, as a large number of brick will be required. They will be laid on four inch concrete foundation.

The National Fire-proofing Company, Pittsburgh, has received a contract for furnishing about 3,000 tons of vitrified sewer pipe that will be used in the construction of a new sewer system at Des Moines, Ia.

Another fine contract for clay products that has been placed in Pittsburgh during the past month has been given to the American Sewer Pipe Company, and calls for an aggregate of about 300 cars of clay conduits to be shipped to Portland, Ore. Work on this order will be filled at once, as the greater part of it will be laid this fall and winter. This is said to be the largest order for clay products for trans-continental shipment that ever has been placed with a Pittsburgh concern. Manufacturers from all over the country were after the contract.

The Dunbar Fire Brick Company, Dunbar, Pa., has made

a large number of important improvements at the modern and up-to-date plant in that city during the past month. Additional grinding and cutting machinery was added, as well as other mechanical equipment, and a new set of boilers and an additional 300 horse power engine were added to the large power plant. A new 80-foot stack was also built at the power plant. The capacity is greatly increased, as there is a large volume of business on the books of the concern, insuring the steady operation of the plant for many months to come. The concern has a number of fine contracts for street pavers to be used in various improvements throughout Westmoreland and Fayette Counties, and will furnish the brick for several large buildings under way.

After having been idle for practically a year, the Monument Works of the Harbison-Walker Refractories Company will shortly be placed in operation, instructions to get the plant in the best of shape having been received from the officials of the company at Pittsburg. The clay mines, which have also been idle, will be started up, thus giving employment to a large force of men. The plant is located in Clearfield County.

Samuel E. Moore, founder, and for many years president of the New Kensington Brick Company, of New Kensington,

Written for THE CLAY-WORKER.

A NEW ELECTRIC PYROMETER.

A NEW ELECTRIC PYROMETER has been placed on the market by Edward Brown & Son, 311 Walnut street, Philadelphia, Pa., which embodies the accuracy of the Le Chatelier Pyrometer, but which can be subjected to the roughest kind of usage, and which can be supplied at a moderate price.

This new electric pyrometer is suitable for use at clay working plants, for drying and water-smoking, and for use up to the finish of the burn, being wired up permanently to each kiln or carried from kiln to kiln. Dryers can be connected up with this pyrometer at a very moderate cost, and the temperature of a number of tunnels indicated on one instrument.

The Brown electric pyrometer consists, in the stationary form, of a large size switchboard type milli-voltmeter, Fig. 1, for indicating the temperature, a thermo-couple, which is inserted in the heat, Fig. 3, and the leads or wiring for connecting the thermo-couple to the indicator, which can be practically any desired length. The extra large milli-voltmeter used with this instrument is particularly desirable as the scale, graduated in temperature degrees, is exceptionally



Fig. 1.

Pa., died at his home on Bartlett street, Pittsburg, last month, aged 59 years. He was one of the best known men actively engaged in the brick manufacturing business in Western Pennsylvania until 1892, when he retired from the company to become auditor of the Pressed Steel Car Company, of this city. Mr. Moore is survived by his widow, three sisters, and three brothers.

The Osborne Machine Company, DuBois, Pa., has been awarded a contract for making a brick cutting machine of special design for the DuBois & Butler Brick Co., also of that city. The machine is the invention of W. R. Hasselback, manager of the brick plant, and will be used in cutting bricks at an angle for arches over doors, windows, etc. A model was first made, which was found to work most successfully in cutting brick at right angles, thus doing away with wooden moulds and mitre boxes, and it was decided to equip the plant with one at once. The company's plant at Falls Creek, Pa., will be the first equipped with the new machine.

The plant of the Bickford Fire Brick Company, at Curwensville, Pa., has resumed operations in full, and is running day and night with enough advance business on the books to keep working double turn for many months to come.

A. SMOKER.



Fig. 2.

long, with large figures; easily read at a distance. Where a portable pyrometer is desired, which can be carried about handily, a portable indicator is supplied, such as illustrated in Fig. 2.

The thermo-couple is the part of the pyrometer which is inserted in the heat, and consists of two wires, of different metals, welded together at one end, suitably insulated from each other and protected. When the junction of the two alloy wires is heated a slight current of electricity is generated, which is indicated on either the stationary or portable form of indicator described above. In the measurements of most temperatures, which are not above 2,000 degrees Fahrenheit, the thermo-couple is constructed on heavy nickel alloy and tungsten wires, having a fusing point of 2,750 degrees Fahrenheit. This form of thermo-couple is, however, not recommended for temperatures as high as this latter figure, as the platinum-rhodium thermo-couple is much more durable and constant in its indication at such high heats. The wires of the thermo-couple are insulated by small fire clay tubes and mica washers, serving to hold the wires in the center of the protecting tube. The great advantage of this insulation is that it will stand 3,000 degrees Fahrenheit, or 1,600 degrees Centigrade without damage, and is quite inexpensive. For protecting the thermo-couples steel tubes are used in most

cases for temperatures up to 1,600 degrees Fahrenheit, while for temperatures above this, tubes of porcelain, quartz glass, fire brick and graphite are preferable, and each form of tube has its advantages for certain uses. Where instantaneous temperature measurements are required, as in the case in the portable type of pyrometer, an unprotected thermo-couple is supplied, heavy in construction, and especially designed for quick readings.

A very advantageous feature of the electric pyrometer is in the ability to connect a number of thermo-couples to one indicator by means of a switchboard, and by turning the handle of a switch to any of several numbered points the temperature of any of the ovens or kilns, correspondingly numbered, can be read off on the indicator. A switchboard is supplied with the Brown electric pyrometer, working on the knife switch principal, which is absolutely positive in its action, and with which poor contacts can not occur, so that the readings cannot vary on account of poor connections.

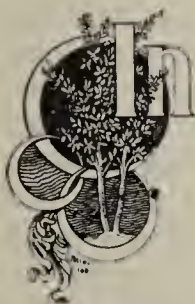
In using this pyrometer, a thermo-couple is inserted in each kiln or tunnel, the temperature of which is to be measured, and wiring supplied with the instrument is run to the switchboard and indicator placed on a wall in a hut or

Fig. 4—Thermo-couple exposed, showing insulation and ready method of fitting new protecting tube.

Fig. 5—A photograph of a Brown electric pyrometer installation on several annealing ovens, showing ovens in the distance.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



SPITE OF THE exceedingly unfavorable auspices under which the present year started, it may turn out to be the banner building season of Chicago's history before snow flies. Possibly exceptions will have to be made in favor of the great year of building at the time of the World's Fair, and snow may have to be tardy in flying to make this

statement literally correct, but the fact remains that whereas the year 1907 was regarded as one of the best years in the building calendar, the last two months of this year have gone beyond the same records for 1907 in the same months.

In July of this year the estimated cost of building pro-

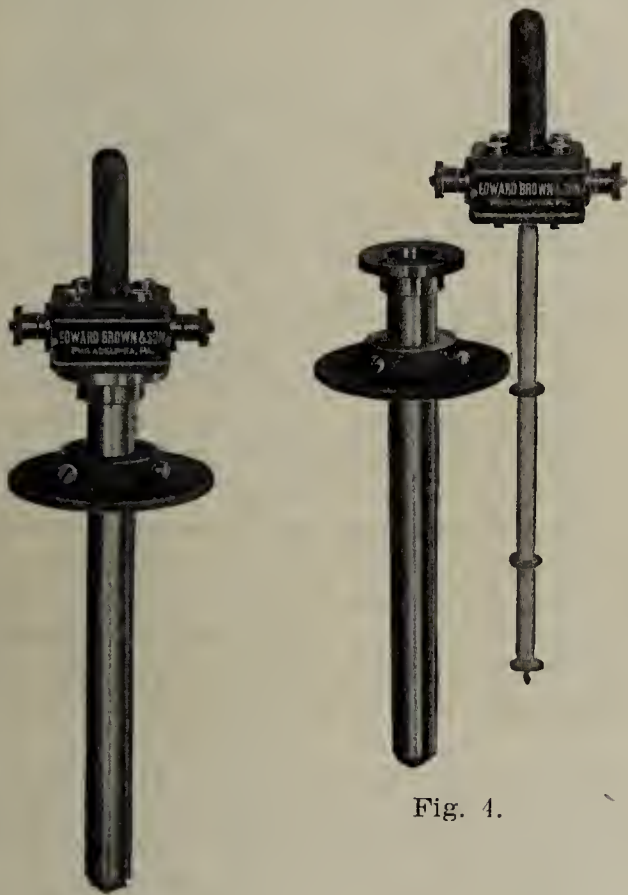


Fig. 3.

Fig. 4.



Fig. 5.

building convenient to the kilns or dryer. The installation is very simple, as can be seen from Fig. 5, showing an installation on annealing ovens. When the instrument is once installed, it is only necessary to turn the handle on the switchboard to read the temperatures on the indicator, and any number of kilns or tunnels can be connected to the same switchboard and indicator, twenty having been connected up.

The portable pyrometer, Fig. 3, is very handy to have about a plant for use at any time. It is desirable to know accurately the heat of a kiln, and the instrument can be used as frequently as desired in one or several kilns.

Where these pyrometers are used the burning of brick and other clay products is done in a practical manner and the guess work as to the temperature of a kiln has passed. The constantly increasing demand for pyrometers among clay workers is an evidence that these instruments are proving advantageous, and that up-to-date methods are bringing results.

Explanation of Cuts.

Fig. 1—Stationary type of pyrometer indicator.

Fig. 2—Portable pyrometer ready for use.

Fig. 3—Complete thermo-couple in steel protecting tube with an adjustable flange.

jected, plans for which were filed with the Building Department, ran roughly \$69,000 higher than for July of last year, and August of this year more than did itself proud, for the estimated cost on building permits in the "dog day" month of 1908 ran over \$1,500,000 ahead of the cost of buildings, permits for which were taken out during August, 1907.

There has been, and there continues to be, all kinds of activity in every line of the clay products industry. Buildings of all descriptions and sizes are being added to the city, and the prospect is excellent for a phenomenally busy fall.

For the first time in more than a decade there is to be a general repaving of the downtown section of the city, and there is considerable speculation as to whether the city authorities will at last come to their senses sufficiently to put in at least a goodly portion of the new pavement in vitrified brick paving blocks. Thus far there has been comparatively little done in the way of brick paving by the local authorities, and the few streets that are thus paved are out in the suburban districts. The Purington Paving Brick Company has laid several good-sized jobs in South Chicago, and also in West Englewood, but the only bit of brick paving in the "Loop" section is that portion of LaSalle street lying between Madison and Randolph streets, and that never cost

the city a cent, being laid gratis by the Purington Company as a practical illustration to the city of the value and wearing qualities of good brick paving blocks. By the same token it is the best bit of pavement in the downtown portion of the city today, which has stood an equal amount of wear and tear. This part of LaSalle street gets far more than the average amount of trucking and teaming. With one exception, all of the other downtown streets dedicated to this kind of service are paved with granite blocks, which have been down for years. The granite block is one of the earliest of pavements, and in these days of civilization has been entirely outgrown. The most that can be said for it is that it lasts a very long time, but the characteristics which it develops after comparatively short wear makes this one of the worst things that can be said of it, also. If it wore out more quickly it would be replaced by better pavement. The granite blocks quickly wear to rounded surfaces, with wide spaces between block and block, and the general surface of the street quickly becomes uneven. Cleanliness is next to impossible, owing to crevices between the blocks into which the dirt finds its way.

Nothing else could be expected of a block which is held in place chiefly through its own weight, with no other matrix than an indifferent grouting. It is only a question of a short time when it becomes a source of discomfort to horses and pedestrians, and of wear and tear upon vehicles. It is treacherous for man or beast in wet weather, and filthy and unsanitary at all times.

The one exception to this brand of paving in downtown Chicago—in addition to the specimen already referred to in LaSalle street—is found in Monroe street, between Clark and Dearborn streets, where a block has been paved with the bitulithic blocks—the newest pavement of the asphalt family. Apparently, its only advantage over asphalt paving is that it is more easily repaired, and is, perhaps, not quite so soft as the asphalt which has been commonly used in Chicago streets. Like asphalt, however, it becomes grooved by wheel-wear and automobiles, which, passing this particular block in large numbers, are leaving their marks upon it. It has been down little more than a year, and yet it shows more evidence of rough usage than do the two blocks in LaSalle street, which have been down seven years and longer, and which are daily subjected to heavier traffic. Brick pavement, after a few years of trial, is its own best advocate. The Board of Local Improvements and the City Council have it in their power to give the citizens of Chicago a great boon, but they have been lax in the past, and may be again. It is perhaps unfortunate that the paving brick industry—like almost every other clay product industry in the country just now—is enjoying such prosperity, and has so many demands already that it can no more than keep up with orders. There will, therefore, probably be no superhuman efforts made on the part of the paving brick people to force a good thing upon the city.

In a new subdivision in Woodlawn, consisting of only one square block, bounded by Woodlawn and Lexington avenues, Sixty-sixth and Sixty-seventh streets, twenty houses and two-story apartment dwellings are either just finished, or still in process of construction. In the Washington Park subdivision—formerly the famous race track—opened this year for buildings, approximately four score apartment buildings are in process of construction, many of them being two-story flats, with here and there a three-flat or six-flat building. A few blocks east, in two blocks known as Lloyd's subdivision, more than 100 apartment buildings, mostly of the six-flat type, are in process of erection or planned. At Forty-ninth street and Vincennes avenue, a three-story apartment building costing in the neighborhood of \$125,000 is being put up. The West Side also is having its boom. On the east side of Clifton Park avenue, south of Fifteenth street, eight two-story apartment buildings are being erected, together with several private dwellings, the cost of the latter running from \$6,000 to \$9,000.

In addition, there are many first class big jobs coming along, and only the unexpected could turn the present pros-

perous tide. It is at least as good a "presidential summer" as has been known here. The wrecking of the old City Hall is already taking place, and within a few months the new City Hall, the twin of the magnificent county building will be rising on permanent caisson foundations. This will be largely a job of stone, but there will be much fine ornamental terra cotta work both within and without, and large quantities of white enameled brick will be needed for the court walls and other interior surfaces.

Work is being rushed on the new LaSalle Hotel, at the corner of Madison and LaSalle streets, and the first order of brick will be needed about the third week of this month.

Contracts for the brick to be used in the new county buildings, including the new tuberculosis hospital, have been awarded to the S. S. Kimbell Company, which will furnish the Purington red continental brick for use in the hospital structure, the boiler-room stack, and the fences connecting the old buildings with the new, and separating the tuberculosis wards of the county from the healthier paupers. This use of vitrified brick in a wall for this purpose affords a new instance of the general value of brick as an all-around building material. It can be readily cleansed, and is, therefore, perfectly sanitary. About 500,000 brick will go with this order.

A table factory of brick and mill construction, which will cost about \$200,000, is to be put up for Lewis F. Nonnast, at Halsted and Hooker streets, and the contracts are expected to be let shortly. Northwestern University is to have a new gymnasium, the gift of James A. Patten, the Board of Trade operator. It will cost about \$150,000, and will be of brick construction.

The Bowen High School, a half-million-dollar building, is to be erected in South Chicago at Eighty-ninth street and Manistee avenue. Dwight Heald Perkins is the architect, and the Devonshire (Ohio) face-cut brick in two shades, gun metal and red, have been ordered from the S. S. Kimbell Company. The order calls for 400,000 brick. The same company will furnish 130,000 Purington No. 2 paving block for the new factory of the Johnson Chair Company, at North Forty-fourth and West North avenues. C. A. Eckstorm is the architect. Egan & Prindeville are architects for a Roman Catholic home for boys at West Jackson boulevard and Center street, which will use 40,000 Purington red continentals.

One of the biggest propositions on foot is the construction of a new stockyards just beyond the city limits at West Thirty-ninth street and Forty-eighth avenue. It is being promoted by the Chicago Stockyards and Transit Company, and backed by a number of farmers who were discontented with the charges made by the Union Stockyards and Transit Company. At the start it is planned to spend \$2,500,000 in the venture. The first large packing house will be ready by the first of the month. In addition, a modern fireproof hotel, a horse market, and an office building are planned. Brick are to be used largely in the first buildings, and may be used in paving the pens, as in the old stockyards, later.

Reports are current in local clay brick circles that the sand-lime brick people were not wholly satisfied with the report upon their material submitted as a result of the tests made by the Underwriters' Laboratories here to the joint committee representing the sand-lime association and the National Fire Protection Association. It is reported that further tests have been asked, in order to bring out points for which the sand-lime manufacturers believe they ought to have consideration from the underwriters in making rates. At that, it is reported that as a result of these tests, sand-lime brick has been given a standing which it did not have before, and this fact is said to have been exceedingly gratifying to the makers. They had complained of discrimination in favor of certain clay brick which they asserted were inferior to their best makes. Some of the tests, it is said, upheld their contentions as regarded certain clay brick of inferior make. It is expected that further tests will follow. SCRIP.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Reinforced Brick Work.

Editor THE CLAY-WORKER:

I have read a great many articles for and against reinforced concrete for building construction, but I have never yet read any article on reinforced brick work. And, as I think of the idea, it appears good for walls which are subjected to vibration and to changes in temperature in parts. The reinforcement could be in the form of wire netting, as wide as the wall is thick, or possibly a little narrower, and as long as the wall.

This, laid in good cement mortar, would increase the tensile strength wonderfully. Every course for strong work could be reinforced, and for work requiring less strength, every second, third, or fourth course, depending on the strength required.

A very substantial increase in the tensile strength could be secured in this way for a few cents per cubic foot of wall. Let some of our architect friends work it out

S. P. BAIRD.

Member American Civil Engineers' Society.

Sand-Lime Brick in Texas.

Editor THE CLAY-WORKER:

I have not seen much in the columns of the CLAY-WORKER of late about sand-lime brick; perhaps there is not much doing. Here in Texas, business is fairly good. We have been turning out 17,000 to 20,000 sand-lime brick right along every day, and I think they are superior in quality to any brick of this process that I have seen anywhere. I attribute our success largely to the Grath brick press, which you advertise. We put in a five-mold press a year ago and like it very much. It takes a very strong press to make good sand-lime brick like ours. Wish you would call on us some time; would be glad to show you or any of the readers of the CLAY-WORKER what we are doing and how we do it.

Yours truly,

El Paso, Texas. ALBERT CARTER, Supt. Atlas Brick Co.

Economy of Production Suggested as a Means of Competing With Concrete.

Editor THE CLAY-WORKER:

The campaign which you have started against the use of concrete construction for buildings for which concrete construction is not adapted deserves success. Perhaps the most effective way to head off concrete is to produce brick at a minimum cost. As you will see by the accompanying letter, the Cherokee Brick Company has reduced its cost of production materially by the use of an A. B. C. dryer. Many of your readers might profit by a similar course, savvy!

Yours very truly,

(Copy)

AMERICAN BLOWER COMPANY.

CHEROKEE BRICK COMPANY

American Blower Company:

Gentlemen—Replying to your inquiry as to our A. B. C. dryer, installed about a year ago, we beg to say that this dryer has been a source of pleasure and satisfaction to us ever since the first day we turned the steam on. It dries brick, and dries them for less money than any other dryer the writer has ever seen in use, and that after an experience of twenty years in the brick business.

In the installation of another dryer, it would not take five minutes to make up my mind what dryer to use, as the American Blower Company's A. B. C. dryer is the best in my opinion. I have never applied the waste heat to the dryer except the use of the exhaust steam from the engine (we use no live steam in the day time); but as soon as the opportunity presents itself, we expect to use all of the waste heat from the kilns, and I know that this will be a great saving in the cost of the drying.

Any information that we can give to any of your prospective customers at any time will be carefully and cheerfully furnished.

Yours very truly,

CHEROKEE BRICK COMPANY,

(Signed) W. E. Dunwoody, Vice-President.

Macon, Ga., June 13, 1908.

The Riot at Springfield, Ill.

Editor THE CLAY-WORKER:

Thinking that perhaps the readers of the CLAY-WORKER might like to learn something about the awful riot at Springfield, which occurred August 14, from one whom your readers know, and who saw much of the rioting and the results of it, I give you the story in brief:

"In the month of June, a negro entered the house of a railroad engineer, passing through the door which had been inadvertently left unlocked, and cast himself upon the bed occupied by the engineer's daughter, who was fast asleep. Of course, the disturbance awoke the young lady, and her cries brought her father to the scene. On his appearance the negro endeavored to escape and a fierce struggle ensued, the negro used a knife with deadly effect, and finally got away.

"In the encounter a portion of the negro's shirt was torn from him, and this lead to his identification on the following morning. The father of the girl died at the hospital from the effects of the wounds inflicted by the negro.

"A special grand jury was called, which found an indictment against the negro for murder, who, by request of his attorney, had the case continued until the second term of court, on the plea that sufficient time was not afforded for preparation in which to defend his client at the first term. Considerable dissatisfaction was felt in the city on account of the delay, which was greatly aggravated by a second negro entering a house but a few blocks from where the first tragedy was enacted, and, dragging the only inmate, the wife of a street car man, from her bed at midnight to a shed in the rear of the house, where he brutally outraged her. A negro was arrested under somewhat suspicious circumstances the following morning, who was partially identified by the victim and lodged in jail. A mob of enraged citizens gathered around the jail and demanded of the sheriff the two negroes. The sheriff, by a ruse in which the fire department was called out, succeeded in getting an automobile from a Mr. Loper, in which he had the two negroes loaded and transferred to a railroad train which conveyed them to Bloomington, where they were incarcerated in the Bloomington jail for safe keeping. When the crowd returned to the jail from the fire ruse they again demanded the prisoners, and were informed that they had been transferred to the city of Bloomington through the instrumentality of Loper's automobile and the passenger train running to that city.

"Some of the least responsible of the crowd cried: 'Let's go to Loper's restaurant and interview the owner of the automobile, and if the report is true, visit vengeance on him.' They went and the result was the restaurant, one of the finest in Springfield, was completely demolished, the plate glass was broken into fragments, and the establishment completely looted of everything of value. The police seemed utterly dazed, and made no effort whatever to quell the disturbance. The home militia, composed of young and inexperienced boys, was summoned with no avail.

"This occurred on Friday night, August 14. On account of the destruction of property and the continued turbulent spirit of the mob, Governor Deneen immediately commenced to mobilize state troops in Springfield, but before they had time to arrive the mob assembled again and proceeded to the portion of the city more densely inhabited by the negroes, and commenced driving them out and setting fire to their houses. Thirty-four negro houses, barber shops and saloons were made uninhabitable, most of them entirely destroyed, two negroes killed by lynching and hanging to trees, four white

men were shot and died from their injuries, and about eighty persons more or less injured, two-thirds of whom were white. As soon as the troops arrived rioting ceased, and the civil officers immediately commenced arresting those engaged in the disturbance, over fifty of whom have been indicted by the special grand jury which had been convened for the purpose of bringing the law breakers to justice. While there was some feeling amongst the law-abiding citizens that the courts had been somewhat dilatory in bringing violators of law to trial, those who took the law into their own hands and undertook to punish the negroes, especially, were a lawless and irresponsible mob, carried away with a spirit of frenzy, which lead to a wholesale persecution of innocent people by intimidation, fire, and even murder.

"The law-abiding citizens immediately assembled under different organizations and expressed themselves in terms easily to be understood that lawlessness must cease. The universal expression so forcefully made, together with the presence of the strong arm of the State militia, have brought order out of chaos, and Springfield today is engaged in the ordinary avocations, the same as though nothing had happened.

"While Springfield feels humiliated by the course pursued by her lawless element, she feels that the lesson learned will result in a better enforcement of law, and the driving out from her borders of an element of undesirable citizens. She therefore feels that, notwithstanding the loss of life and the destruction of a large amount of property, which will have to be paid for by taxation, yet, in the long run, some good will result, and we shall have a cleaner and better city."

A. L. CONVERSE.

Written for THE CLAY-WORKER.

DETROIT BRICK AND BUILDING NEWS.

DURING THE MONTH of August building permits were issued from the fire marshal's office, city of Detroit, for 285 new buildings, at a cost of \$776,800, and forty-five additions at a cost of \$85,150; total, \$861,950. The figures for the same month last year are somewhat larger. In August, 1907, permits were taken out for 326 new buildings, costing \$933,500, and for sixty-three additions, costing \$12,100. The total for August, 1907, is \$1,055,600, which is \$193,650 in advance of the figures for the same month this year.

The total for the eight months of this year is \$6,279,300, and for the same period in 1907, \$9,945,200. Thus the year 1907, on September 1, 1908, is \$3,665,900 ahead of the present year. Detroit builders, however, figure that considering the building record of other months this year, the total for the month of August makes a very satisfactory showing.

An encouraging feature for builders is the fact that more than the usual amount of building work is reported out in the State of Michigan, generally. Building operations in Grand Rapids, the second city of the State, are being rushed at present, and what time was lost in the earlier part of the year will be fully made up before cold weather sets in. The present season will see a large increase over that of a year ago. Architects report they have drawn more plans for dwellings this year so far than all of last year, while those for mercantile and factory purposes are ahead of a year ago.

There is very little change in the brick situation this month. Prices continue low, and, as a matter of fact, the majority of brick manufacturers in Detroit and vicinity are not trying very hard to sell a great amount of brick at present. They figure that the less they sell the better off they are. Most of the local plants are working only half time as a consequence.

Some of the Detroit brick men are paying considerable attention to local politics, and this, considering the slowness of business at present, has been the cause of a good bit of good-natured joking. Both J. C. McDonald and John S. Haggerty, well-known Detroit brick men, are now running for county road commissioner.

It may be of interest to know that the only plant manufacturing vitrified brick in the State of Michigan has recently begun operations at Tonawanda, a short distance north of Detroit. The company is known as the Detroit Vitrified Brick

Company, and Detroit capital principally is interested. Judge Jefferies, who presides in the local police court, is secretary of the company. WOLVERINE.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



THE ARCHITECTS are telling the truth there is going to be a big fall building business in this city, especially in the line of flats, apartment houses and private residences. Of late years there has not been enough winter to interfere with building operations to amount to anything, and it is probable, with the amount of building now in sight, that the coming winter will be a comparatively busy one in the building line. Just at the present time it appears that a pretty large proportion of the new structures are being made of lumber, and that holds good through the month of August. Contractors state, however, that they are now figuring on a great deal of brick work, especially along the line of flats and apartment houses. This class of buildings has been a steady feature of building operations for several years now, and in spite of the fact that it would seem that everyone would finally be supplied with apartments, the demand seems to continue good, and the investors in that class of property continue to put their money in. Some of the best realty sales made this year have been of this class of property.

There is plenty of building material easy of access here, with the possible exception of common brick, which looked a few months ago like it was to be the building material of all others which would be the most plentiful. Labor is also plentiful, and the chances are that there will be no trouble in that direction, for the skilled mechanics appear to be well satisfied with their present rate of pay and the unskilled labor is too plentiful for any danger of trouble in that direction.

The total value of buildings started in the month of August was \$943,345, according to the report of the superintendent of building, and of this amount \$313,700 was for sixty-one brick buildings.

There has been no particular change in the price asked for brick during the past month, but the demand for both paving brick and common brick has been steadily on the increase, and as the market now appears to be well cleaned it seems probable that an advance can be expected in the matter of price before long.

The country demand, especially in the southwest, is rapidly on the increase, and of the southwest, the best territory just now is Oklahoma. That State is able to make a good common brick in its own yards, but they are not of large enough capacity to supply the demand, or come any where near it, so the Kansas gas belt yards are doing the business, and the number of school houses, city halls and court houses being built this fall is something immense. Oklahoma has been needing these things for years, and now that bonds can be voted in the sections, which were held back from development by the Indian lands, which could not be taxed, is getting busy.

Paving brick plants, not only have all the business they can take care of, but are booked ahead for a good while to come, and instead of the brick men seeking the paving the shoe seems to be on the other foot just at this time. It is the community which hustles the hardest that gets the brick on the ground, and the others will be compelled to wait a while. It is generally stated that paving brick plants are now sold ahead at least six months, and have all kinds of business in sight.

The paving brick plants which are turning out a really good material are glad that city officials have awakened to

the value of a good brick, and are generally specifying that the brick shall pass a test. This will mean a satisfied city and good advertising for brick as a paving material, and if the tests had been demanded years ago there would be a great deal more brick paving in the streets of the West today. It was poor brick which caused people to turn to other kinds of paving material, and nothing else.

The Coffeyville Vitrified Brick and Tile Company, of Coffeyville, Kans., notwithstanding the increased use of vitrified face brick, reports a greater demand than they can supply for their pressed brick, and state that their market is rapidly extending, in the north, west and southwest.

The Kansas Buff Brick Manufacturing Company, of Neodesha, Kans., is working in its new plant, which is equipped entirely with down-draft kilns, and they will manufacture a semi-vitrified buff, mottled and chocolate face brick. They are already behind in filling orders for their buff brick, which is finding a ready market in New Mexico, Texas, Oklahoma, and wherever it has been shown to builders.

The Pittsburg Brick Company has sold 160,000 of its hollow brick, from the Sycamore plant, for use in the Sharp Building, which is to be erected on Eleventh and Walnut.

All the brick plants located in this city are busy as can be, and are not able to turn out brick fast enough to keep up with the demand.

W. T. Batley, formerly of Pittsburg, Kans., has accepted the position of superintendent of the plant of the Standard Vitrified Brick Company, of Coffeyville, Kans.

Dealers in this city state that they are every day having a greater demand for freak brick. Every man building a home, of which he expects to be proud, is trying to get something in the way of brick that is different from all other houses in his section of the city, and this is giving a high value to almost everything in the way of a freak in coloring of a brick, if it can be used for face brick, and a little work put in on the selection at some brick plants would probably make it possible to offer something in this line which would demand a fancy price, if it was placed with dealers here.

Hobart, Okla., is just seven years old, but already is considering the problem of street paving. The mayor, A. F. Hooper, and three councilmen, Dr. G. W. Stewart, Judge W. A. Phelps, and O. C. Roberts, came to Kansas City to find out how things are handled here.

At the last letting of contracts in this city both asphalt and brick paving bids were lower. One contractor bidding as low as \$1.57 per square yard for brick paving for an alley.

George May, manager of the Standard Vitrified Brick Company, has been in the city this week, and reports that they have sold 9,000,000 brick ahead of production. Three million of them will go to Shawnee, Okla.; 3,500,000 of their blocks are to be used right at home in Coffeyville; 1,000,000 will go to Neodesha, 500,000 to Enid, Okla., 200,000 to St. Louis, 250,000 to St. Joseph, and smaller amounts to several other points.

Dealers in this city state that one of the crying needs of the Kansas gas belt is a big plant for the manufacture of sewer pipe, for the prices being obtained for sewer pipe here at the present time are exorbitant. There are plenty of places in the gas belt where experienced men could locate and turn out a sewer pipe which would compete with anything on earth in cost of production, but as sewer pipe is only made out this way by big plants, the company organized for that purpose would need to be a good, strong one, financially, or it might be hurt at the start by cut prices, etc., the same as newly opened cement plants are usually handicapped. The men with plenty of grit and plenty of experience and plenty of money have in this section of the country an opening to make themselves independent.

KAW.

It is better to borrow money to buy a new machine than to lose money trying to operate an old one. Then, too, you can find a buyer for your old one by running an ad in THE CLAY-WORKER "For Sale" column.

Written for THE CLAY-WORKER.

BUFFALO BRICK AND BUILDING NEWS.



HERE IS LITTLE activity in the brick line in this market, owing to the lack of large contracts, but the makers of brick are kept busy on small orders. Lyman D. Walrath, manager of the Queen City Brick Company, one of the largest of the Buffalo concerns, says that he has had plenty of business, but the greater part of it is in small contracts, which, when put together, made a larger trade than he expected to have during the hot months. He reports a good inquiry and feels that the trade is in a very healthy shape.

Clifford S. A. Coe, secretary of the Lancaster (N. Y.) Brick Company, says that his concern has had all it can care for in the supplying of drain tile and hollow brick, of which it makes a specialty. The farmers have prospered and they are putting in plenty of drainage on their farms and gardens.

According to a report from Elmira, N. Y., one of the best indications of the unusual amount of building in progress in that city is the fact that every union carpenter in Elmira is at present employed. The membership numbers 150 men.

One of the large contracts now under way in Buffalo is the twelve-family apartment house being erected at the corner of Barker street and Linwood avenue, by the firm of Mosier & Summers, for Mr. Charles Mosier of that firm. The building will be of the most modern type, will be fitted with gas and electricity, and will cost, when ready for occupancy, about \$100,000.

James M. Carter, secretary of the Buffalo Builders' Exchange, recently gave out an interview to the effect that a house or factory can now be built in this city for 10 per cent. less than a year ago. He says the price of brick, lumber, stone and cement is materially lower than it was twelve months ago. He also states that contractors are now able to secure a greater number of skilled workmen than they were last year.

According to the Buffalo Bureau of Building there were 33,713 buildings of various kinds erected in this city in the past sixteen years, the total cost of the structures amounting to \$99,719,637.91.

John H. Black, whose offices are in the Buffalo Builders' Exchange, reports a very good demand for fine face brick and has closed a contract for the furnishing of the brick for the Caledonian, a new apartment house, being built by Mosier & Summers for Charles Mosier, at the corner of Linwood avenue and Barker street, Buffalo. During last fall and the early part of the spring Mr. Black says the demand for cheap brick was the rule, but of late the demand is for a higher class and more expensive brick, which he takes to be a good indication of the betterment of the local situation. There are a number of inquiries indicating a better feeling and he looks for a good trade this fall. He has received the contract for the tile work on the new water tower at Kensington in the northern part of the city.

The Collins Baking Company has just let the contract to George Schaff for the erection of a mammoth new building at the corner of Clinton and Adams streets, Buffalo, adjoining the plant of the Ontario Biscuit Company, which is controlled by the same company. The new structure will be three stories in height in the main, of mill construction with brick walls, and will be 276 feet long and 108 feet wide. The cost price is estimated at \$175,000. The building will contain the bakery proper, the offices, shipping and packing rooms, and the stables, the steam plant being located in the basement. There will be ten ovens built at once in the bakery and provision will be made for five more, one of which will be devoted solely to the baking of cake.

The Board of Contract and Supply of Binghamton, N. Y., has awarded to A. L. Willey the contract for paving Conklin avenue in that city with Corning red brick.

B. I. Crooker & Co., of Buffalo, were the lowest bidders for constructing a boiler house at the Buffalo pumping station. The bid of that company was \$40,048. The Alphonse Custoids Chimney Construction Company, of New York City, has offered to build a radial brick chimney at the pumping station for \$13,585.

KNICKERBOCKER, JR.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



WHILE THE BRICK trade is quiet in and near New York it is unanimously agreed that it is better than it was last month. The opening of September brought improvement in the building situation, and the brick trade became better immediately. Of course, one cannot say that it is back where it was last year, or the year before, but any improvement and increase in business is welcome. All dealers feel more or less jubilant and are looking forward to a still further increase in business as a result of the enlargement in building operations in and about the city.

For the present, stocks in the city are ample to meet the enlarged inquiries, and few additional shipments are being made. It seems probable, however, that within a comparatively short time city stocks will be exhausted and it will become necessary to draw upon supplies held at the yards. Shipments of new brick down the river are still held up, all those now coming down being old stock. It is impossible to say when the new stock will begin to come down, but certainly not until the demand is more active than it is now. However, to clear away the old stock is worth something. The output is somewhat curtailed this year, so if business opens next season, as many think it will, the demand will exceed the supply and prices will again advance to former levels.

Prices in New York are more or less nominal, depending upon circumstances. The quotations given herewith have been verified by several dealers, but that doesn't hinder the fact that buyers could probably obtain different prices if they went to these same dealers with a proposition for a considerable quantity. The figures follow: Front buffs, No. 1, \$32.00 per thousand; grays, shaded and specked, \$32.00; white, No. 1, \$32.00; Hudson river common, \$4.75 to \$5.25; light, hard, \$3.75 to \$4.25; pale, \$2.75 to \$3.25; No. 1 fire, American, \$25.00; No. 2, \$20.00; Scotch, \$35.00.

According to figures given out by the City Bureau of Buildings, twenty-five sky-scrapers, to cost an aggregate approaching \$30,000,000, have been provided for since January 1, but in few instances have operations begun.

These buildings are divided into classes, about as follows: One will have twelve stories; one will have twenty-four; one will have twenty; one will have eighteen; four will have sixteen; one will have fifteen, and three will have fourteen.

Most of these buildings will have steel frames, protected by hollow terra cotta blocks, rendering them fire and corrosion proof. The terra cotta manufactories of New Jersey are said to be working upon some of the material for these new buildings.

Laying aside the fact that no great contracts have been given out this year it is pointed out that the building operations in Manhattan, so far as small buildings are concerned, has been nearly up to the average in 1908, regardless of the financial disturbance of last season. The big contracts have been filled. No public or semi-public works are in process of construction and this naturally reduces demand for brick materially.

It will be seen from this that the situation has changed materially during the past year and that the outlook now is better than it has been at any time this year. What is even more gratifying is the fact that it promises to continue in this way for months to come. The great business world of New York can scarcely be expected to stand still because of a brief financial flurry, which did nothing worse than take some of the paper profits from so-called important financiers. Business has gone on, somewhat restricted in certain directions, but none the less effective and none the less powerful for development along progressive lines.

In outlying territory like the Bronx, building is beginning again and promises to be continued in quite as liberal volume as it ever has been. While its character has changed somewhat, and has departed from flat houses, the volume is substantially the same as it ever has been. This will help

materially in absorbing the supply of brick which is suitable for such work.

The paving proposition is practically unchanged. Business men would like to see a change made from the undesirable, and in some instances, dangerous prepared wood, to something which is more substantial and less likely to reduce the load units. Representations have been made the city government many times regarding this subject, but it does no good, and the putting down of prepared wood and smooth asphalt continues unchanged. Both varieties of paving reduce the efficiency of trucks, and in instances have compelled those who had much hauling to do to increase the number of horses needed for pulling their products. All this might be obviated if proper paving materials were used and the streets were put in condition as they should be.

It has been suggested many times that an experimental bit of street be paved with brick, but the powers that control the destinies of paving in New York absolutely refuse to listen to any such proposition and the present expensive system continues. In Brooklyn there are brick streets which require practically no attention, and which have been in use for years. This object lesson should be sufficient, but it isn't, and the poorer materials are used continuously without the friends of brick being able to secure even a trial of the most satisfactory and less expensive material.

BURTON.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.

TRADE IN brick in Boston, the business center of New England, is improving, and sales during the past month have increased perceptibly. Several large contracts are said to be in preparation which will require a good many hundred thousand brick, but none of them have been made public as yet. Whether these contracts refer to large buildings or are public, or semi-public works does not appear. Whatever they are they have had the effect of stimulating trade already and while prices are not settled, nor even stable, they are not quite so subject to concessions, and the outlook is better.

Meanwhile the situation has been helped materially by the fact that manufacturers have not made anywhere near the quantity this year which they usually do, very many yards have not been opened at all, and others have been operated to only a portion of their capacity. This doesn't help the business this year, but later will be found beneficial, because the quantity of brick available will be less than it would be if manufacturers had continued at their regular capacity.

The feeling is better all through New Hampshire, and those portions of Massachusetts which furnish Boston with the bulk of its brick. Manufacturers are less disposed to make important concessions and trade is not so restricted as it has been. Perhaps the same thing can be said of the remaining portions of these States which do not depend so directly upon Boston for their business.

The rebuilding of Chelsea has been the principal source of demand for brick this season. Lately a good many more have been taken than were wanted the first of the season and the result has been better business. Without this unusual demand, the yards which supply Boston and vicinity with their stock would have had practically nothing to do. Many buildings have been begun within a month which are taking large quantities of brick and the operations will be kept up as long as weather permits. The outlook is considered fair, and discouragement which was rampant last month has been displaced by a better feeling and a condition which presages a return to substantially normal conditions.

Some parts of Vermont have felt the improvement in the situation, and construction work of various sorts is moving upon substantially the same basis as formerly. The market is better and general business is feeling the impulse of the improvement. It is thought that the coming months will see a general revival in that State which will put all industries, including brick, upon a better basis than for a year.

HIRAM.



Roofing Tiles or Roofing Paper.—The Austrian Association of the Clay Industry has just published a very lengthy statement in which the qualities of a roofing paper, which has been put on the market as "Eternit," in comparison to clay roofing tiles, are set forth. It comes to the conclusion that in the long duration this paper can not compete with clay tiles, and it gives the satisfaction to its members that they will have nothing to be afraid of as competitor of this paper. —Baukeramik, No. 24, 1908.

Microscopical Structure of Porcelain.—Engineer Ernst Plenske published in Sprechsaal the results of his investigations regarding the microscopical structure of porcelain. The article is fully illustrated with cuts of the different slides, and is very thorough in its explanation. Plenske classified porcelain under four headings: First, porcelain which does not show crystals; second, porcelain with very little crystals; third, those which show regular large groups of crystals, and fourth, those which show a very large amount of crystals. Under the third and fourth group, we find the majority of manufacturers.—Sprechsaal Nos. 19 and 22, 1908.

Westerwald Fire Clays.—Recent investigations by the Prussian Government as to the extent of the Westerwald clays have shown that there is enough clay there for centuries to come. The average analysis of the clays runs as follows:

Silica	46.11	56.42
Alumina	38.27	30.11
Iron oxide.....	1.01	1.04
Lime		
Magnesia	0.02	0.07
Alkalies	0.28	0.56
Loss on ignition.....	14.61	12.02
	100.30	100.22

According to the fire test the first clay will stand up to Cone 35, while the other clay will fuse down between Cones 31 and 32. These clays are very plastic, and the first clay will be vitrified by Cone 1.—Sprechsaal No. 21, 1908.

Action of Sand in Clays.—Engineer Fritz Kraze reported in the last annual convention of the German Association of Clay, Cement and Lime Manufacturers the results of his investigations regarding the action of the different sizes of sand on ordinary and fire clays. The conclusions derived at are that the finer the material of sand used: First, the amount of water used for proper pugging is larger; second, the drying period is much longer; third, the air and fire shrinkage are much greater; fourth, that the porosity of the body is smaller; fifth, that the absorption is smaller, also; sixth, that the tensile strength is much greater; seventh, that the fire-resisting qualities are greater; eighth, that the color of the burnt body is lighter; ninth, that it is more subject to temperature changes, and tenth, that the resulting bodies are more closer united.

Regarding the quantity of sand used, Kraze found the following points: That with increased quantity of sand, first, the amount of water necessary to make proper bodies diminishes; second, the time of drying will be quicker; third, the drying and fire shrinkage will be smaller; fourth, the porosity in soft-burnt bodies will be lower, while in hard-burnt bodies the same will be greater; fifth, the absorption will be greater; sixth, the tensile strength will be smaller;

seventh, that the fire-resisting qualities will be greater; eighth, the color of the burnt body will be lighter, and ninth, less subject to temperature changes.—Tonind. Z., No. 67, 1908.

Dry Press Bodies for Electric Porcelain.—For the manufacturing of dry press bodies used for making electric porcelain specialties, we can use for body:

Dolau kaolin.....	10 parts
Bavarian kaolin.....	10 parts
Roisdorf porcelain sand.....	15 parts
Bavarian feldspar.....	5 parts
Porcelain grog.....	2 parts

For glaze we use:

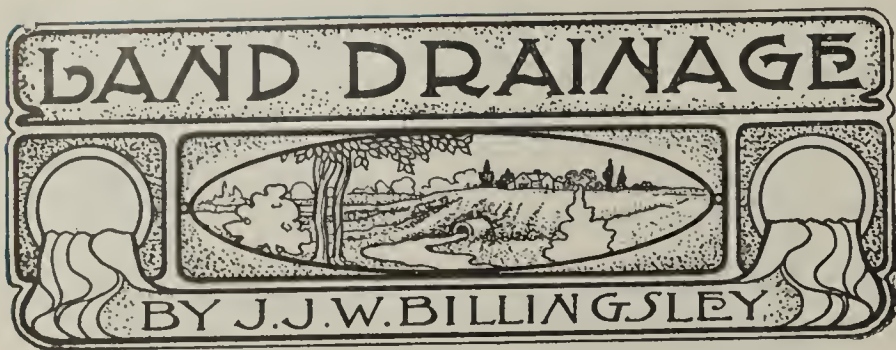
Roisdorfer porcelain sand.....	4 parts
Bavarian feldspar.....	3.5 parts
Whiting	2 parts
Porcelain grog.....	4 parts
China clay.....	1 part

This glaze and body will mature between Cones 13 and 14. —Keramische Rundschau No. 25, 1908.

Drying Method for Large Clay Products.—In the manufacturing of glass pots and other large clay products, it has been found that the bottom will always dry slower, and is more apt to crack. This slow drying of the bottom part is not due to its large thickness, but to the fact that part of the bottom is held tight on the drying board, and can not be circulated by the air. It has been practiced with more or less success to cover the other parts of the pots with sacks, in order to hold these parts back, so that the bottom can dry just as fast as the sides. Karl Jung has recently invented a process by which this bottom part of all large clayware can be dried much more rapidly. For this purpose he has made a very porous fire clay slab about 8 inches thick, which acts as an absorptive medium for the bottom of the clay pot. The fire clay tile will absorb the water very readily, and create a ready circulation. When the tiles become too wet, they can be easily dried in the kilns.—Baukeramik, No. 26, 1908.

German Duty on Sewer Pipe.—According to statistics just published, the German sewer pipe industry is in bad shape on account of the German tariff which went in effect on March 1, 1906. Before that time the duty amounted to one mark per ton, while the present duty is only 0.40 mark (10 cents) per ton. The Government in handling this matter, has taken a wrong stand; while it tried to protect the drain tile industry, it was injuring glazed sewer pipe. With the reduction of the duty, the importation in Germany has taken on enormous dimensions. In 1905 the importation was only 21,520 tons, while from March 1 to the close of 1906 the quantity has raised to 44,640 tons. From January 1 to August 31, 1907, the total importation was 75,045 tons. Belgium has been the greatest importing country. Clay and coal and also labor are much cheaper, and especially West Germany is the loser in the sewer pipe industry. The manufacturers have combined in an effort to prove to the German Government that a revision of the duties on sewer pipe is very essential, and no doubt they will get relief before long.—Tonind. Z., No. 65, 1908.

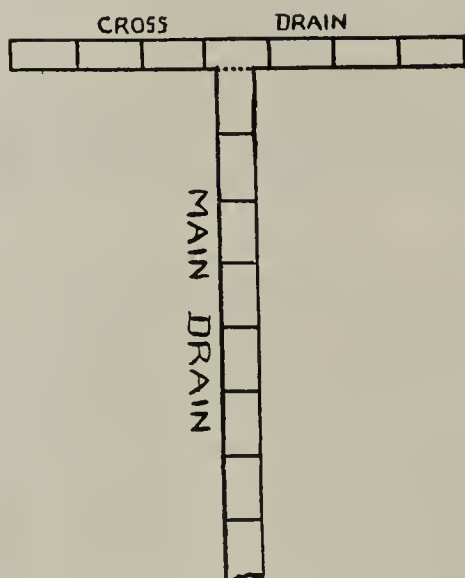
Two Hundred and Fifty Years Old Clayrights.—A suit regarding the rights to dig clay which will have some interest, especially from an historical standpoint, has just been handed down. In the year 1657, a certain von Siegel granted the city of Munden the right to dig clay on his large property. The city transferred the grant to other parties, and it was transferred several times until it came in the hands of a brick manufacturer. The right to dig clay was properly recorded. In the meantime, the original property has also changed several times, until it lately came into the hands of a party who was also a brick manufacturer. In the suit it was brought out that while the actual possessor of the land in question has certain rights, the right of the city of Munden was pre-eminent, inasmuch as it was the oldest grant, and was made without the transfer of property. The court enjoined the owner from taking any of the clay of his own land, and granted the exclusive right to dig clay to the brickmaker who held the grant made to the city of Munden. —Tonwarenfabrikant, No. 15, 1908.



LETTING SURFACE WATER ENTER TILE DRAINS.

IT IS FREQUENTLY the case that surface or overflow water from higher ground along the side or heads of the drains will need to enter the drain in considerable quantity; to do this and occasion no wash or displacement of the tile in the future, is often an important feature of the work. There are different methods for doing the work. We describe two or three of them:

1. At the head of the drain cut a cross ditch 6, 8, or more feet in length, or even longer, if necessary (See Fig. 1), laying the same with tile connecting into main drain, and fill up the cross drain with coarse gravel. The overflow water will carry more or less light surface soil, which will deposit on the surface of the sand or gravel, so it is preferred to put the finer sand or gravel at the top in filling the short or cross drain, leaving the surface somewhat depressed, so as to admit the shoveling out of the soil that may be de-



posited, as occasion may require. It may be necessary to add a little gravel or sand after shoveling out the soil, so as to maintain such an open condition of the gravel and sand at the surface that the waterflow will enter readily into the drain through the gravel.

2. Another method is to make a silt well extending 2 or 3 feet below the bottom of the drain, wall the well, and cover the mouth with a wooden or iron screen to keep out any large debris that might flow into the drain if not protected. The tile drain enters into the well, the mouth of which should also be screened with wire to keep out any trash that might otherwise get into the drain.

The wall of the silt well should extend above the surface 1 foot or more, so as to leave openings in the wall at the surface of the ground for the water to enter the well readily; besides, the well can be seen readily and avoided in the cultivation of the land.

In constructing a silt well the surface of the ground around the well should slope toward the well, so as to allow the water to flow readily into the well. Large drain tile, 2 or more feet in diameter, and cut double-length, can be set on end to make the wall of the well—with care, an opening can be made in these large tile where wanted without injury to the tile—it is better, however, to have the openings made

when they first come from the press, before the clay dries or is burned. A few drain tile manufacturers keep them in supply. A brick wall well laid in lime mixed with cement, leaving the necessary openings, will do quite well. The bottom of the well being 2 feet or more below the bottom of the tile drain, the surface washings or fine silt will be deposited in the bottom of the well, which can be cleaned out as needed.

3. Another method of getting overflow water into tile drains is to select the point along the drain where it is desired to have the water enter, and fill the drain, after the tile are laid, for two or three rods, as the need may suggest, with coarse gravel, finishing the filling at the surface with washed sand, leaving the surface over the drain depressed a foot or more. The surface of the ground on each side of the drain should slope gradually toward the drain, which will allow the water to collect directly over the drain, and pass through the sand and gravel readily into the drain.

MAKING DRAIN TILE.

A correspondent writes, saying: "I wish you would give me some information about watersmoking and burning drain tile." We have thought over the matter, and have concluded to make the following suggestions; not from our experience, but from observations and advice that we have been able to gather from practical men from time to time. The experienced tilemaker says that "much depends upon the clay." But it is equally true that much depends upon the brain of the man conducting the business. However, to be more explicit, if possible, we make the following suggestions:

1. It is cheaper and better to dry tile well before setting them in the kiln; that is, they should be dried well by exposure to air or artificial heat in the drying room.

2. The tile should be evenly dried before setting; that is, do not set some tile that are bone-dry and others that are damp; if so they are likely to damage in watersmoking and burning.

3. Those setting the tile should know whether the clay will allow close nesting or not, or whether to nest at all.

4. Ordinarily, in watersmoking, begin with a low fire—enough at first to warm up slowly until the steam begins to pass off with the smoke; continue the fires, gradually raising the heat, so as to watersmoke in twenty-four or thirty hours. The watersmoking is considered done when no steam can be seen coming out of the smoke stack. However, much depends upon the clay as to the length of time required to watersmoke.

There is no rule that we can give that will be safe to follow. You must determine by actual test what your clay will bear. Some clays crack badly if the heat is increased rapidly, other clays will bear a rapid increase of heat; some clays will vitrify at a low heat, others require a much greater degree of heat.

To know what the clay will do is imperative in order to have success. It is an important factor in working clay to know that clays are not alike in every particular, and require different treatment to get the best results.

THE RAYMOND IN PRISON.

The C. W. Raymond Company, of Dayton, Ohio, has just informed us that it has been given a life sentence in the United States Military Prison, at Ft. Leavenworth, Kans., and, strange to say, it doesn't feel badly over it.

The information states that the Constructing Quartermaster, Major Slavens, has been authorized by the Secretary of War to accept their contract for a complete brickmaking plant of from 50,000 to 60,000 daily capacity. This authority was given after much investigation by the department, and speaks well of the energy of the Raymond people, as well as the merits of their goods.

The equipment consists of two 9-foot standard dry pans, elevators, screens, 10-foot double-gear pug mill, Raymond "777" brick machine, automatic cutting table, represses, etc., and a complete installation of an eight-track Raymond radiated heat dryer, including cars. The Raymond Company will also furnish the power plant, and the entire outfit will be as complete and up-to-date as can be made.

Written for THE CLAY-WORKER.

AMONG THE POTTERS.



WITH THE COMMENCEMENT of fall, the pottery business has started to improve, but the potteries are not operating anywhere up to normal capacity. In many cases plants are running about 75 per cent. full in the clay shops, and up to normal in the decorating departments.

Others are running full in the clay and decorating shops. But, save in one or two instances, there is not a plant in the western pottery district that is operating to its capacity in all departments.

Notwithstanding the fact that numerous potteries throughout the country could be purchased for what many may term a song, yet it is said some Bellaire (Ohio) people have taken up the scheme of building a new pottery at Jewett, Ohio. No company has been formed so far, but the Bellaire people are giving the proposition more than passing attention.

After several weeks' idleness, the East End China Company, at East Liverpool, Ohio, has resumed operations in full.

siderable of the stock in the United States Pottery, at Wells-ville, Ohio, which was held by John J. Purinton, of East Liverpool. Knoblock has been elected president of the United States interests. At the Colonial, Col. Will A. Rhodes, who is vice-president of the company, has been elected secretary to succeed Knoblock, and at the same time he will look after the duties of vice-president, and also as manager of the sales department. Thomas Robinson has been elected president of the Colonial company, and he is also looking after the detailed work about the clay department of this plant. Under the direction of Col. Rhodes, the Colonial has been put on full time in all departments.

The Riverside Pottery, at Wheeling, W. Va., manufacturing sanitary ware, has resumed operations in full in all departments. The sanitary pottery trade is rather brisk at present, and plants both in the east and the west are working almost up to their capacity.

TOM POTTER.

THE NATIONAL DRY KILN COMPANY STILL GROWING.

WE ARE PLEASED to illustrate a small portion of the plant of the National Dry Kiln Company, which, for several years, has been identified in the clayworking world through its dryer and kiln supplies.

The company has recently enlarged its boiler shop to



A Glimpse of the Immense Boiler Shops of the National Dry Kiln Company.

The company recently installed a gas engine, and the expense of operating the plant has been reduced no small amount.

Rebuilding the plant of the Patterson Bros.' Yellowware and Rockingham Pottery, at Wellsville, Ohio, has been started. The firm suffered about \$8,000 loss a fortnight ago, when straw was ignited through spontaneous combustion. All salable ware was destroyed, and the only ware that was saved was that in two kilns which had not yet been drawn.

The capital stock of the East Liverpool Electric Porcelain Company, of East Liverpool, Ohio, has been increased from \$50,000 to \$80,000. This firm suffered a \$3,000 loss by fire recently, when the engine room was burned and the roof of the plant badly damaged. This property had just been placed in operation.

Important changes and the sale of stock in two potteries of the East Liverpool district were recorded early in the month. Henry P. Knoblock, who had been secretary of the Colonial Pottery Company, at East Liverpool, for three years, at an annual salary of \$4,000, resigned and purchased con-

make room for the increased demand for their goods. The feature of this shop is the recent installation of two large cranes by means of which heavy material can be easily and quickly conveyed to any part of the building, which is 490 feet long and 103 feet wide, covering over 6,000 square feet of ground.

This department is well equipped, possessing large forges, hydraulic steam hammers, splitting and angle shears, punches, air tank compressors, radial wall drills, emery grinders, rolls, etc. Their 10-foot roll is one of the largest in the city. This firm manufactures kiln bands, flue piping for gas producers, self-supporting stacks, water tank towers, and many other side lines, besides their "Often tried and never found wanting" original exhaust steam dryer with complete equipment. Anyone considering the installing of a dryer should write the National Dry Kiln Company, Indianapolis, Ind., for their No. 200 catalog. See their ad on page 327 of this issue.

All potteries at Chester, W. Va., are said to be running in full. These plants have been operated more steadily this year than any other potteries in the East Liverpool district.

NOTES FROM THE CERAMIC SCHOOLS.

NEW YORK STATE SCHOOL OF CERAMICS, ALFRED, N. Y.

THE NEW YORK State College of Ceramics opens the year on September 15, with a good prospect of successful work. The number of students will certainly not fall below the registration of last year, and will probably exceed it. Notwithstanding the depression in business, the outgoing students of this college have had no difficulty in securing positions; in fact, the director has had several applications for men which he has not been able to fill.

The Museum of Natural Science, at Denver, Col., has lately secured the loan of a large collection of decorative pottery made at the college by Prof. Binns himself.

The equipment last year was enriched by a battery of electric furnaces, and special attention is being given to work at high temperatures.

The development of art in ceramics continues to receive a large share of notice, and several young women who have specialized in this work now hold important teaching positions.

THE CERAMIC DEPARTMENT OF THE UNIVERSITY OF ILLINOIS.

Instruction begins on September 23. Last year there were twenty students registered in the Department of Ceramics, and the prospects for a much larger enrollment are very favorable for the coming school year. Mr. J. K. Moore, the first graduate, secured a splendid position with the Denny-Renton Clay and Coal Company, of Seattle, Wash., and has a splendid opportunity to work up to a high and lucrative position with that company.

The department has not been given permanent quarters as yet, but is still located in Natural History Hall. Plans for the new ceramic building have been executed, and the building has been given first place on the building list, consequently the prospects are very favorable for the beginning of its construction within the coming twelve months.

The building is to be 60x120, and is to be used exclusively by the Department of Ceramics. The structure is to be a plain, neat style of architecture, not imposing, since the idea has been to pay more attention to the equipment than to the structure itself.

The department has not added as much to its equipment for the coming year as was first intended, owing to the lack of room in its present quarters. During the past year the department has installed a laboratory size stiff mud augur machine of German make, a set of four blungers, a small laboratory filter press, twelve more porcelain ball mills, an optical pyrometer, and has equipped a complete chemical laboratory for use in research work.

The department has ample funds on hand for its present needs, with splendid prospects for obtaining a handsome appropriation from the coming legislature for the support of the department, and for research work.

During the past vacation, the department has employed six ceramic students, who have been doing research work along several lines, the results of which are to be published during the coming year.

OHIO STATE UNIVERSITY CERAMIC DEPARTMENT.

Work at the university will begin on September 22, and a large registration is confidently expected. The number of the students enrolled in the ceramic department last year was about ninety, of whom thirteen received their degrees last June, and some five or six others completed the short, or two-year course. It is expected that some sixty or seventy of last year's students will be back to resume their studies at the opening of this year, and, with the normal number of new students entering, the attendance will run not far from one hundred.

The teaching force of the department has undergone a slight change this year. Mr. John M. Knote, laboratory assistant in ceramic chemistry, has accepted a fine position with

the Olive Hill Fire Brick Company, at Olive Hill, Ky. Prof. R. C. Purdy, who gave only part time to the department last year, this year gives his whole time and energy to department work, and Mr. W. G. Worcester, laboratory assistant in the clayworking laboratory, who gave only part time to the university last year, now goes on full time, so that there will be three men in the department giving their full attention to its work. This represents a gain of one-half time of one man, though the actual number of instructors is three instead of four.

The material equipment of the ceramic department will be considerably improved during the current year by the expenditure of about \$3,000, given by the legislature last winter. This money will be largely used in extending and improving the existing equipment, rather than in taking up new branches. Some idea of the nature of the improvements may be gained from the following:

In the chemical laboratory, an air pump, bell jar and vacuum gauges, and a centrifuge for mechanical analysis will be added.

In the ceramic lecture room, a series of charts, illustrating the manufacture of glass, porcelain, etc., will be imported from Germany. Also another series of charts will be constructed at the university, illustrating ceramic topics as taught at this institution. Also it is expected to add 100 or 200 lantern slides to the collection of clayworking subjects now used in teaching.

In the clayworking laboratory, a miniature brick machine, about 6 inches in internal diameter, and capable of making small pipes, sample bars, etc., will be installed. Also a small-sized potter's pug mill, especially designed for easy cleaning, so that different samples of clay may be prepared one after another without intermixture.

The dry pan room will be equipped with a ventilating apparatus, and fans for removing dust. The potter's room will be equipped with a spraying cabinet for applying glazes and colors by compressed air; also an emery wheel for dressing burnt pieces of clayware for exhibit or for tests. Another important addition will be two small filter presses, with about ten 8-inch plates each. These, with two already on hand, will enable the department to have four crews of students at work at filter pressing at once. No new variety of ball mills will be installed, but the existing equipment will be materially added to by the importation of two or three dozen jars from Germany. A moldmaker's wheel is also to be procured for the plaster room. In the students' locker room, it is probable that a somewhat radical revision of the space will be necessary to install a block of five or ten new lockers. The capacity of the lockers was largely overstrained last year, and, with the large incoming senior class this year, additional space will have to be procured.

In the ceramic supply department a considerable number of large storage bins have been provided for taking care of large samples of clays for class work, and also the number of balances for weighing out ceramic mixtures will be doubled or trebled, so that less delay will occur in carrying out work after it has been planned and approved by the instructor.

In the kiln room the equipment will be improved by the addition of one new kiln, gas-fired. Also, a new janitor for the building has been secured, and this will make it possible for night firing by the students to be partly obviated, as it will be possible for the janitor to fire the kiln slowly during the night, bringing it up to 700 degrees or so and leaving the students to finish the firing during daylight hours on the next day. This promises to become an exceedingly valuable addition to the department facilities, reducing the strain on the boys, and increasing the amount of work which can be done.

Of the number of students leaving the department last year to go forth in their new work, a considerable number has already found profitable employment, in spite of the fact that the labor situation has been distinctly adverse over the country as a whole. Work of a profitable nature has been very difficult to secure, not only in ceramic circles, but generally, and while this has affected the ease with which our graduates have obtained positions, it has not prevented most of them from securing work, and some of them from securing very excellent opportunities.

Altogether, the prospects of the coming future have never been brighter than they are at present, and it is confidently expected that the coming year will produce the best results yet attained at this institution.

ARGENTINE BUILDING ACTIVITY.

Growing Market for American Construction Materials.

V ICE-CONSUL GENERAL Otto Hollender makes the following report on the building trade in Buenos Ayres and the possibility of a market for American building materials in the capital of Argentina:

"The rapid increase in the population of this city and the consequent demand for houses and apartments of all kinds has caused building to be very brisk in Buenos Ayres during the year 1907. According to 'Las Ventas,' a publication dealing with real estate transactions, there have been constructed during the year 1907 buildings to the value of \$79,033,833 Argentina paper money (\$1 Argentina paper equal to \$0.42 1-3 American currency), the number having almost quadrupled within six years, the amount in the year 1901 being only \$22,231,824. In spite of this enormous increase in buildings, rents continue very high, and apartment houses as well as office buildings are generally let even before they are finished, which would indicate that building will be quite brisk in this city for some time to come.

"A decided change in the style of building is to be noted all over the city, and while a few years ago the old Spanish style of building, consisting of one story only, with a large 'patio' in the middle and fronting directly on the street, was in vogue, numerous buildings of three, four, and even five stories may be seen in the center of the city, while in the suburbs modern dwellings are gradually taking the place of the old-style houses.

"At the present time there is an eight-story building being put up here by Americans, on the American plan and with materials from the United States, which bids fair to induce others to adopt that style of building.

"Of the building materials, iron and steel, as well as cement, are mostly imported from England, Germany and France, although lately considerable quantities of steel have also been imported from the United States. Of the lumber, the white pine, pitch pine and spruce is nearly all imported from the United States, with an occasional shipment from Canada, while the hard woods are nearly all found in this country.

"Sand is imported from Uruguay, there being hardly any in the Argentine Republic, but sometimes brick are pulverized and used in lieu of the sand, the cost of transportation making the latter an expensive article. Brick are nearly all made in this country, while tile for flooring and roofing are mostly imported from France and Belgium.

"Plumbing material has been imported lately to a small extent from the United States, but the bulk of it still comes from England. The United States certainly ought to be able to obtain a larger share of this business. This also applies to builders' hardware and sanitary appliances.

"With the tendency for modern buildings prevailing at the present time there ought to be a good market here for fireproofing materials of all kinds, as well as sanitary appliances, plumbing material, builders' tools and hardware of all kinds."

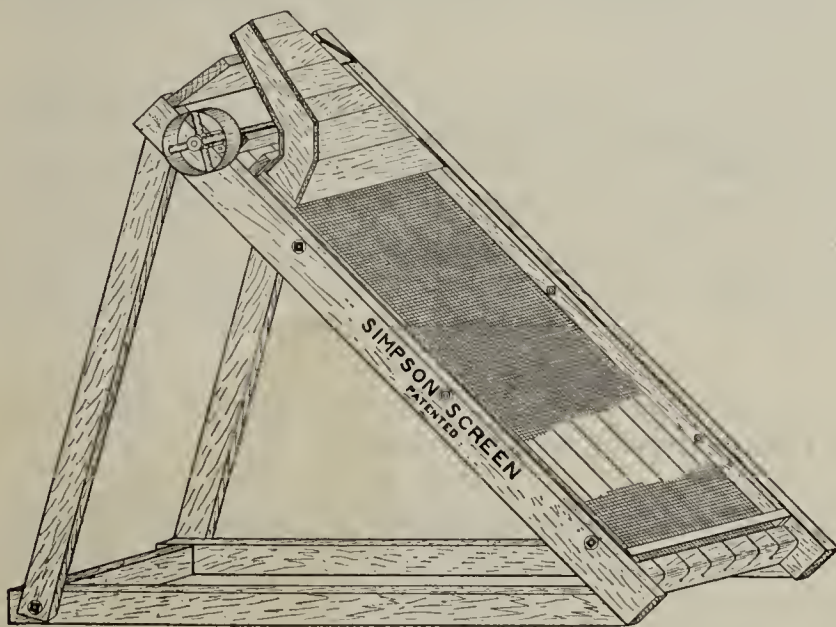
ONE BUSY CLAY MACHINERY FIRM.

While business may not be up to last year's standard, generally, there is one exception at least. The J. D. Fate Company, of Plymouth, Ohio, write that they have been busy right through the summer, their shops have run full time, and they have had more orders during the summer months than in the same period of previous years. During August they booked orders for a complete outfit of machinery for the Winnebago Clay and Cement Company, consisting of an Imperial brick and tile machine, with attachment for making tile up to 24 inches. The Mentzer Clayworking Company, Canton, Ohio, was supplied with a 50,000 a day capacity ma-

chine, automatic side-cut table, and all other necessary supplies. The Malakoff Pressed Brick Company, Ft. Worth, Texas, was equipped with a combined brick and tile machine, cutting table, dies, etc. The Junction City Clay Products Company, Junction City, Ohio; Fisher & Shafer, Gilboa, Ohio; A. Reef, Montpelier, Ind., and the Hancock Brick and Tile Company, Findlay, Ohio, are among those they have supplied with brick and tilemaking outfits, and they now have booked a number of similar orders that will take several weeks to fill. They offer the trade something new in dump cars, cuts of which are shown on pages 342 and 343 of this issue.

SOMETHING NEW IN CLAY SCREENS.

The Simpson screen, which we illustrate, is the latest addition to the long list of inventions of P. L. Simpson, who states that it is a decided improvement on the ordinary piano wire screens now in use. In its construction wire cloth is used, and beneath that wires are stretched lengthwise of the frame, and these are made to vibrate against the under side of the cloth, in this way keeping the meshes clean and affording a maximum capacity. The construction is such that clogging is declared impossible. The screen has other novel features, full particulars of which will be furnished by the



manufacturers, the National Brick Machinery Company, Chamber of Commerce building, Chicago, Ill., whose ad appears on page 248 of this issue.

Oklahoma Geological Commission.

Editor THE CLAY-WORKER:

I beg to advise you that the Oklahoma Geological Commission, consisting of the Governor of the State, the Superintendent of Public Instruction, and the president of the State University, met for organization, July 21, 1908. Governor C. N. Haskell was elected president of the commission, State Superintendent E. D. Cameron was elected secretary, and the president of the State University, A. Grant Evans, was elected executive officer.

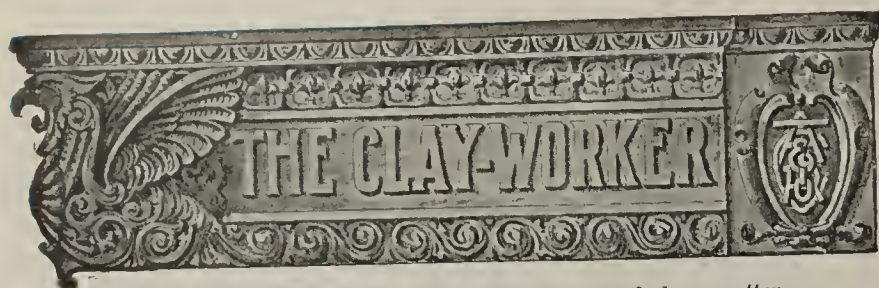
Dr. Chas. N. Gould, professor of geology at the State University of Oklahoma, was elected director of the survey, and instructed to begin at once the preparation of reports dealing with the geologic structure and mineral resources of the State.

I take this opportunity to solicit, in the name of the commission, your aid and co-operation. Dr. Gould will have direct charge of the work of the survey, and will be pleased to extend to you any courtesy in his power.

Very truly,

A. GRANT EVANS, Executive Officer.

Norman, Okla., August 21, 1908.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. L.

SEPTEMBER, 1908.

No. 3.

CURRENT COMMENT.

The pig iron production is a little short of normal yet, but it isn't starving enough to squeal.

* * *

The man who saves a little out of his income—no matter how small it be—is squarely on the road to independence.

* * *

The use of drain tile is steadily increasing, but it might be made to increase a little more rapidly by more widespread, persistent effort.

* * *

There are several things that will make fairly good street paving, but when you see anybody looking for the best don't forget to tell them it is brick.

* * *

Baseball continues to create more excitement and attract more attention than the politicians. It is probably better so, too, because humanity gets more fun out of it, and will probably fare just about as well, if not better, in the end.

* * *

The melancholy days seem to be about the liveliest this time, not only in building operations, but other industries are making better headway this fall than any other time during the past spring and summer. So now if the weather man will just be good and extend the good weather as far as possible into the winter, he will confer a favor on the building trade.

* * *

With the opening of the new school year, it is pleasing to note that the trade school idea has been steadily gaining ground. We need more of it yet, though. So far, there has only just been a good start made. The trade school idea should expand until it is as big a thing as the public school itself, for the proper training in trades is just as important.

especially to the boys, as what is generally regarded as a public school education, and it is of more immediate benefit.

* * *

If this agricultural prosperity keeps up a few more years, the farmers will all be riding in automobiles, and then the good roads problem will help solve itself.

* * *

It is perfectly natural that the railroads should not look with favor on the extension of our inland waterways. This work is not calculated to benefit the railroads, but rather people.

* * *

There is no man who has a copyright on all the ideas connected with brickmaking, and the man that can not continue to learn more from time to time, no matter how much he already knows, is the man afflicted with that weakness which makes him think he knows it all.

* * *

The "Build Now" agitation which has been carried on by lumbermen and other dealers in builders' supplies and building contractors' exchanges throughout the country seems to have borne fruit, because there is more building going on now than formerly. But the strange thing about it all is that the bulk of this building is by the modest home builders, instead of by capitalists building for investments. It looks a little like the big fellows are "sicking" the little ones on and are afraid to venture themselves.

BOTTLED GAS.

It is said that over in Germany, where, by the way, they do lots of wonderful things chemically, a new kind of gas has been evolved which can be compressed to one-four hundredth of its original bulk. It thus becomes easily transportable, so that one can, if it comes into general use, just send up to the corner grocery and get trading stamps with a quarter's worth of gas, instead of dropping a quarter into the new-fangled kind of gas meter, or being swindled by the old. Lawson and the System might both take note of this, but the "Bay State" has some other axes to grind aside from that of supplying gas.

SEWER WORK.

In sewer work, notwithstanding experiments, demonstrations, and various claims made for concrete, the sewer pipe holds full sway wherever the work involved is within the range of pipe sizes. When it comes to the larger sewer construction that involves mains of cities of enormous proportions where the sewer must be floored and walled with some durable substance there has been quite a lot of concrete work done during the past two years. In fact, there has been quite a drive at what is termed reinforced concrete construction for large sewers, and the work still continues, but the contractors are now not by any means as enthusiastic over it as they were formerly. Here and there about the country comes reports of disappointments. The contractors who have undertaken work of this kind find in the end instead of making money "hand over fist" they have underestimated the cost, and they frequently lose. This has been one of the failings of the concrete business right along, to underestimate the cost. It looks like every concrete job of any magnitude, if properly carried out, costs more than it was calculated to, and it looks like it has cropped out so persistently that it has taken the enthusiasm out of it. There are probably brick men and men handling brick who now and then make errors in their estimates of cost, but not so frequently. They have had enough experience to get all the details thoroughly, and, also, they they know what to depend on, so, whether it is a contract for a sewer or for a building, unless the contractor

simply overlooks some of his items, there is no need to figure brick work at a loss.

In the concrete work, however, it looks like there is such an air of uncertainty that the figures of the best men in the business more frequently go wrong than right, and, as a result, on all sides, every man who has burnt his fingers once or twice raises his estimates on the next undertaking considerably, and this, together with lost enthusiasm, materially alters not only the figures of cost in such work, but is reducing the number of bidders and making the whole thing look different to what it once did. The people who have been flourishing through it all are the machinery people, the people making mixers and other machinery of this class. They have had an excellent run of business, naturally, but the contractors who have contracted the work have generally come out of it richer in experience than in pocket.

INDUSTRIAL EDUCATION.

It is to be hoped that with the beginning of the new school year there will be in evidence all over the country more real effort at what is known as industrial education. Statistical men have figured out that more than 90 per cent. of the pupils who complete the elementary courses in the public schools afterward earn their living by some form of manual labor. With this great percentage doing manual labor, there should not be required any great argument in favor of industrial education and trade schools. The public schools, as a rule, can give only the initial training in this line, but the more attention they turn to it the better start they will give the pupils, and the more encouragement they will lend to the acquiring of trades and the doing of skilled work in the proper manner, and as trade and skilled work of one kind and another represent 90 per cent., as against the professional side 10 per cent., we might well give more attention to the industrial side than to the professional. The true idea, however, is to combine science and industry, and the best way to get the right start and the proper combination of these is to get more of the real industrial element into our public schools. Fortunately, many of our prominent school superintendents are fully impressed with this idea already, and others are turning toward it rapidly, so, with general educators lending aid to the trade school idea, within the next few years we may see quite a change in our public school system, and we hope that the beginning of the next school year will bring a good start in this direction.

FIRE.

That the press of the country is awakening to the fact that this is indeed the land of fire augurs well for the prospects of some drastic action being taken ultimately on behalf of fire-prevention, but the lay press as well as the layman is still lamentably uniformed as to the real status of this fire matter. For instance, the "Outlook," an exceptionally well posted journal, comments recently and editorially upon the "Land of Fire," and cites some of the great conflagrations of the world since 1835 and says of New York that that city "since 1835 has been singularly fortunate in having had no great fires, and in this respect, therefore, may be said to be on a par with great European cities." The "Outlook" undoubtedly means that since that year New York has had no fires that wiped out any great section of the city at one fell swoop, but it will yet be a long time before we can speak of New York and the great European cities as being anywhere nearly comparable. That city's fire loss, while below the general average of that of the country, is still in the neighborhood of \$2.00 per capita per annum or \$7,568,666 of damage in 12,182 fires in a year's time. In the same period London had but 3,843 fires with a population half as much again as

New York's. In all of the British Kingdom in that same period there was but one fire of \$300,000 and only thirty-five of over \$50,000, and all of these thirty-five fires of over \$50,000 only equalled \$3,785,000 in the year's time, and that for a population of over 41,000,000 people, while New York with a little over 4,000,000 people had one fire of nearly \$5,000,000, and quite a number of over \$100,000.

Commenting upon this fire matter, the "Outlook" further says that there is probably some truth in the supposition that we pay less attention to regulations intended to prevent fire, that buildings are of more combustible materials, and that our fire departments are less effective. As a matter of fact, our fire departments are the best in the world—they get the most practice and experience! The one great trouble is that we persist in building of inflammable construction, we have the habit, and our authorities, generally speaking, have not the backbone to break us of that habit by stringent enough regulations. There is no supposition about this thing, it is a patent, tangible, demonstrable fact. And it is the province of the technical journals to so thoroughly emphasize the point that we have in the past and are now building too much shoddy construction that the daily press, the lay journals, will follow suit and eventually the people themselves will grasp the idea and help in the reform that is so very, very necessary.

D. V. PURINGTON MEETS WITH AN ACCIDENT.

The first week in September, D. V. Purington, of Chicago, met with a serious accident, as a result of which he is now confined at home with a broken rib, and a number of less serious contusions, the result of attempting to board a street car which didn't stop, as he supposed it would, but, on the contrary, took a sudden spurt just as he grasped the hand rail. He was thrown to the ground violently, but escaped injury other than mentioned. He is now a candidate for membership in the "Don't Hurry Club."

TRADE LITERATURE.

"A LITTLE BLOWER" is the title of a beautiful, attractively colored postal card being mailed to the trade by the American Blower Company, of Detroit, Mich. A figure of a barefoot, golden-haired child in night attire is seen vainly endeavoring to blow out a brilliantly burning candle. The picture is so pleasing that the recipient naturally reads the whole of the message appearing on the reverse side of the card, advertising this well-known company's dryer equipment. If you have not received one, you had better write the American Blower Company, of Detroit, Mich., and get one to decorate your desk.

CLAYWORKING MACHINERY.—Under this title the American Clay Machinery Co., Bucyrus, Ohio, has published one of the finest catalogs ever printed in the clayworking world. This book, which contains over 500 pages of interesting matter, including several hundred halftones of their excellent machinery and clayworking equipment, besides many illustrations of fine samples of clayware, is full of attractive features. It is bound in a brown cloth cover, printed very tastily in black and gold. The inside cover pages, both front and back, are decorated with a conventional design of the trade mark of the American Clay Manufacturing Company; i. e., a keystone over which is printed the words, "Built Right, Run Right," enclosed in a laurel wreath. After eighteen pages of an illustrated introduction, in which one of the most important features is the illustrated writeup of their clay testing department, the catalog takes up the subject of dry press brick machinery in detail, and gives eighteen halftones of their dry presses, screw presses, clay steamers, mixers and feeders. Every branch of clayworking is thus taken up in the following order, under heads of departments of dry press, paving and front brick, roofing tile, auger brick machine, hollow ware, combined machine, cutting table, plunger machine, soft mud machine, sewer pipe, clay refining, dry and wet pan, granulator pug mill, disintegrator and

crusher, dump car, barrow and truck and dryer. The catalog also includes a department on sand-lime brick machinery. All the various departments are treated at length written up and illustrated in an attractive way, making the whole a compilation of notes on every type of clayworking machinery made by the American Clay Machinery Company, from the large sewer pipe steam press down to trucks, pallets, screens, dies, etc.

The employment of excellent engravings, fine enameled paper, an attractive binding, and the best of mechanical work possible, constitute the vital points which make this catalog the finest that has ever been published. It is not only an excellent catalog and an encyclopedia of all the many types of clayworking machinery made by this firm, but is a valuable compilation of facts concerning the manufacture of various clay products.

This book is indeed a most acceptable addition to the clayworker's library. It proves the well-known fact that the American Clay Machinery Company gives each and every detail of its business its most careful consideration. It is a great credit to the trade, as well as the American Clay Machinery Company.

ILLINOIS CERAMIC DEPARTMENT'S BULLETINS.—We received, just previous to going to press, three bulletins from the ceramic department at Illinois University, containing five interesting technical papers. Bulletin No. 7 contains a paper by Prof. A. V. Bleininger and J. K. Moore on the subject of the "Influence of Fluxes and Non-Fluxes Upon the Change in the Porosity and the Specific Gravity of Some Clays," No. 8, A Study of the Heat Distribution in Four Industrial Kilns," while Bulletin No. 9 contains three papers, two by Prof. Bleininger, and one by Mr. R. T. Stull. Mr. Stull's paper is on "A Cheap Enamel for Stoneware," while the other two papers deal respectively with "The Viscosity of Clay Slips," and "Some Fusion Curves." These five papers were read before the last meeting of the American Ceramic Society, and are very comprehensive and worthy of close study. Those wishing copies of these bulletins should write to the Illinois Ceramic School at Urbana, Ill.

STOCK FOOD EDITION.—Under this head the Williams Patent Crusher and Pulverizing Company is distributing a large bunch of variously colored catalogs, covering every type of machine they manufacture. The main purpose of this new catalog is for advertising their machines at county and State fairs. This well-known firm makes not only high grade clay crushing and pulverizing machinery, but also furnishes high class machines for feed grinding, ore and stone crushing, beef scrap shredding, and many other important industries.

IN SEARCH OF A LAKE.

I feel that the world is a blunder,
That life is a hopeless mistake.
And everything's going to thunder;
I'm going in search of a lake.

And neither by wheel nor by wagon;
No steam-driven motor for me;
What use is the road-eating dragon
That can't climb a cliff or a tree?

Foot-free, with a sea breeze behind me,
Due north by a point or so west,
The sun o'er the ridges shall find me
Afar in pursuit of my quest.

A lake, where the dip of the swallow
Is rilled to the furthestmost shore;
Where ripples of melody follow
The leisurely sweep of the oar.

A lake that is nourished by fountains
As pure as the winds in their flow;
A lake that is guarded by mountains
That none but a cragsman may know.

Where only the kingfisher's rattle
Is heard, or the splash of a trout,
Or nothing more worthy of tattle
Or reading or writing about.

The balsam shall roof me a shielding,
My couch shall be spread in the brake;
I'll bathe in the waters of healing.
I'm going in search of a lake.

—ARTHUR GUTERMAN

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ESTABLISHED COMPANIES, as well as beginners, find our services profitable. We correct faults of manufacture and keep plants up-to-date. Engagements for special service, or by the year.

THE RICHARDSON-LOVEJOY
ENGINEERING CO.

[See page 327.]

FOR SALE, WANTED, ETC.

FOR SALE.

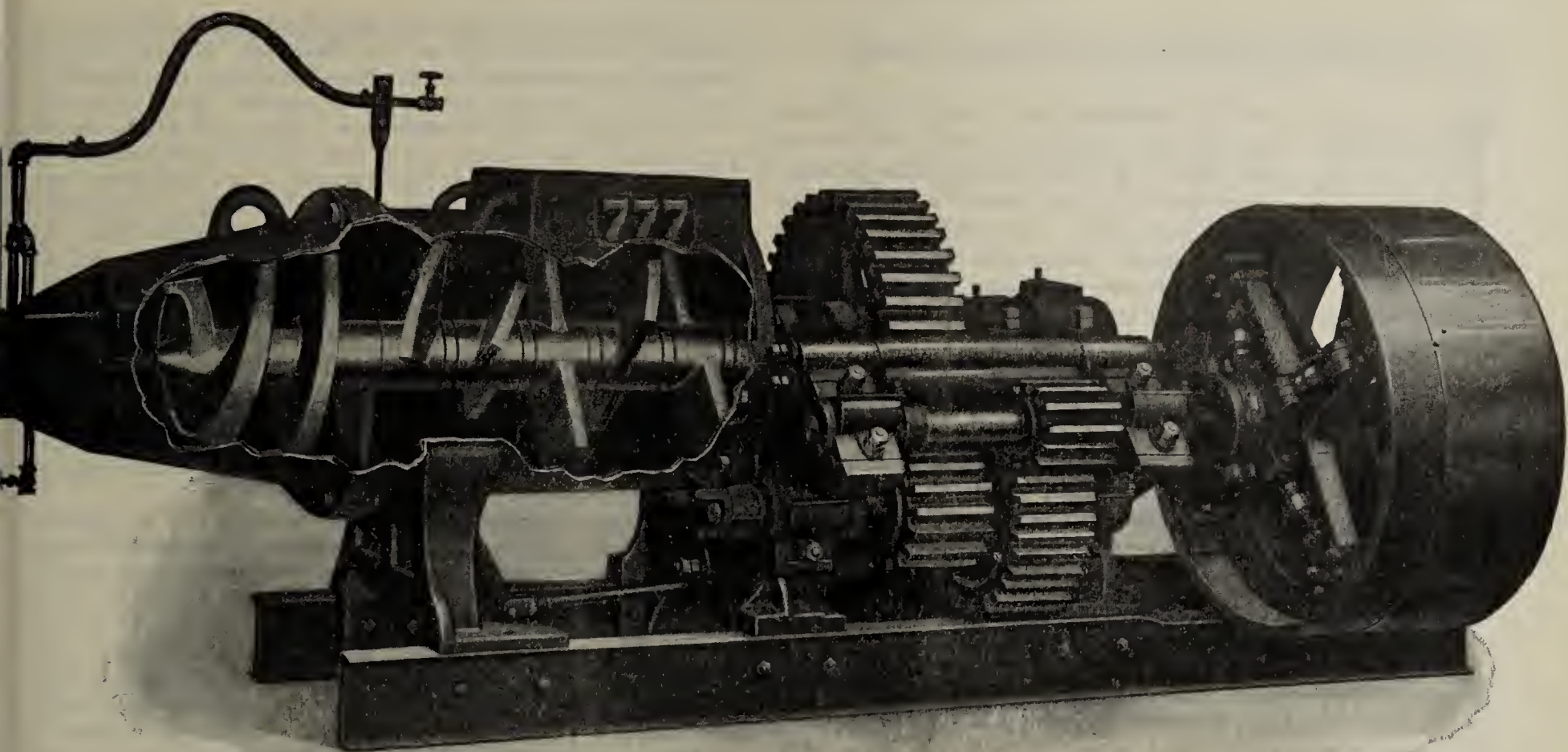
About 125 single deck iron cars for drying brick. Used very slightly; good as new. Will sell part or all of them. For particulars, address
S 3 d Box 304, Liberty, Mo.

FOR SALE—Hercules Senior brick machine, Horton mold sander, pulleys, shafting, etc. Also 24,000 wooden pallets, 10 by 32 by 5-8. Address
JNO. B. FOX BRICK CO.,
S 3 c Toledo, Ohio.

FOR SALE.

A complete set of machinery for the manufacture of stiff mud brick, 20,000 per day; 9-foot dry pan, engine, boiler, machine, pug mill, dryer cars, pulleys, shafting, etc. Will sell at a bargain.
ED. NICHOLSON,
7 3 cm Steubenville, Ohio.

For Sale, Wanted, Etc., Ads Continued on
Pages 312, 313 and 314.



RAYMOND "777" BRICK MACHINE.

Over six million brick made every day on the famous Raymond "777" Brick Machine.

It is the embodiment of strength, durability and performance—so with all of our manufacture.

We issue the following publications which may be obtained upon application to our Publicity Department:

GENERAL CATALOG

CATALOG OF DRAWINGS AND SPECIFICATIONS

"Smiles."

Exhibits

- 2040. Nine-foot Heavy Duty Dry Pan.
- 2042. No. 2 Rotary Automatic Cutting Table.
- 2044. "999" Brick Machine.
- 2045. Perfection Hand Represses.
- 2046. Clay Conveyors.
- 2047. Four Roll Crushers.
- 2049. Niagara Hollow Ware Machine.
- 2052. Victor Repress.
- 2053. Granulators and Bevel Geared Pug Mills.
- 2055. Clay Elevating Machinery.
- 2056. Portable Track.
- 2060. Roofing Tile Designs.
- 2061. Dry Presses and Dry Press Machinery.
- 2062. Automatic Tile Cutter.
- 2063. System of Open Air Drying.
- 2069. Peerless Smooth Roll Crusher.
- 2070. No. 3 Brick and Tile Machine.

Exhibits

- 2071. Standard Pug Mills.
- 2072. Single Geared Pug Mills.
- 2075. Semi-Automatic Cutter.
- 2077. Radiated Heat Dryer.
- 2078. Soft Mud Machinery.
- 2079. Belt Apron Type Clay Elevator.
- 2080. "555" Brick Machine.
- 2081. Automatic Wet Pan Emptier.
- 2082. Piano Wire Screens.
- 2083. No. 1 Automatic Cutter.
- 2084. Dryer Cars.
- 2085. No. 3 Hand Dry Press.
- 2086. Automatic End Cutter.
- 2087. "777" Brick Machine.
- 2088. Hoisting Apparatus.
- 2089. No. 2 Combination Brick Machine.

THE C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

The Largest Exclusive Builders of Clay Working Machinery in the World.

Written for THE CLAY-WORKER.

CLEVELAND BRICK AND BUILDING NEWS.



OSIER BECOMES THE outlook for building with the advance of each week of the fall season. A substantial increase is being noted weekly in the volume of work being gotten under way, while the new projects announced are more numerous as winter approaches. The brick industry has again almost reached normal and dealers agree in the prophecy that the opening of spring will see a big season in all lines.

Prices are now firmer than they have been in months. During the summer price cutting was prevalent. Everybody was out after business at almost any price. The demand having livened up the dealers are more inclined to hold to reasonable prices, as there appears to be plenty of business to go around. Paving and common brick are selling at about the same prices quoted a year ago, although a variety of quotations are offered on different specimens of pressed brick.

One of the interesting announcements of most recent date is that the Brotherhood of Locomotive Engineers, comprising about 63,000 members and the largest labor organization in the world, will erect a twelve story building to be used as a headquarters in Cleveland, which is now the permanent home of the organization. A site costing about \$200,000 has been purchased at St. Clair avenue and Ontario street and work is to begin at once demolishing the two story building now occupying the ground. The building itself will be 180 by 125 feet in size and twelve full stories in height. A feature of the structure will be an auditorium seating 1,800 people. The structure will be of steel with either pressed brick or white glazed terra cotta. Grand Chief Warren S. Stone is in charge of the project. The top floor will be used as offices for the organization and the other offices rented. The top of the building will be fitted up for a roof garden.

Good progress is being made on the West Side market house. The Mason's Supply Company is supplying 100,000 brown face brick at a cost of \$40 a thousand. They are from the Van Port plant. The contract for the building is held by John Grant & Son. The same contractors are erecting a new Episcopal Church at Norwalk, Ohio, at a cost of about \$50,000.

A good fire brick order will be given within the next few weeks by the Corrigan-McKinney Company, which has purchased several hundred acres of land, and will erect two new blast furnaces in the flats. About \$1,500,000 will be expended on the work within the next twelve months. Work is already under way putting in foundations for the new furnaces. Blast furnaces in the Cleveland district, which have been shut down for repairs during the summer, have again resumed business.

The plant of the Cleveland Brick and Clay Company, at Newburg, was endangered during the past month by the loosening of a great bank of shale, which almost overhangs it. Putting in foundations for a new railroad bridge, a short distance away, is supposed to have weakened it. A great lump of the shale, weighing hundreds of tons, parted from the main bank and threatened destruction to the plant, which produces 60,000 brick every day. The hill opened with a loud roar and thousands of tons of stone and clay came rolling to the bottom, almost engulfing the plant. Workmen ran for their lives, but the buildings were not badly damaged. At the top of the hill a section of the shale, nearly 100 feet square, appeared ready to fall at any time. Steps were taken to undermine a part of it so it would not topple on the brick plant. F. M. Brady, secretary of the company, with a number of other employes, was very anxious for a time concerning the safety of the plant. The bank was finally cut down to a point where the danger has been greatly lessened. The bank from which the brick is made is one of the best deposits in the State. The company makes a specialty of hollow building brick.

The Wheeling & Lake Erie shops, at Norwalk, just west of Cleveland, which were destroyed by fire August 23, are to

be rebuilt at a cost of several hundred thousand dollars. The Chamber of Commerce of Norwalk has pledged \$60,000 towards the rebuilding work. Five buildings, the largest of which will be 404x125 feet, are to be erected. Steel and brick are to be used, with concrete floors. The shops will be larger than before they burned, and will be fireproof throughout.

The Peerless Motor Car Company, of Cleveland, has started work on a new group plan of brick factory buildings which will represent an outlay of over \$350,000. They will include an erecting shop, repair shop, machine shops and an assembling building.

Another batch of paving bids were let during the past month at prices considerably below the estimates of the city's engineer. This brings the year's total to 142 streets, totaling twenty-eight and one-half miles in length. Jobs were awarded to the Standard Paving Company, the Baldwin Bros. & Graham Co., Enterprise Paving Company, M. Kavanaugh, Northern Ohio Paving Company, and the Cleveland Trinidad Paving Company.

The county commissioners have taken steps to improve Dunham road, just outside of Cleveland. It is the latest thoroughfare to be paved with brick. It will be improved from Bedford road east to Canal road, at a cost of \$150,000. Work will begin on the job this fall.

At the office of Barkwell & Bradley, Cleveland, representatives of the various common brick plants in this city, it was stated that the call for common brick continues light and that managers of no plants have considered it wise to make any outlays for enlargements or improvements at this time. Common brick continues to sell at \$6.50, delivered within the city limits.

Cleveland's building inspector, Mr. Lougee, is still very skeptical as to the value of reinforced concrete for high buildings. The city's building code refuses to permit of the erection of concrete structures over six stories in height. A permit for a new eight story concrete building which is to be faced with brick, by the way, has been refused by Lougee, because it does not conform with the code. Concrete builders say they will start a campaign to change the code, but Lougee says he is firm in his conviction that six stories is high enough for concrete structures of any kind, no matter what the form of reinforcing may be.

A project that will result in the erection of five large apartment buildings, facing University Circle in the East End, has been about completed by the American Real Estate Trust Company, of which H. L. Vail is president. Ground valued at \$100,000 has been purchased and a series of magnificent apartment houses are being planned. They will be of brick with fancy brick fronts. Work on the buildings will start early next spring, it has been announced.

Contracts for what will be absolutely the finest mercantile structure in Cleveland have just been announced in connection with the projected A. A. Pope building on Euclid avenue, opposite the Union Club. The structure will be twelve stories in height and will face on two main thoroughfares, Euclid and Huron road. It will be elaborately faced with cream colored speckled, full enamel terra cotta, to be furnished at a cost of about \$35,000 by the North Western Terra Cotta Company, agents for which in Cleveland are the Cleveland Hydraulic Press Brick Company. It will be a monument to its builder, A. A. Pope, a wealthy New Yorker. Henry Bacon, the noted New York architect, has designed the building which will be erected by the Tidewater Construction Company, of New York City. The frame will be of steel, fire-proofed with cement. The brick will also be furnished by the Cleveland Hydraulic Press Brick Company. W. H. Hunt, manager of the latter concern, is authority for the statement that the building, when finished, about the middle of next summer, will be one of the finest business blocks in the Middle West.

The Glidden Varnish Company, which erected a number of fire-proof factory buildings two years ago, has announced that it is about to complete the group with a fine administration building, to be erected at a cost of several thousand dollars. The structure will be three stories high and will measure 85x110 feet in size. Colonial brick will be used. The Reaugh Construction Company has the contract for the work.

BUCKEYE.

NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to *The Clay-Worker* who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With *The Clay-Worker*, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

*Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to *The Clay-Worker* to aid us in the matter by remitting promptly in advance, as the Government requires.*

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE TENDENCY toward a revival in all lines dependent on building operations, which has been manifest for several weeks, continues and it now looks as though there would be rather more than a fair demand as the fall comes on. The rapid removal of the retail section of the city from the temporary districts, which were occupied immediately after the great fire, is producing some changes in the character and location of building activity. The down town stores are filling up quite rapidly and there will soon be a scarcity of ground floor stores in the down town section. This is all within the fire limits, and whatever building is done there will necessarily be of brick, stone, or concrete. Brick men expect to get the bulk of this business as the vogue for concrete seems to have passed. Probably the construction work for the coming fall and winter will be of a cheaper character than that of the two years just after the fire. It is generally admitted that the large number of fine office buildings already completed will satisfy the office needs of the city for some time to come, though there is certain to be a great demand for ground floor rooms. It is therefore thought that most of the vacant space in the burned district will be covered, for the time being, with one, two and three story brick buildings, which can be torn down a few years later without any very great loss. The scarcity of money will also work in the same direction.

While money is still not any too plentiful for building purposes it is to be noted that it is being supplied much more liberally than it was a few months ago. During the month just closed mortgages to the amount of \$6,888,000 were filed, nearly all of this being for building. One feature of interest in this connection is that about one-third of the money advanced for building purposes came from the East, the Mutual Life Insurance Company and the Equitable Life Company, of New York, alone furnishing \$1,500,000.

During the month of August the building contracts filed here amounted to \$2,597,000, of which \$1,427,000 were for brick construction.

The Stockton Fire and Enameled Brick Company, of Stockton and San Francisco, is to furnish a very handsome quality of matt-glazed brick for the Lincoln Investment Company's Stewart building on Fifth street, near Market.

Mangrum & Otter are doing the tile work for the Palace Hotel as well as for the Southern Pacific Hospital in this city. The latter contract amounts to \$35,000. The tile for this work is from the works of the American Encaustic Tiling Company, of Zanesville, Ohio.

N. Clark & Son, of San Francisco, report that, on the whole, business is picking up somewhat, though there is still very little new work being done. As yet there is little sewer work, though in the face of some good contracts soon to be let, the price is holding up well.

Atkins, Kroll & Co., of San Francisco, report that they have recently sold two carloads of Anaconda fire brick to the Noble Electric Steel Company, for use in the electric smelting plant at Heroult, Cal.

The California Stoneware Company has been incorporated at Sacramento, Cal., with a capital stock of \$5,000, by H. N. Bundock, H. F. Bundock, R. Bundock, C. R. Stubbs, and S. I. Hopkins.

E. Hewitt Rogers, a brick manufacturer, of El Paso, Tex., has been visiting in Los Angeles, Cal., and it is understood that he is contemplating going into business at or near that city.

Frank Tucker, a contractor, of Stockton, Cal., has secured a \$42,000 contract to build a combination brick plant for the

Black Diamond Brick Company, of Black Diamond, Cal. Orders have been given to the Enameled Brick Company, of Stockton, for a portion of the material. The contract includes six thirty foot kilns with a total capacity of 150,000 per day.

The pressed brick machinery for the Astoria Clay Products Company, of Astoria, Ore., has arrived and is now being installed. The cost is about \$6,000.

D. C. Grant, of Grant Bros., brick men of Santa Barbara, Cal., is opening an old brick yard at Santa Cruz and will burn 300,000 brick for the F. A. Hihn Company, of that place.

A number of San Francisco men and others have incorporated the Windsor Pottery Works, at Phoenix, Ariz., with a capital stock of \$1,000,000. The incorporators are T. T. Critenden, H. C. Stevens, and M. T. Moses, of San Francisco; W. J. Kappler, of Melrose, and Peter J. Gilroy, of Ross Station, Cal.

The Simons Brick Company, of Los Angeles, Cal., has opened an office at Hollywood, Cal., and is preparing to ship brick to that place.

There is an active movement toward the exploiting of the clay beds known to exist in the vicinity of Corona (Cal.) Parks. Barth & Prizer have begun to develop their beds in the Temescal Canyon and G. W. McVicar is preparing to begin work on a deposit in the same locality, which he believes is suitable for making vitrified paving brick. George Ferguson has filed a notice of location on a claim of twenty acres near Corona.

J. D. Martin, of Palo Alto, Cal., is developing a clay mine near that place. He has a twelve foot vein of fire clay and has just completed an experimental kiln of 2,000 paving brick.

The California Pressed Brick Company, of Niles, Cal., which is now at work on the construction of its first permanent kiln, has begun shipping brick from the plant.

T. L. Myers, representative of the American Clay Machinery Company, of Bucyrus, Ohio, was at the plant of the Pyrmont Brick Company, at Lincoln, Cal., a couple of weeks ago, arranging for the placing of machinery. He is quoted as speaking very highly of the quality of the new company's clay bed at that place. The company plans to make face and enamel brick.

Professor Carsten, who recently secured some clay beds at Denton, near Hope, Idaho, has returned from St. Louis where he went to have the clay tested and to investigate the matter of putting in a plant on his property, has returned to Idaho and will organize a company to work the new clay beds, which he claims, will make make both common and vitrified paving brick.

R. H. Fleet, of Montesano, Wash., and others are organizing to erect a brick plant at Hoquiam, Wash., with a daily capacity of 250,000 brick.

C. Drieschmeyer, of Santa Clara, Cal., has contracted to burn 125,000 brick for the Culver-Baer Quicksilver Mining Company, of Cloverdale, Cal.

The Pacific Coast Pottery and Terra Cotta Company, of San Jose, Cal., has levied an assessment of 5 cents per share on the capital stock of the company, delinquent September 26.

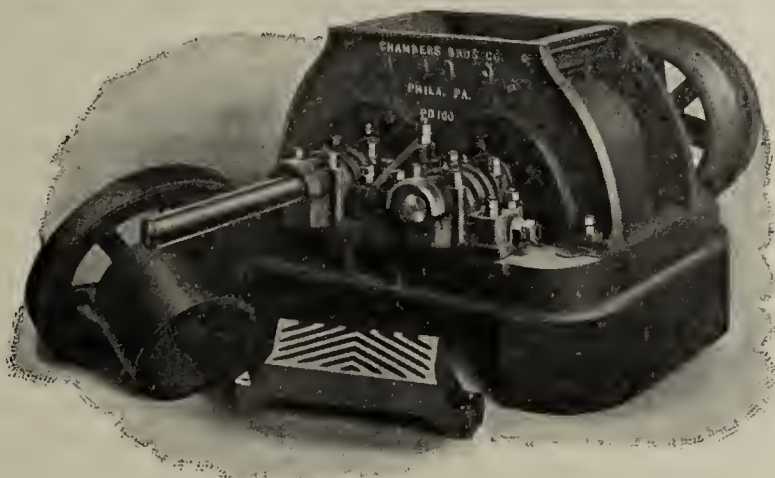
The Guadalajara Manufacturing Company has been organized at Guadalajara, Mex., by Dr. A. W. Parsons, Dr. A. Hodges, and Carlos Shiff, for the purpose of manufacturing clay ovens for which the company owns the patent rights for the entire republic. A plant has been established at Guadalajara, on land owned by Dr. Parsons. Later other plants may be started at Mexico City and Arapuat. The ovens are made of tile clay and are intended to fit over the braseros of the ordinary Mexican kitchen.

SUNSET.

The Patterson Bros.' Yellow Ware Pottery, valued at \$50,000, and located at Wellsville, Ohio, was recently destroyed by fire. The blaze originated in the packing shed from unknown causes. The city electric fire alarm barked and the department arrived too late to cope with the flames. The plant was owned by John W. and George G. Patterson.

THE LINE KEYSTONE THE LINE

DOUBLE DISINTEGRATORS.



PATENTS APPLIED FOR.

Will grind clay Wet or Dry, Soft or Hard,
WITH OR WITHOUT STONES.

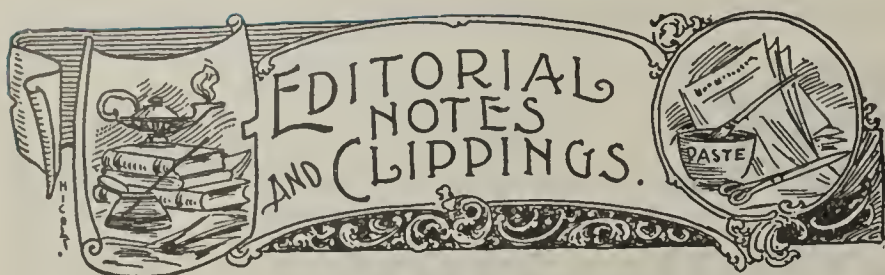
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Chambers Brothers Company Philadelphia, Pa.,
and Chicago, Ill.

See ad on page 235.

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R. F. Lyemance will establish a brick plant of 35,000 daily capacity at Jacksboro, Tenn.

Frank Kussinger, of Pittsburg, Pa., has purchased a site on which he will erect a small brick plant, which will be enlarged later on as trade increases.

The plant of the Elkins Brick Company, Wheeling, W. Va., was burned to the ground September 9. The loss is estimated at \$15,000, on which they had \$10,000 insurance.

James Patten, of Pocatello, Idaho, is starting two small brick plants at Burley and Kimberly, that State, where he has some good contracts, and will make brick for same.

The Wichita Falls Brick and Tile Company, Wichita Falls, Texas, has been incorporated with \$60,000 capital stock. The incorporators are: Wm. Staniforth, M. Staniforth, and C. W. Bean.

E. A. Reavie, of Calumet, Mich., is interested in a movement to organize a company to develop valuable clay property near that town. The clay has been tested and found suitable for face brick and pottery.

P. H. Paulsen has sold his interest in the Estherville (Iowa) Brick and Tile Factory to W. E. Turner. This makes this factory now the property of C. D. Osgood and W. E. Turner. Mr. Turner will actively assume management of the concern.

The brick plants at Sciotoville and Portsmouth, Ohio, are very busy, having about all the orders on hand that they can take care of. In fact, the Peebles Brick Company has enough orders for paving brick at the present time to keep the plant running for two years.

James R. Sayre, founder and president of the Sayre & Fisher Brick Co., one of New Jersey's largest industries, died, at his home in Newark, N. J., September 15, in his ninety-fifth year. He had been in the brick business since 1838. He was born in Newark and had always lived there.

The death of Robert J. McDonald, vice-president of the St. Louis Terra Cotta Company, St. Louis, Mo., occurred at Denver, Col., recently, where he had spent most of the last two years on account of ill health. His wife and daughter are in Europe, and the body has been placed in the vault pending their return.

The Bloomington Pressed Brick Company, of Bloomington, Ill., has recently taken up the manufacture of hollow building tile in connection with the manufacture of their pressed brick, and are well pleased with the demand for same. The company has been very busy in all lines the past season, and the prospects are good for the coming months.

Frederick Wick, one of the founders of the Wick China Company, of Kittanning, Pa., the first pottery built and operated in that city, died at his home in that city on September 11, aged 57 years. He had been in that line of business all his life, and was considered one of the leading authorities. His widow, one daughter and three brothers survive him.

With the completion of the immense Haigh continuous kiln, the plant of the Ashaway Clay Company, Ashaway, R. I., will be in shape to commence the manufacture of brick for shipment. About 200,000 brick have been made and burned in a small kiln, but all of them were used in the construction of the plant, not a few of them going into the big Haigh kiln, which will have fifteen chambers.

The plant of the Watertown Brick & Clay Products Co., a new concern that is building a large and modern brick plant at Watertown, Clinton County, Pa., is rapidly nearing completion, and will be one of the largest and most modern plants in that county, which is one of the greatest brick manufacturing centers in the United States. Five kilns are being rushed to completion, so that the brick for the remaining units of the big plant may be burned. The company was recently incorporated with an authorized capital of \$100,000, all of which has been paid in in cash. An illustrated description of this plant will be published in THE

CLAY-WORKER in an early issue, there being a number of unusually interesting features incorporated in its construction.

The New Jersey Brick Company writes that it is in the market for second-hand machinery for its shale brick plant at Florence, N. J.

A. D. Kelley and others are organizing a company for the purpose of manufacturing brick at Cheyenne, Wyo. A plant will be erected in the very near future.

The Buckshot Brick Company has been incorporated to manufacture brick and tile at Greenville, Miss. T. P. Reynolds, M. L. Aldridge and others are interested.

An overheated kiln caused a fire which destroyed the kiln sheds of Joseph Spang's brick plant at Pottstown, Pa., and damaged the brick which were in the process of burning.

J. G. Kapler, of Giddings, Texas, is interested in a movement to organize a company for the manufacture of brick at that point. He has had the clay tested with very gratifying results.

J. B. McAllister has purchased the interest of J. M. Horn in the Richwood (Ohio) Clay Manufacturing Company. This gives Mr. McAllister the controlling interest in the concern which has had a very busy season.

James A. Davis, for forty years a well-known brick manufacturer of Connecticut, died, at his home in New Haven, September 5th, after an illness of several years. He was sixty-four years old, and leaves a wife, one son and two daughters.

Improvements and additions are in progress at the plant of the Cannellton Stoneware and Pottery Company, at Cannellton, Ind., which will include the erection of an additional kiln. The machinery for the new part of this plant and the iron work for the kilns has been ordered.

William Lewis, of Corunna, Mich., who was badly hurt recently by the caving in of a ledge of shale at the plant of the Detroit Vitriified Brick Company at Corunna, has started suit in the circuit court for \$10,000 damages, alleging negligence on the part of the company's employes.

John Boma, proprietor of the brickyard at LaCrosse, Wis., was accidentally killed while hunting. Mr. Boma was in a boat and in drawing his rifle toward him the trigger caught and the weapon was discharged, the bullet entering his heart. He was twenty-eight years old, and leaves a wife and two children.

A fire which occurred early in the morning of August 24, at the plant of the Falls City Brick Manufacturing Company, Louisville, Ky., caused a loss of \$5,000, which is partly covered by insurance. A day or two before the fire, one of the employes, Lawrence Connors, was badly injured by having his foot caught in one of the brick machines.

William H. Copp, Jr., a young man employed at the Capital City brick plant, Topeka, Kans., had his left foot badly crushed in the machinery. He was engaged in oiling the brick machine, when, in some manner, his left foot was caught in the machine and badly crushed. In addition, the big knife which separates the brick descended on his foot and split it lengthwise from the great toe to the instep, dividing the great toe longitudinally.

Mr. David Francis Haynes, founder of the pottery firm of D. F. Haynes & Son, Baltimore, Md., and one of the leading business men of the city, died, August 24, from paralysis of the spine. For the last five years his health had been declining, and about three years ago he was compelled to give up active management of his business. Although seventy-three years old, the second half of Mr. Haynes' life was as active as the first, and marked by the same aggressive resourcefulness and success that rewarded his early busy years. A wife and four children survive.

The National Fire-proofing Company, Pittsburg, has a fine contract for fire-proofing, amounting to about \$300,000, all of which will be manufactured at the plants in the Pittsburg district. It calls for the 25,000 tons of material that will be required for the immense new building to be erected at Twenty-third and Broadway, New York City, on the site of the old Fifth Avenue Hotel. It will be remembered that the National Fire-proofing Company has also been awarded the contract for the fire-proofing that will be used in the construction of the new Pennsylvania Railroad Terminal Station in New York City. This contract amounts to over \$500,000, and is the largest single order for this class of material that was ever awarded in this country. The company reports

(Continued on page 310.)

Written for THE CLAY-WORKER.

NORTHERN OHIO BRICK AND BUILDING NEWS.



CONDITIONS ARE brightening a trifle in the brick business, but they are still far from what they should be. Half of the local building brick plants are still closed down, and there is little prospect that they will open up any more this season.

The local demand for building brick is still very dull, although there has been a good market in the surrounding territory, which has helped out the Toledo brick men to a large extent. Had it not been for this outside trade, the Toledo people would have been in a desperate condition. As it is, they have managed to exist, but there has been but little money in the business. Prospects are brighter now than they have been for some time, and it looks as if there may be some fair trade before winter comes, as there is much figuring and planning on buildings yet to be constructed this fall. Should they materialize, it will go a long way towards helping out a poor summer's business. Prices are still way down, and the profits amount to but little, even with an active trade.

The paving brick people have enjoyed an unusual degree of prosperity, owing to a disposition on the part of municipalities to furnish employment, and help out the needy by furnishing jobs on street improvement and sewer work. An exceptionally large amount of this work has been done throughout this section, and there are still many contracts to be completed, while in some localities new work is being projected which will furnish labor until cold weather sets in. Prices on paving brick have held up well all summer, owing to this demand, and there is not now a large supply on hand, while most of the plants are busily engaged in turning out supplies for future use.

Vitrified sewer pipe has also found a ready market for much the same reasons as have pertained to the paving block

business. Most of the factories are finding a market for all the drain tile of all kinds that they can turn out at fairly good prices. While other clayworking establishments have, in a sense, suffered from the general business depression, most of them have done a better business than was promised by the spring and early summer. Some of these are now taking on additional help, and are increasing their output to meet the requirements of a promised improvement of trade conditions.

The Riggs & Sherman Co., Toledo engineers, have a number of professional engagements of more than ordinary importance. Among these are large paving jobs at Grand Haven and Ithaca, Mich., extensive sewer work at Nashville, Mich., and a complete sewage system, including a complete sewage disposal plant, pumping station, and about twenty miles of sewer at Shelbyville, Ind.

The employees of the office of the Robinson Clay Products Company, at Akron, Ohio, enjoyed a fish fry at Louis Young's, just south of the city, recently. The trip was made by launch, returning by moonlight. The evening was spent in music and other amusements. There were thirty-four present.

Architect Matz, of Toledo, has just finished the plans for a new brick factory building for the Meilink Manufacturing Company, now located on Jackson street, at the foot of Tenth. The building will be 240x180 feet, and half the structure will be two stories high. It is estimated that the cost will be about \$25,000. The plans are now in the hands of contractors, who are preparing bids. It is not yet decided where the factory will be located. Several sites in the city of Toledo are under consideration, and some outside towns have offered the company flattering inducements to move the plant.

On September 10 the Board of Public Service of Cambridge, Ohio, will receive bids for the furnishing of 28,296 square yards of vitrified paving brick; also, for grading, draining, curbing, and paving a number of streets in the town. Lima, Ohio, is also contemplating some paving, and contracts were recently awarded for the paving, grading, and curbing of South Elizabeth street, to Water street, with vitrified brick on concrete foundation; North Central avenue, from High to Wayne street, by grading, curbing, and paving with vitrified brick on crushed stone foundation.

T. O. D.

THE KING ENGINEERING CO.,

309 American National Bank Bldg., Richmond, Va.

BRICK DRYER AND KILN SPECIALISTS.

Radiated heat dryers of the Sharer type remodeled with a guaranteed increased output of 15 to 25 per cent over present daily dried product, without increase in daily consumption of fuel. In our up-draft Calorific Kiln we are producing from 95 to 99 per cent hard burned brick and we have practically no waste. Old "Dutch Kilns" remodeled to conform to our system, guaranteeing to produce results equal to those produced in our new kilns. Our Dryer and Kiln systems fully protected by patents.

Write for particulars and estimates.

EDITORIAL NOTES AND CLIPPINGS—Continued.

also booking the contract for fire-proofing material for the new United States Postoffice at Atlanta, Ga., a contract amounting to over \$100,000.

Brown & Yoke, of Coffeyville, Kans., are making arrangements to establish a brick plant at Van Buren, Ark. A stock company will probably be organized.

G. L. Bosworth, Manly, Iowa, is investigating the kiln question with a view of installing kilns at a new plant he contemplates building at the above-named point.

The new plant of the Dickinson Paving Brick Company at Little Rock, Ark., is about ready for operation. The plant will have a capacity of over 50,000 pavers per day.

Duncanson & Fox have completed arrangements with the Milwaukee Railway Company for a side track, and will at once begin the erection of their tile factory at Winnebago City, Minn., where they have a good deposit of excellent clay.

Parties looking for a bargain in the way of brickmaking properties will do well to investigate the opportunity offered by "Bolivar," who is advertising the property and four brick plants formerly operated by the Reese-Hammond Company, of Bolivar, Pa.

James V. Mead, a retired brick manufacturer of Chelsea, Mass., died, at his home in that city, September 8. He was seventy-six years old, and had been actively engaged in the manufacture of brick until two years ago. A widow, four sons and five daughters survive.

The next meeting of the Western Standing Committee, which settles all differences between the operatives and the manufacturing potters, will be held at East Liverpool, October 5. This is the first month this year in which no session of this joint committee has been deferred.

Leon Moret, manager of the Fort Saskatchewan Brick Company, at Fort Saskatchewan, Alberta, Canada, fell in between the fly wheel and the base of the engine, and was so badly crushed before the engine could be stopped that he died in a short time. He was fifty-five years old, and leaves a wife and ten children.

The plant of the Townsend Brick Company, Townsend, Ga., is to be dismantled and removed to Brookfield, Fla., where a new company, to be known as the Brooksville Brick Company, has been organized with \$40,000 capital stock. R. L. Davis is at the head of the enterprise, and R. L. Clark, of Chattanooga, will be superintendent of the plant.

Cochran Bros., of Dawson, Pa., have been awarded the contract for the brick that will be used in paving Loflend, Main and Railroad streets, three of the busiest thoroughfares of that place. The contract is a large one, as all three streets, which are the longest in the city, will be paved for their entire length, and will require many thousand brick. The contract for laying the brick was awarded to the Thomas Sweeny Company, of Pittsburg, who will start the work at once, completing it this year.

Another large order for brick that has just been placed with the Monongahela Clay Manufacturing Company, of Monongahela, Pa., calls for furnishing 3,500,000 brick, to be used in the construction of the brick residences, power houses and store buildings at the Filbery, Ralph, Sarah and Palmer plants of the H. C. Frick Coke Company, all of which will be located near New Salem, Pa. Red building brick will be furnished. This company has also just booked an order for 1,500,000 brick to be shipped to McKeesport, Pa., where it will be used in the construction of several fine new buildings.

On August 17 the immense plant of the Baltimore Retort and Fire Brick Company, Baltimore, Md., was visited by fire, which destroyed the main building, containing the machinery, manufacturing department and the general offices. Within twenty-four hours offices were installed in a building opposite the ruins, and customers had received notice that orders for regular shapes would be filled from the stock which was uninjured, and that kilns were in good condition and arrangements would be made to make and burn special shapes. Within two weeks plans had been made and ground broken for the erection of a plant comprising the most approved methods and equipment. It is needless to say the buildings will all be fireproof. Mr. L. N. Rancke, vice-president and general manager, expects the building will be completed and business adjusted to the new conditions by the end of this year, after which he will be pleased to have visitors call and

inspect what is expected to be the most up-to-date fire brick plant in this country.

The Star Pottery Works, of Elmendorf, Texas, has been chartered. Those interested are: Adolph Wagner, S. B. Weller, and J. R. Martin.

A charter has been issued by the Secretary of State to the Havana Clay Products Company, Wilmington, Del. The company is capitalized at \$1,500,000.

Fire at the Tuttle Bros.' brickyard, at Newfield, a suburb of Middletown, Conn., did damage to the extent of \$1,200. The fire started from an overheated kiln.

The roof of one of the kilns at the Sheridan Brick Plant, at Brazil, Ind., was badly damaged by fire recently. The entire roof would have been destroyed had not the employees of the plant formed a bucket brigade and fought the flames.

A structure which will furnish an outlet for a quantity of building brick at Lima, Ohio, is the new State Hospital for the Insane, the contracts for which were recently signed. The National Fireproofing Company, of Cleveland, secured the award at its alternate bid of \$148,000.

The sale of the Salineville Pottery, at Salineville, Ohio, may be accomplished ere another month passes. At a recent meeting of the bondholders representing \$26,000 out of the \$30,000 bonds issues, it was reported that a verbal offer of \$25,000 had been made for the property. Receiver John McNutt will call another meeting of the bondholders soon, when it is said final arrangements will be made to complete the transfer.

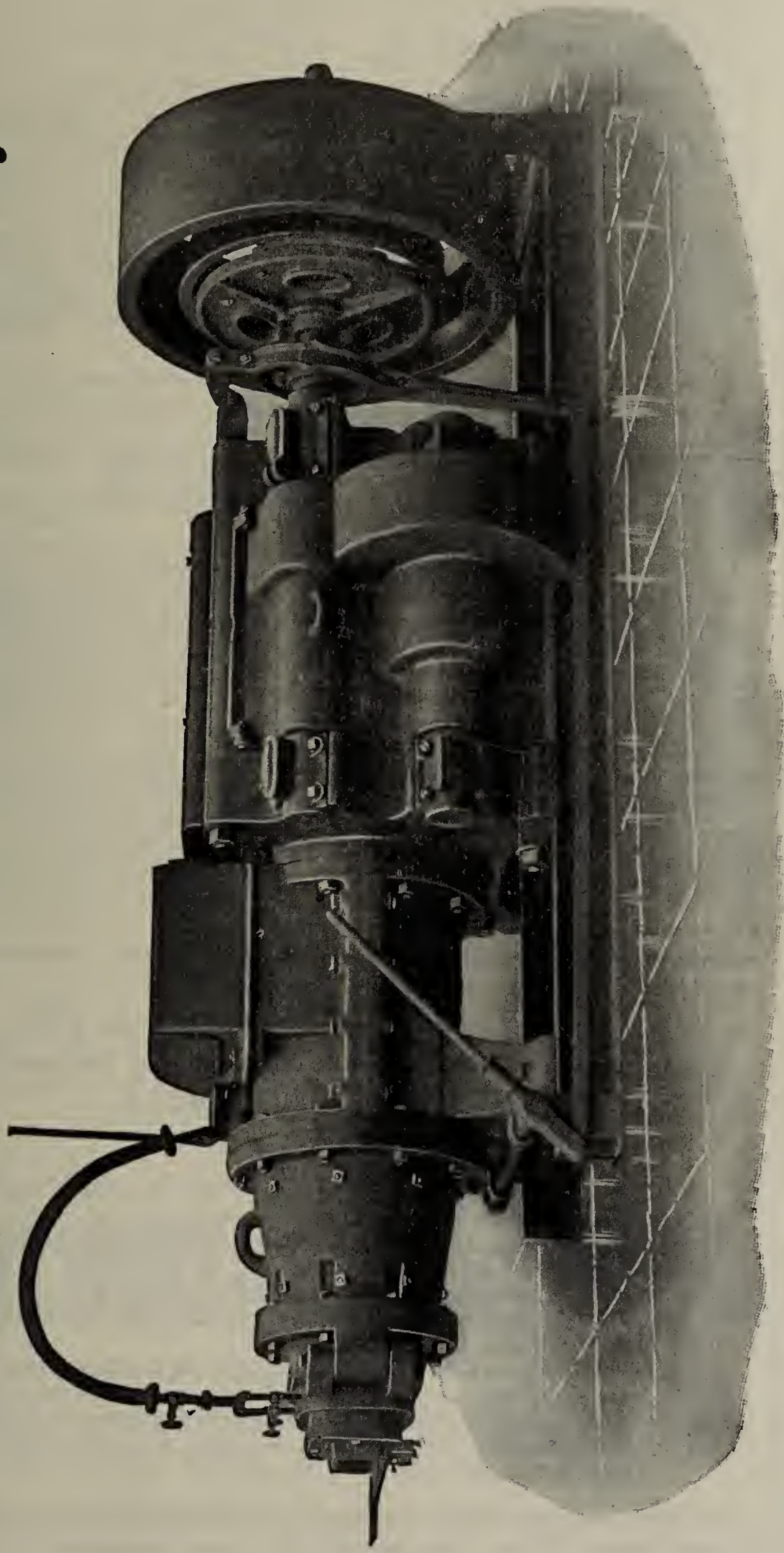
The Apollo Silica Brick Company, Apollo, Pa., shot in a new gas well at the plant this month, and has about doubled the available gas supply, which has been rather below the standard for some months. There is now more than is needed for the operation of the plants and kilns. The company has completed a number of improvements at the plants, including the construction of three additional tunnels and additional industrial trackage and equipment to all parts of the works. Part of the plant has been idle for some time, but this will be placed in operation at once, and the entire plant worked to capacity. The entire capacity has been booked up to the first of next year.

The Monongahela Clay Manufacturing Company, of Monongahela, Pa., is running the plant on full time, and reports that it is very busy at the present time, with enough future business on hand to keep it running to capacity for the next six or eight months. The concern has just booked a fine order for several million brick to be delivered between now and the first of the new year. It is worthy of mention that this was one of the new brick manufacturing plants that was kept running steadily through the entire financial depression, which is a decided distinction, when it will be remembered that some of the largest concerns in this part of the country were forced to close down or run on half time or less.

The great cry in Chicago among dealers in building brick is still for more brick, the plants being still behind with orders and rushed to the limit. It is safe to say that the great bulk of the brick which have been sold in Chicago this season have gone into apartment buildings. Rentals have been pretty stiff in this line of dwellings for a year, and investors and speculators alike thought they saw a good market in this type of building. New subdivisions have been opened up in all parts of the city. Lots that have been vacant for years, with only gaunt, old World's Fair apartment houses and old-fashioned private dwellings near them, have been taken up this year and made the sites of modern apartment houses.

Thomas McMillen and O. P. Walker, both of Punxsutawney, Pa., who purchased the Rogers Bros. Brick Works in the West End, that city, at sheriff's sale last month, have taken possession of the plant, and announce that they will make a large number of improvements at once. The price paid for the plant and equipment was only \$2,650, which is considered an extremely low price. The plant has been in almost steady operation for the past twenty years, and it is not understood how the financial troubles of the former owners were brought about, as the plant has always enjoyed a large business, working to capacity the greater part of the time. One kiln has been fired and the others will be torn out and reconstructed of brick to be burned in the old kiln. Six additional kilns of up-to-date construction will also be built and new machinery installed in the grinding and cutting departments, increasing the capacity of the works about twenty times. Many contracts are being booked, and the steady operation of the rejuvenated plant is already assured.

Modern Stiff Mud Brick Machinery.



We've been building Brick Machinery a good many years and have naturally been brought into contact with a variety of clays and conditions and have been able to produce machinery more and more nearly adapted to the requirements of our customers. Our motto in this work has been "Prove all things and hold fast to that which is good." Consequently the features in our products which have not been found good have been discarded and improvements from time to time have been substituted.

Let us get acquainted with your troubles or your wants, and if we cannot do you good we will tell you so. We build Brick Machines in many sizes and patterns.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

(See ads on pages 342 and 343.)

FOR SALE. WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—One hundred and thirty second-hand cars for soft mud brick; tunnel and dryer are 5 feet, 10 inches, width, 40 inches, gauge, 25 inches. Address W. B. D.,
9 1 d Care Clay-Worker.

WANTED—Position as traveling salesman by an experienced man. Can handle any line of brick. References. Address
HURON,
9 1 cm Care Clay-Worker.

WANTED—At once, a second-hand soft mud machine. Must be in perfect running order. Address, giving full particulars,
"D,"
9 1 d Care Clay-Worker.

FOR SALE.
Fifty thousand dollar brick plant in center of gas and shale belt. Good business and excellent railroad facilities. Address
FRED PFENDLER,
8 2 c Muskogee, Okla.

FOR SALE.
Three-quarter yard traction type Vulcan Little Giant steam shovel in thorough repair. Price reasonable, terms easy. Address
H. D. COOPER & SONS,
First National Bank bldg.,
9 3 dm Nashville, Tenn.

WANTED.
A competent man for machinery salesman, one who has some knowledge of the clay business. Must be sober, ambitious, and of good address. State experience. Address
"RAY,"
9 3 L Care Clay-Worker.

BUSINESS OPPORTUNITY.
Brick and tile manufacturers desiring representation by a concern that knows how to sell their product and whose trade extends throughout the entire United States, will find it to their interest to address
THE AMERICAN SOLICITING CO.,
9 1 d Norfolk, Va.

WANTED—SITUATION.
By a practical young man as superintendent of a sewer pipe or fire brick plant. Fifteen years' experience, and thoroughly understand the making and burning of sewer pipe, flue linings, fireproofing, drain tile, fire brick, and other clay products. Good references. Address
GEO. C.,
9 1 cm Care Clay-Worker.

FOR SALE.
My stock in Charleston tile and brick plant. The greater part of the stock is owned by home people as an investment. I wish to sell my interest and retire from the management. This is a grand opportunity for one with a small amount of money and a good amount of experience and ability to manage the works. Address
S. H. RECORD, Pres. and Mgr.,
8 2 cm Charleston, Ill.

FOR SALE.
A brickyard consisting of dry press and Hercules mud machines, 70 h. p. boiler and engine, waste heat dryer, eighty rack cars, sheds and pallets, fourteen tenement houses, twenty-one acres of land, two brick kilns. The machinery has been used but little. Yard is located near large city and demand for all the brick that can be made. Will sell entire plant for \$5,000 on easy terms. Address
S. J. C.,
7 3 d Care Clay-Worker.

FOR SALE—Five Quincy dry clay gatherers, overhauled and in good condition. Price, \$125 each, f. o. b. cars Memphis, Tenn. Address
TENNESSEE BRICK CO.,
8 2 cm Memphis, Tenn.

FOR SALE—Two hundred and twenty cast iron flat cars for brick dryer. Cars are roller-bearing, and have been used but a short time. Address
SOUTHERN BRICK AND TILE CO.,
9 3 d Louisville, Ky.

WANTED.
To interest a practical man in our brick and tile plant. Well-established business. Correspondence solicited. Address
"BELL,"
9 4 dm Care Clay-Worker.

WANTED—Position as manager of brick plant. Am familiar with stiff mud or soft mud process, and the manufacture of tile and hollow block. Have had twenty-two years' experience. Address
"CANADA,"
9 1 cm Care Clay-Worker.

WANTED.
A position as superintendent by a responsible man, who is thoroughly familiar with all the details of a brick plant, and capable of handling all kinds of help. Can give the best of references as to ability, etc. Address
R. R.,
8 tf d Care Clay-Worker.

WANTED.
A position as superintendent or foreman of either a stiff mud or dry press brick plant. Am a first-class machinist, and thoroughly understand all phases of brick-making. Can burn with either oil, wood, or coal, in either up or down-draft kilns. Can handle labor to best advantage. Address
W. G.,
9 1 d Care Clay-Worker.

WANTED—Foreman for a stiff mud repressed brick factory, located in Pennsylvania. One who thoroughly understands machinery, the making of high grade brick, and who is capable of handling men. Must be total abstainer and have A1 references. State salary expected. Address
J. L. ERB,
457 State st.,
9 1 d Brooklyn, N. Y.

WANTED—Second-hand ball mill with capacity of 200 to 300 pounds per batch. Must be in good condition and price reasonable. Address
LOUIS,
9 1 c Care Clay-Worker.

WANTED—Position as superintendent of brick, roofing tile, or sewer pipe plant. Expert judge of clays. Good burner and manager of men. Address
SAINT,
9 1 lp Care Clay-Worker.

FOR SALE—Two hundred and seventy dryer car pallets, 85 inches long, 37 inches wide. Eight 2½-inch channels to the pallet, riveted to four ¼-inch cross pieces. Cheap. Address
THE BARR CLAY CO.,
9 3 d Streator, Ill.

FOR SALE—Fully-equipped brick plant and eighty-five acres of finest clay land near Baltimore, Md. Line of railroad and short wagon lane to center of city. Will be sold cheap. Terms to suit purchaser. Address
WM. B. FINK & CO.,
9 1 dm 225 E. German st.,
Baltimore, Md.

FOR SALE.
One American Blower Company 200-inch, three-quarter housed, left-hand, bottom discharged, steel plate fan, with overhung wheel.
Two American Blower Company 54-inch flanged ventilating fans.
CHAMBERS BROS. COMPANY,
Fifty-second and Media sts.,
9 1 L Philadelphia, Pa.

FOR SALE.
I am interested in a very valuable mine of Fuller's earth and kaolin, recently discovered in one of the southern States, and would like to sell a controlling interest to some party who would develop it and place the product on the market, which can be done very cheaply. Samples of material will be sent on application. Address
T. E. FLOURNOY,
9 3 cm Monroec, La.

SUPERINTENDENT WANTED.
A brick company on Puget Sound, Wash., wants a competent superintendent. One who is able and willing to back his experience by taking an interest in the business. Here is an excellent opportunity for the right man to establish himself in a good business. Market unlimited, prices good. Do not answer this unless you know your business. Write
C. D. FULLER,
9 1 cm Gig Harbor, Wash.

FOR SALE**Reese-Hammond Fire Brick Company Properties, Bolivar, Pennsylvania,****Comprising**

- About 900 acres of Land, containing—Soft Fire Clay, Shale, Flint Clay, Ganister, Coal and Blue Stone.
- 2 Plants for manufacture of hand made Fire Brick and Refractory Ware generally.
- 1 Plant for manufacture of Silica Brick.
- 1 Plant for manufacture of Buff, Gray or Red-Face Brick, Paving Brick and Refractory Ware.
- 44 Kilns; Compressed Air Mine Equipment; Waste Heat Dryers; unlimited supplies, raw materials and coal; best of shipping facilities; in the heart of markets for different products. The plants are modern and have shown phenomenal earnings in the past.

This is absolutely the best proposition ever offered at the price; they make the purchaser a fortune. Can be bought for a small percentage of what the properties were appraised at. Full details to parties interested.

"BOLIVAR"

Care The Clay-Worker.

SPLENDID LOCATION FOR BRICK PLANT.

Inexhaustible supply of clay suitable for high grade paving, red and buff pressed building brick and tiling. Our city located in middle west, on two transcontinental railroads, with excellent shipping facilities. Will offer substantial inducement for erection of brick plant. Another city in North Carolina also will offer interesting proposition. For full particulars, address
EDWARD M. DEANE & CO., Bankers,
9 3 dm Grand Rapids, Mich.

FOR SALE—Modernly equipped shale brick plant; product, red facing brick. Waste heat system, which we find a great money saver. Everything about the plant in first-class shape. The kilns are rectangular shape, down-draft, capacity, 600,000; waste is entirely eliminated. Power and machinery is designed for 50,000 output. Present output, 25,000 daily. Inexhaustible supply of shale conveniently located to the plant. Plant in successful operation and doing a profitable business. For further particulars, address
STANDARD SHALE BRICK CO.,
9 1 dm Youngsville, Pa.

FOR SALE—Seventy-five tripple deck drain tile wooden dryer cars, roller bearings, 31-inch track gauge, all in good running order and now in daily use. Will hold 200 4 inch and thirty 12 inch.

KANKAKEE TILE & BRICK CO.,
8 3 cm Kankakee, Ill.

FOR SALE.

One three-mold Boyd dry press.
One three-mold Andrus dry press.
One two-mold United States dry press.
One Freese stiff mud machine, A Special.
One Standard board delivery cutting table.
One Freese 8-foot pug mill.
One "Centennial" stiff mud brick machine.
One Fernholtz 42-inch pulverizer.
One 6-foot iron frame mixer.
One pair crusher rolls. (Corrugated).
One Chandler-Taylor 10x12 steam engine. Good as new. Has developed 40 h. p.
One 8x12 steam engine. Good condition.
SCOTT MANUFACTURING CO.,
Third National Bank bldg.,
8 tf dL St. Louis, Mo.

FOR SALE—One 2-mold Simpson dry press. One eight-foot iron frame dry pan. One No. 6 Brewer brick and tile machine, with all necessary dies and cutters. One tile elevator, one clay elevator, one clay disintegrator.
O. W. DUNLAP,
2 tf L Bloomington, Ill.

FOR SALE.

Matthews gravity 12-inch brick carrier, nineteen 8-foot sections, one 6-foot, five 4-foot, three 7-foot, curves, seventeen adjustable jacks, two aprons, eighteen extra rollers. Good reason for selling cheap.
THE HEIDECKER BRICK CO.,
7 6 c Sharonville, Ohio.

WANTED.

Position by first class man as head burner or assistant superintendent on a dry clay, press brick, down-draft kiln plant. Can guarantee results if proposition is not fundamentally wrong. Address
RESULTS,
7 tf d Care Clay-Worker.

FOR SALE.

A brickyard, with machinery, fifty acres of land. Finest of clay, near a large saw mill on the N. O. G. N. Railroad. Sixty-three miles from New Orleans; price, \$6,000. Address
ST. TAMMANY BRICK YARD,
7 tf dm Ramsey, La.

FOR SALE.

Modern tile factory in central Iowa, now in successful operation. Good business established at good prices. Fine shipping facilities and product is of best quality. Might take land in part or full payment. Address
IOWA,
7 tf d Care Clay-Worker.

WANTED.

Clayworkers who are having troubles of any sort in the operating features of their plant, whether in the making, drying or burning, to know that my experience of twenty-five years enables me to give valuable practical advice that will prevent further loss and trouble, if skill and knowledge as a practical worker and chemist can accomplish that purpose. Terms reasonable and contracts made contingent upon success. Address
J. J. KOCH,
5 tf L 3325 Caroline st., St. Louis, Mo.

DO YOU WANT TO SELL OUT?
DO YOU WANT A PARTNER OR MORE CAPITAL?
DO YOU WANT TO EXCHANGE PROPERTIES?
DO YOU WANT TO BUY A BUSINESS OR A FARM?
I BRING BUYER AND SELLER TOGETHER.
ESTABLISHED 1881.

If you want to buy, sell or exchange any kind of business or real estate, anywhere at any price, address
FRANK P. CLEVELAND,
8 tf d 965 Adams Express Building,
Chicago, Illinois.

FOR SALE—ENGINES AND BOILERS.

—Engines—

Corliss and Automatic—20x42 Allis, 18x42 Hamilton, 18x36 Wright, 16x32 Buckeye, 14x24 Atlas; also 12x30, 10x30, 13x16, 13½x15, 12x18, 12x14, 12½x12, 10x10, etc., etc.
Throttling—18x26 H. S. & G., 18x24 Erie City, 16x20 Chandler & Taylor, 14x24 Atlas, 14x14 Vertical, 12x18, 11x16, 10x16, 10x12, 10x10 Vertical, 9x12, 8x16, 8x12, etc., etc.

—Boilers—

Horizontal Tubular—84x18, 78x16, 72x18, 72x16, 66x16, 60x16, 60x14, 54x16, 54x15, 48x14, etc., etc.
Fire Box—60, 50, 40, 35, 30, 25, 20, 16, 14, 12 and 10 horse power, etc., etc.
Vertical—55, 35, 30, 20, and 15 horse power, etc., etc. Pumps, heaters, tanks, saw mill and general machinery.
THE RANDLE MACHINERY CO.,
7 tf d 1735 Powers st.,
Cincinnati, Ohio.

Continued on page 314.

An Opportunity of a Life Time.

Will Sell at a Low Figure and on Easy Terms.

An up-to-date brick plant located on the James River, Va., and in easy touch by water with eight rapidly growing cities.

Brick bring \$7.00 at kiln and future outlook is excellent.

The outfit consists of Henry Martin soft mud machine, 50,000 per day capacity, with latest patent steam drier. Also J. D. Fate Co.'s stiff mud outfit 25,000 per day capacity, with Scott's patent cars. All practically new.

New and commodious dwellings for manager and laborers. Not a better equipped yard in the state. Twenty or more acres of finest plastic clay, average depth fifteen feet and burns cherry red in five days. Cheap fuel and labor, with low freight rates and a mild climate offer a combination seldom met with. The improvements have cost \$16,000. Reason for selling, am not myself a brickmaker; bought to protect my own interest. Write for full particulars. Address
BOX 5, Care Clay-Worker.

MADDEN & CO., Rushville, Ind.

Full Line of

CLAYWORKING MACHINERY.

See two-page ad in April No. Clay-Worker.

New Specially Designed Machine for Large Drain Tile and Hollow Ware now ready.

New automatic attachment for any hand cutting table.

Send for circulars and catalogues

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CON-
TRACTING CO.,
8 tf d Zanesville, Ohio.

FOR SALE.

I have fifty acres of fine clay suitable
for the manufacture of red face brick.
The property is located within thirty miles
of New York, near tidewater. Write for
full particulars and price. Address
C. A. B.,
6 tf d Care Clayworker.

FOR SALE.

6 "Little Giant" Traction Shovels.
Dredges for clay swamp, ½ yd. to 2½ yd.
Locomotives, cars and rails for up-to-date
clayworkers.
We buy and sell.

THE MALES CO.,
26 Cortland Street, New York, N. Y.,
1508 First Nat'l Bank Bldg., Cincinnati, O.



SWITCHES FOR SALE.

Right and left hand one, two and three
way switches of various gauges, radius
and weight rail, at special prices.
THE ATLAS CAR & MFG. CO.,
Cleveland, Ohio.

DO YOU NEED
MODELS or MOULDS?

We can furnish you with them for
any line of clay products, ornamental
or plain. Plaster-blocks and cases
made to order. First class work
guaranteed.

IRONTON CLAY SPECIALTY CO.,
Ironton, Ohio.

See additional ads under Table of Contents.



They Never Fade

Twenty
Long Years
of time and weather
have tried out Ricketson's
famous Red Brick brand

COLOR

For Mortar, Brick,
Cement, Stone, etc.
Proved to be absolutely
permanent. Red,
Brown, Buff, Purple
and Black.

Ricketson's Mineral Paint Works,
MILWAUKEE, WIS.

DOVER FIRE BRICK CO.,

509 Cuyahoga Building, Cleveland, Ohio.

Operating plants at North Bend, Clinton County,
Pa., and Strasburgh, Ohio.

"NORTH BEND." "DOVER." "BUCKEYE."

We have have been furnishing fire brick for kilns
for over forty years.

WRITE US FOR PRICES.

The Starkey Automatic Brick Counter.

(Patent Applied For.)

A machine that counts the number of wheelbarrow loads
of brick absolutely correct and cannot be tampered with. To
forget or to swell the count are both impossible.

We will sell a limited number of machines on trial and
at a low price to introduce them.

Write for descriptive catalog, terms and prices. Address

JOHN STARKEY,

MINERVA, OHIO.

Mention The Clay-Worker.

THE SOUTH DEMANDS!

The Best

FIRE BRICK

FOR KILN CROWN AND LININGS.

WE MAKE THEM!

SOUTHERN CLAY PRODUCTS CO.,

Chattanooga, Tennessee.

The Improved Flue System.

The most profitable kiln on the market
for burning any clay product.

Absolute Draft Control. Economy of Fuel and Time.
All Hard Brick.

Kiln and Yard Rights, with Plans, Specifications, etc., sold at very reasonable
rates. Booklet, estimates and full information cheerfully furnished.

GEO. E. SNOWDEN & CO.,

[Formerly J. P. Bradley & Co.]

New Cumberland, W. Va.

THE WEBB WIRE WORKS

MANUFACTURERS OF
MUSIC WIRE NEEDLE WIRE

NEW BRUNSWICK, N. J.

We manufacture BRICK AND TILE CUTTING WIRE, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.

C. A. SHOOP, Pres.

N. R. WITHERS, Sec. and Treas.

H. L. JACOBS, Gen. Mgr.

SUFFOLK CLAY COMPANY,

MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

Marion Machine, Foundry & Supply Co., Marion, Indiana:

Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

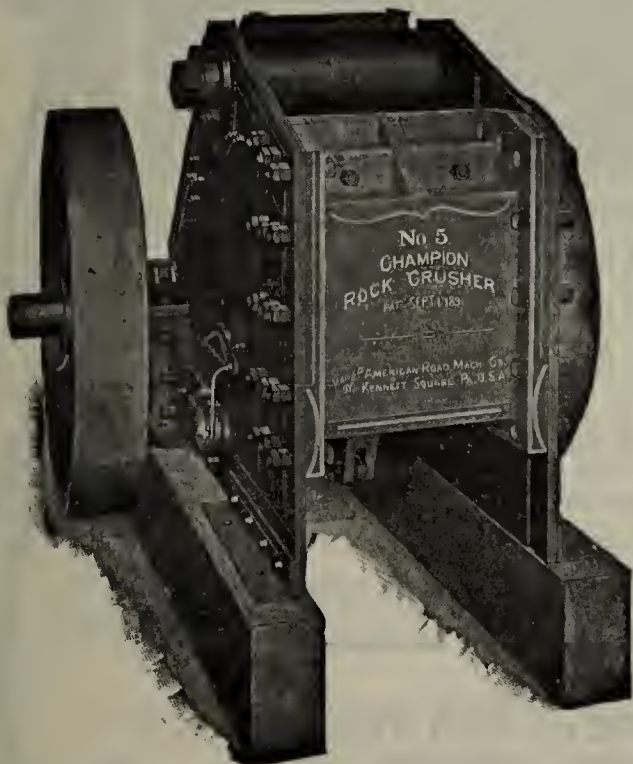
Very truly yours,

SUFFOLK CLAY CO.,

For further information address

H. L. Jacobs, Gen. Mgr.

MARION MACHINE, FOUNDRY AND SUPPLY CO., MARION, IND.



It Looks Good

on paper.

It Looks Better

crushing shale, fire clay, rock and other hard material.

THE CHAMPION CRUSHER

is expensive, *to do with-*
out, because it saves you money.

Catalogue is free on application. Address

AMERICAN
ROAD MACHINE CO.

KENNETT SQUARE, PA.

NO. 5, 11x26 CHAMPION CRUSHER.

The Department of Clayworking and Ceramics

Established by the Legislature in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.

W. H. S. DEMAREST, D.D.

Department of Ceramic Engineering Ohio State University.

THE OHIO STATE UNIVERSITY offers complete courses in all of the usual engineering branches. It is prepared to offer especially fine facilities for the study of the clay industry in its department of Ceramic Engineering.

This department, located in a large new building, is entering upon its 15th year. Substantial additions to its equipment are now in process. Its laboratories and equipment are the most complete in the country. It offers regular courses in the technology of clayworking, glass and cement manufacture, and an opportunity for a limited amount of special study in these and similar fields.

Tuition is free. Laboratory fees are low. Living expenses moderate. The corps of instructors is composed of specialists who have had good practical experience.

For information or catalog address

PROFESSOR EDWARD ORTON, JR.,

Director of Department of Ceramic Engineering.

Columbus, Ohio.

Brick Expert.

Thirteen years' practical experience. Graduate of German technical school of brick manufacture.

Will test clays and other materials and superintend the re-adjustment of old or installation of new machinery, etc.

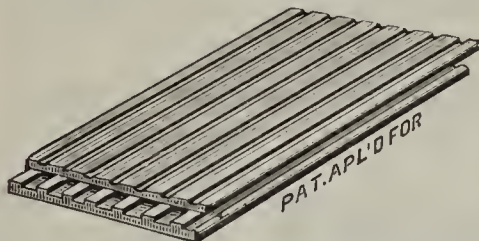
Specialty: Removal of difficulties or obstacles of operation. Builder of continuous kilns.

O. POMMER,

1017 Dillon St.

St. Louis, Mo.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles. Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

MUELLER BROS.,

9235 Clark Avenue.

St. Louis, Mo.

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Manufacturers of

**Red Oxides for Brick-
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**Eclipse
Mortar Colors,
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Clinton Hematite Red
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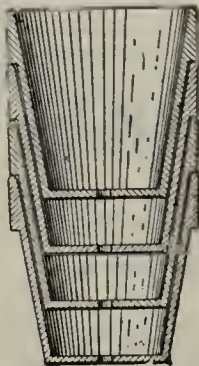
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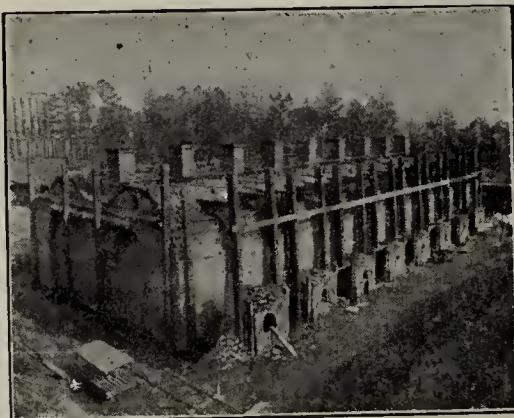
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Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
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Double Up and Down Draft Kiln.

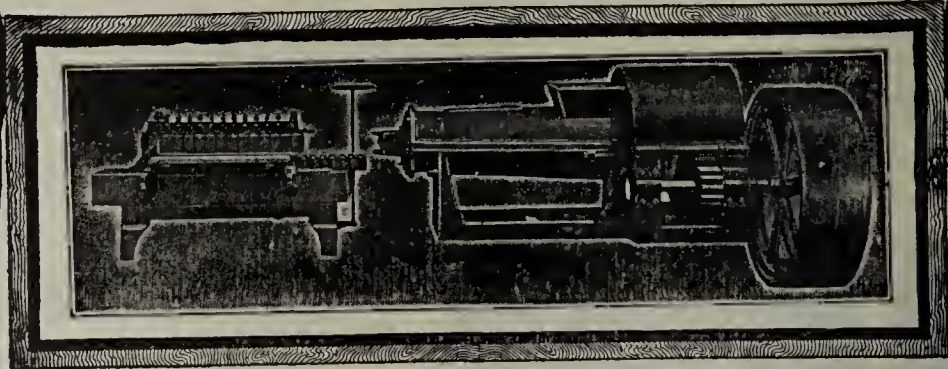
WEST POINT BRICK & MFG. CO.

West Point, Miss., July 18, 1908.

This is to certify that during my experience of 35
years in the brick business I have handled all kinds
of down-draft kilns and I can conscientiously say that
the F. W. Dennis Kiln is one of the best kilns in the
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would cheerfully recommend the F. W. Dennis Kiln
to anyone needing down-draft kilns, as I have had
wide experience in all kinds of clays. I have been
superintendent in Chicago several years for E. Har-
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at Lincoln, Neb.; seven years at Lawrence, Kan., and
many other places; that I have handled different clays
and kilns. But this kiln I have just burned and half
unloaded is pronounced by the above company as the
best burned kiln of brick ever seen in the State of
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Wood burning kilns changed to coal burning.
Brick plants installed and put in operation.
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It has had few rivals and no superiors. Improved from
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Strength, Simplicity, Durability, Efficiency and Quality

of finished product, until it has reached the highest state of
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For Brick, Roofing Tile,
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The strongest and most efficient Brick Machine made, and the only Press that gives three distinct pressures to the brick.

We build and equip complete

SAND-LIME BRICK PLANTS,

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LUMP, GRAIN AND GROUND

60-70% 70-80% 80-90% OXIDE.

CLAY WORKERS GOODS A SPECIALTY.

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Sewer Pipe and Clay-
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ESTABLISHED 1862.

The Anton Vogt
Down Draft Kiln

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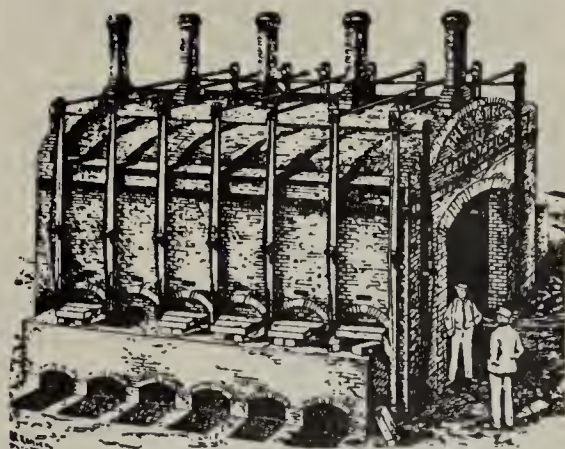
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Built Round or Square.

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For Economy of Fuel and Percentage of Hard Burned Brick, This kiln will give satisfaction. Constructed to burn without smoke and give an even distribution of heat, producing uniform burns. Hot air dryer. Continuous and muffle kiln.

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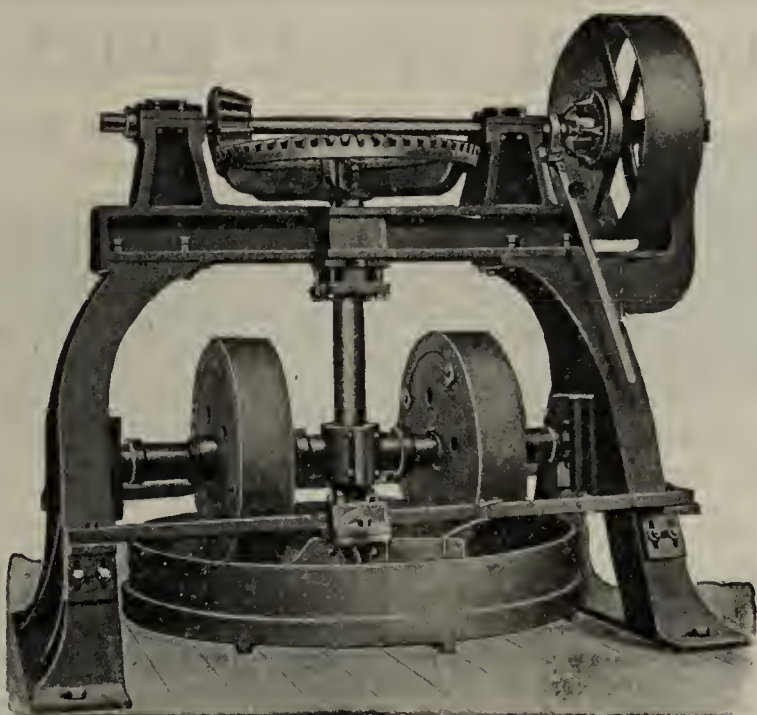
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For all transient advertisements, such
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The Best, Quickest, Cheapest
Method of Securing Results.



Photo showing brick before
we took charge.

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THE two photos here shown illustrate
an extreme case of Lamination, and
the results we obtained in correcting it.
Write and get our definite proposition
in which we guarantee results.

LUCE ENGINEERING CO.

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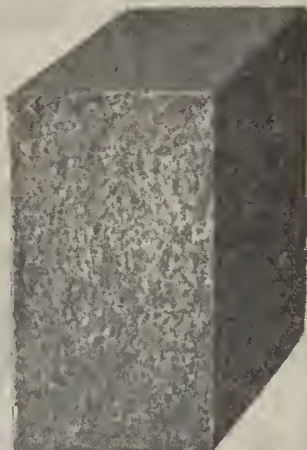


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after we had finished.

The Richardson-Lovejoy Engineering Company,
Consulting Engineers and Factory Architects.
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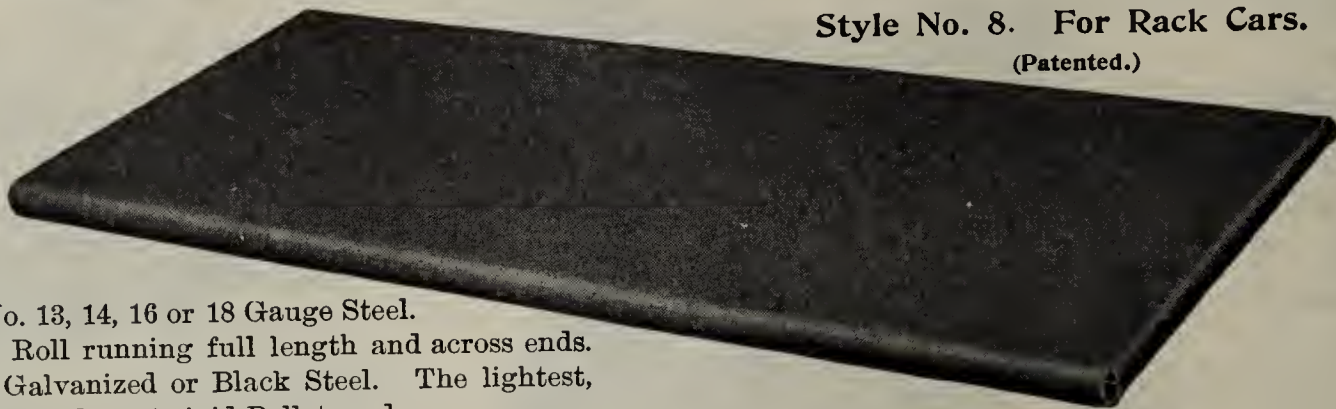
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"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)



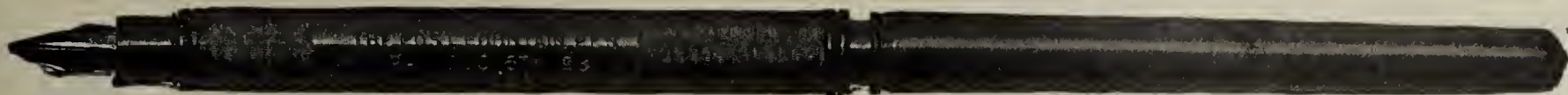
Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

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As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
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Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese
and all Chemicals used by the Clay Trades.



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We will send this famous gold-pointed pen, post paid, and THE CLAY-WORKER, for one year, to any address in the United States and Canada for **\$3.00**

"POST" SELF FILLING CLEANING FOUNTAIN PEN.

Gen. Lew Wallace, the author of "Ben Hur," writes: "I have tried every kind in the market, and unhesitatingly give the preference to the "Post."

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HAIGH'S NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning

ROOFING TILE, DRY PRESSED, FACING, FIRE, PAVING AND COMMON BUILDING BRICK, and Burning from 5,000 to 100,000 Brick per Day.

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THIS KILN CAN BE FIRED WITH COAL, WOOD, OIL, NATURAL OR PRODUCER GAS.

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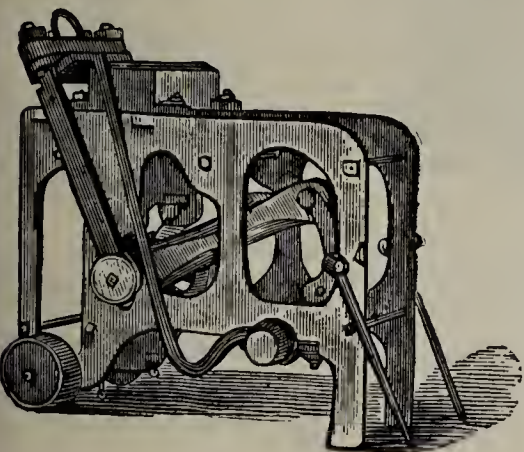
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For Clay, Coal, Sand, Marl, etc.

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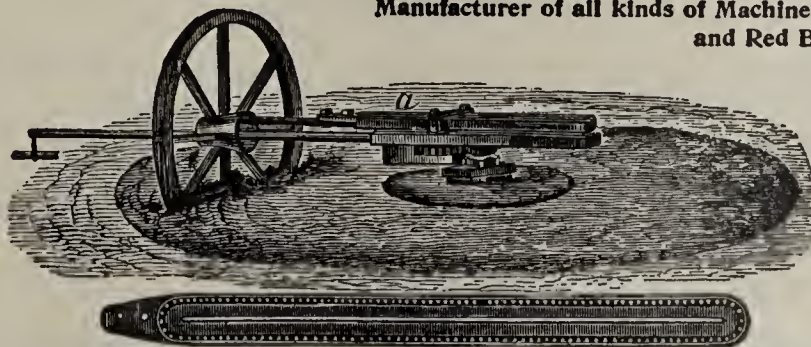


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Fire and Red Brick Presses all Sizes. Machinists and Engineers.

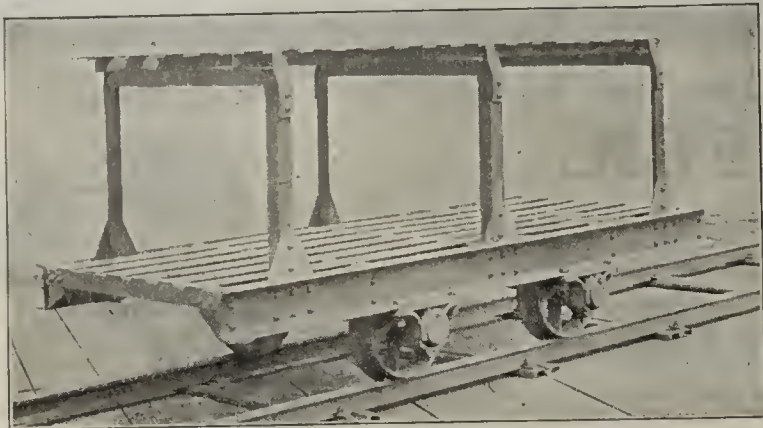
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**STRONGEST
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Note particularly

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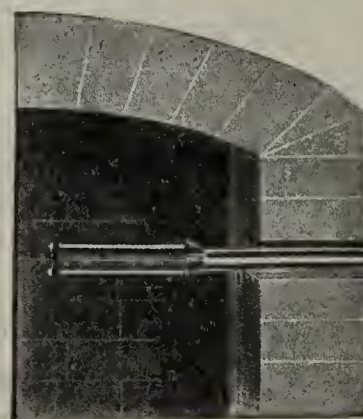
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BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

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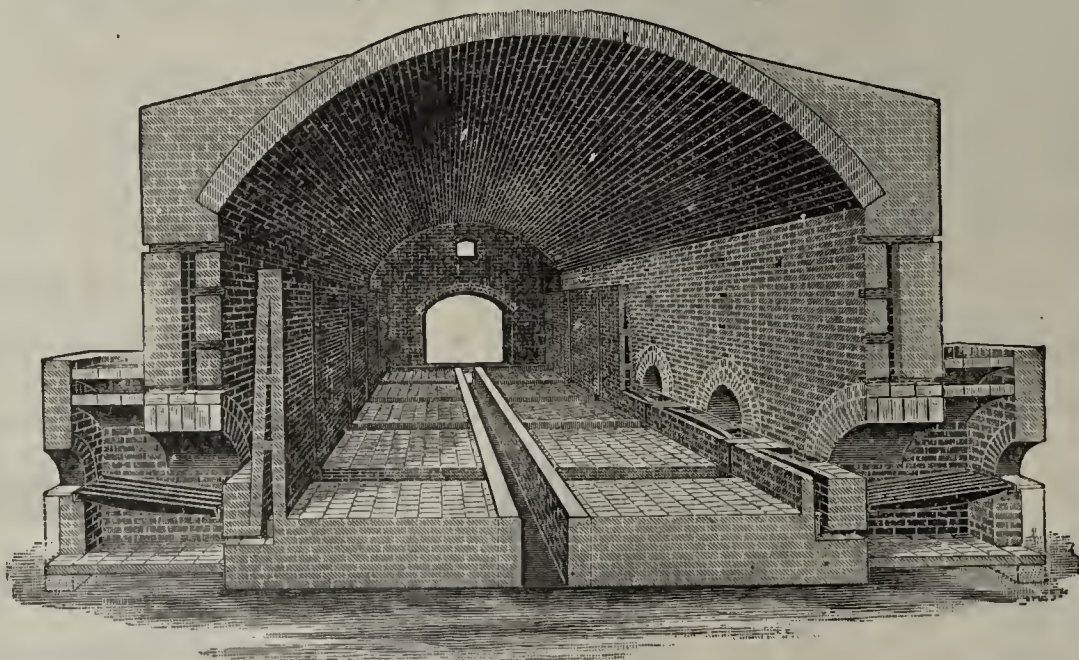


For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

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BROWN
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The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

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RAILROAD SPECIALISTS FOR ALL INDUSTRIES.
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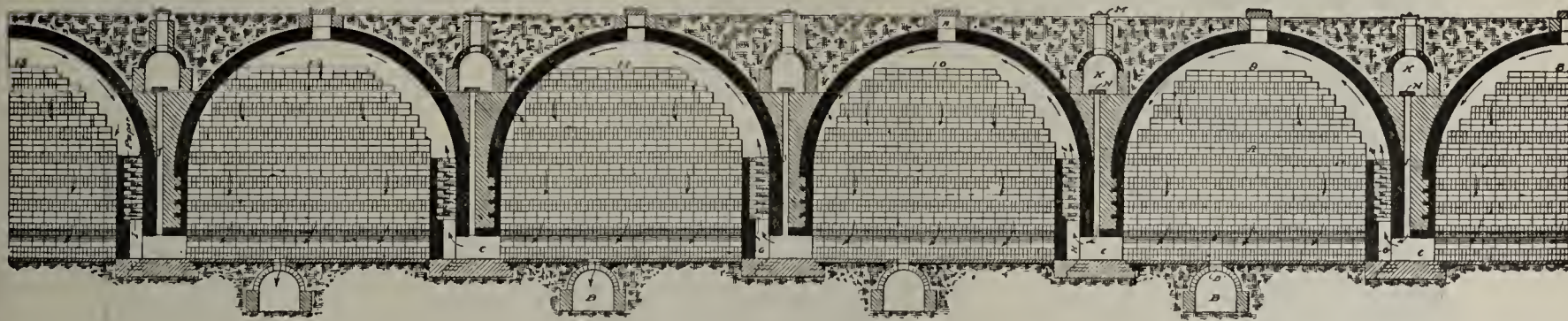
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THE YOUNGREN CONTINUOUS KILN PRODUCER GAS FIRED.



This kiln has now been developed to a state of perfection that places it far in advance of any other system of kilns for burning any and all kinds of clay product.

The kiln is fired with producer gas which is generated from ordinary bituminous coal in a gas producer attached to the kiln. This renders the operation easy and places the regulation of the temperature under most accurate control.

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THE BOSS SYSTEM OF BURNING BRICK.

WATER SMOKE WITH ALL SLACK
BURN WITH ALL SLACK
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME
LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS COMMON BUILDING BRICK
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BURNS DRY PRESSED BRICK
BURNS HIGH CLASS FRONT BRICK
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Thirty years' experience; will guarantee to burn any kind of clay, including the most refractory fire clay for 40% less fuel cost than by the old method. Can be applied to kilns already built without any alterations. Write for Catalogue.

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You Can If You Use
The BECHTEL P. D. Q. DRIER

Price Low

Drying Efficiency High

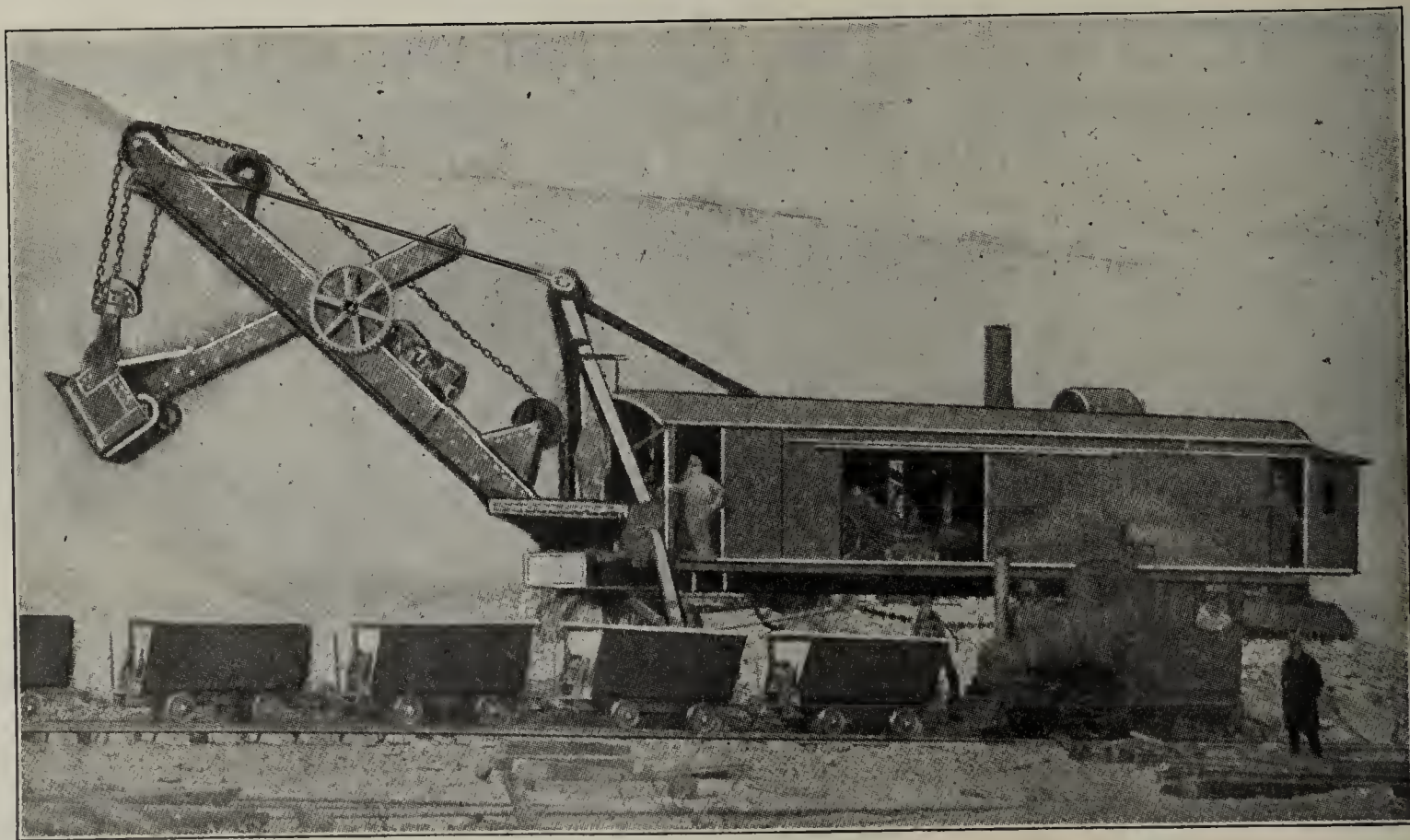
Quality and Quantity of
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Write for Details and 1908 Catalog.

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Steam Shovels, Railroad and Traction trucks, all sizes and suitable for all classes of work. Placer Mining Dredges, River, Harbor and Ditching Dredges.
For information write

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THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.



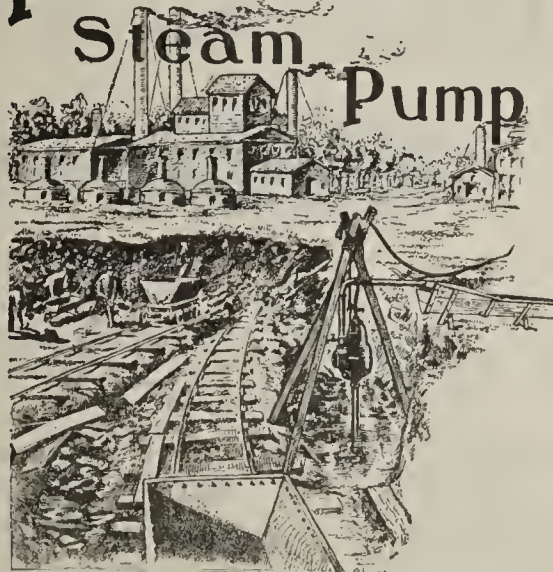
These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Sqaure Press, and are the best and most economical machines now in use.

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We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

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Pulsometer Steam Pump



DOES NOT

require engine, belt, oil, packing or special foundation—merely a steam pipe from boiler—that's all.

Operates as well suspended as stationary, and may be raised or lowered as occasion demands without interrupting its work.

No easily deranged inside or outside mechanism liable to become choked or clogged.

For Draining Clay Pits. pumping liquid clay, or handling water heavily charged with mud, sand or grit, there is nothing equal to the PULSOMETER.

Easy to Install.

Easy to Operate.

Illustrated, descriptive catalogue gratis.

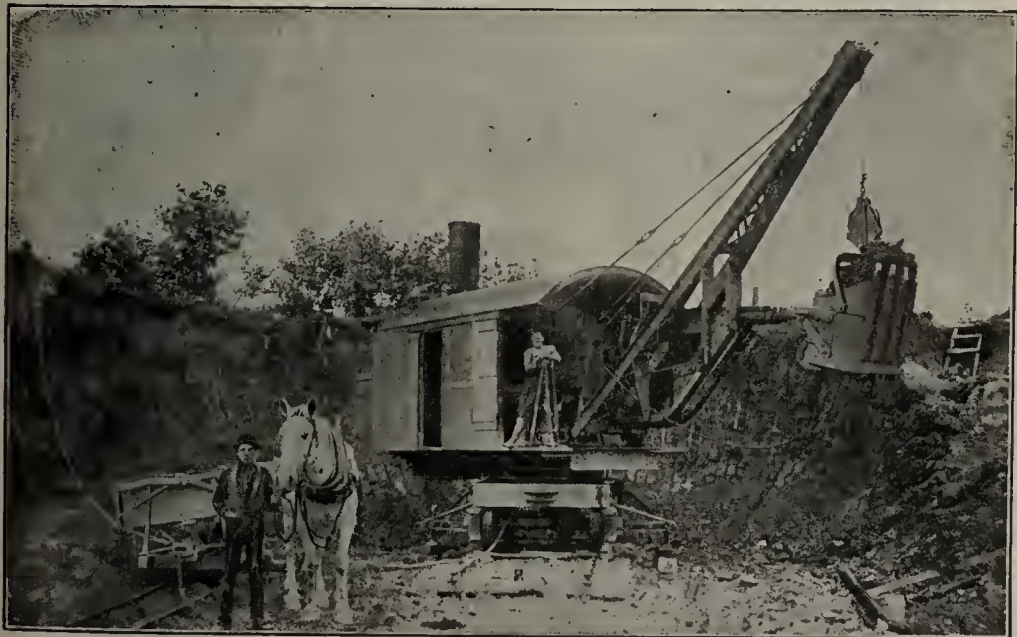
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Chicago Office, 61-69 No. Jefferson St.

**Handle Your Clay
With One Man and**

The Thew Steam Shovel.



Type No. 1—Traction Wheels or Car Wheels, $\frac{3}{4}$ -Yard or One-Yard Dipper.

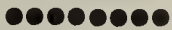
Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

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Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.



Only One Operator Required.

Wire Cables used instead of Chains.

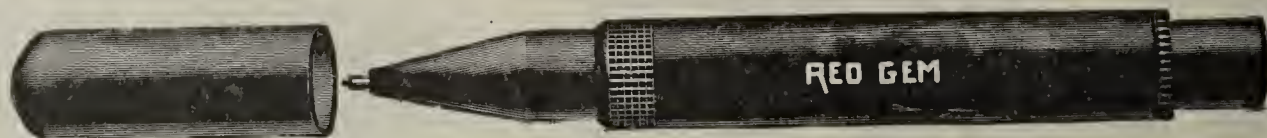
Strictly First-Class in every Detail.



Made in four sizes.

Mounted on Car Wheels
or Traction Wheels.

YOU CAN'T BEAT IT



RED GEM INK WRITING PENCIL.

The only satisfactory fountain pencil that writes like a lead pencil and may be carried in the vest pocket, being leak proof.

A perfect writing, ever ready Ink Pencil, dwarf size, beautiful terra cotta finish, that always writes at first touch at any angle, and retails at	\$2.50
The best of all trade papers, The Clay-Worker, for the following twelve months	\$2.00
This total value of	\$4.50

WE NOW OFFER FOR THIRTY DAYS BOTH
THIS RED, DWARF SIZE, INK WRITING
PENCIL AND THE CLAY-WORKER FOR

\$3.00

DON'T DELAY BUT SEND CHECK TODAY and get the handiest and most perfect ink writing pencil and a whole year's good reading. Address

T. A. RANDALL & CO.,

211 North Hudson Street, Indianapolis, Ind.

Independent and Suspended Mullers

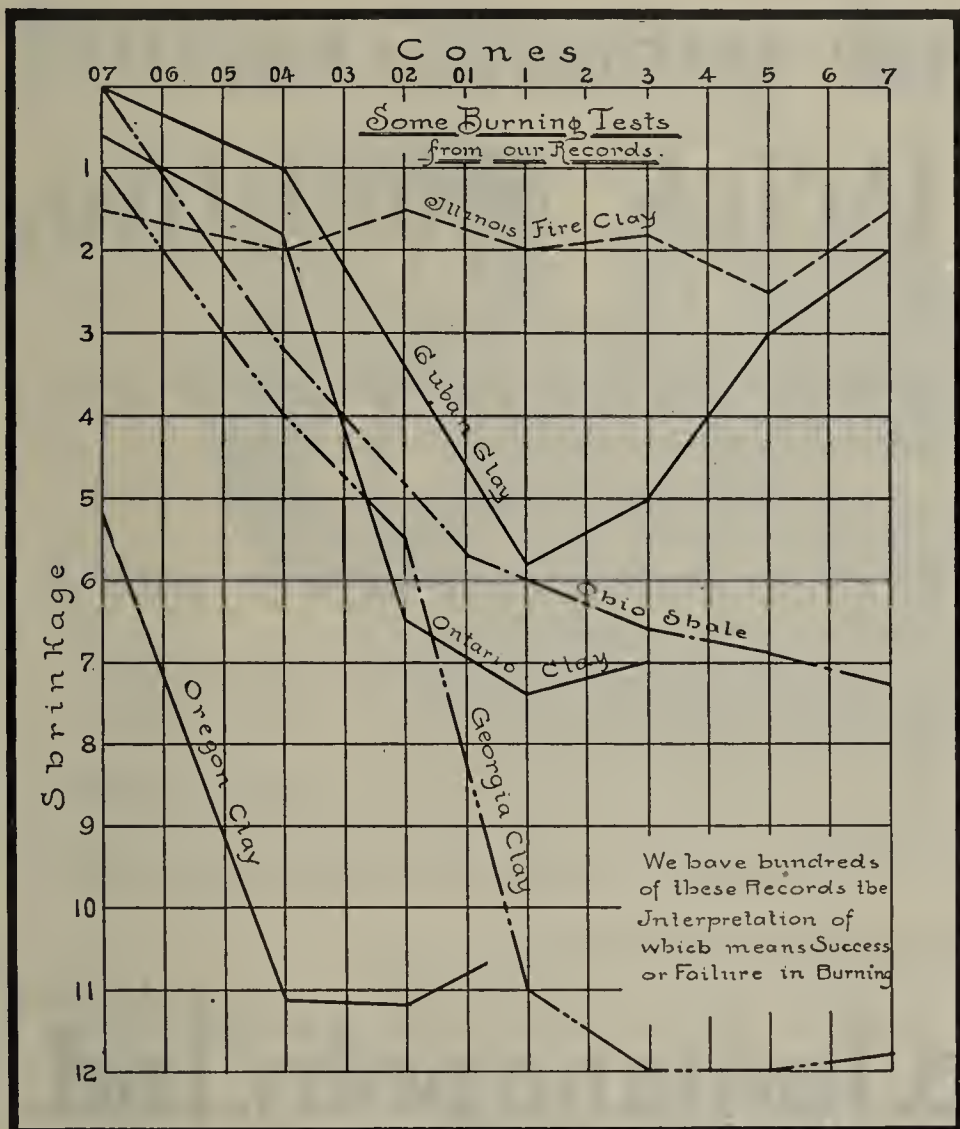
the distinguishing feature
of our

DRY PANS.

Other valuable
features which our
catalogue fully
describes.



EAGLE IRON WORKS, Des Moines, Ia.



The Richardson-Lovejoy Engineering Co.

Columbus, Ohio.

CLAY TESTING.

Know Your Clay Before You Build a Plant to Work it.

Physical and working properties, plasticity, bonding power, tensile strength, drying qualities, burning and color range, vitrification range and character, scumming and other numerous troubles to which clay is heir.

Clay is Full of Troubles, which our tests show, and we tell you whether your venture is safe or better let alone.

Send for "Ceramic Engineering" free.

The Original ^{EXHAUST STEAM} Dryer is the National.

ROCKFORD BRICK COMPANY.

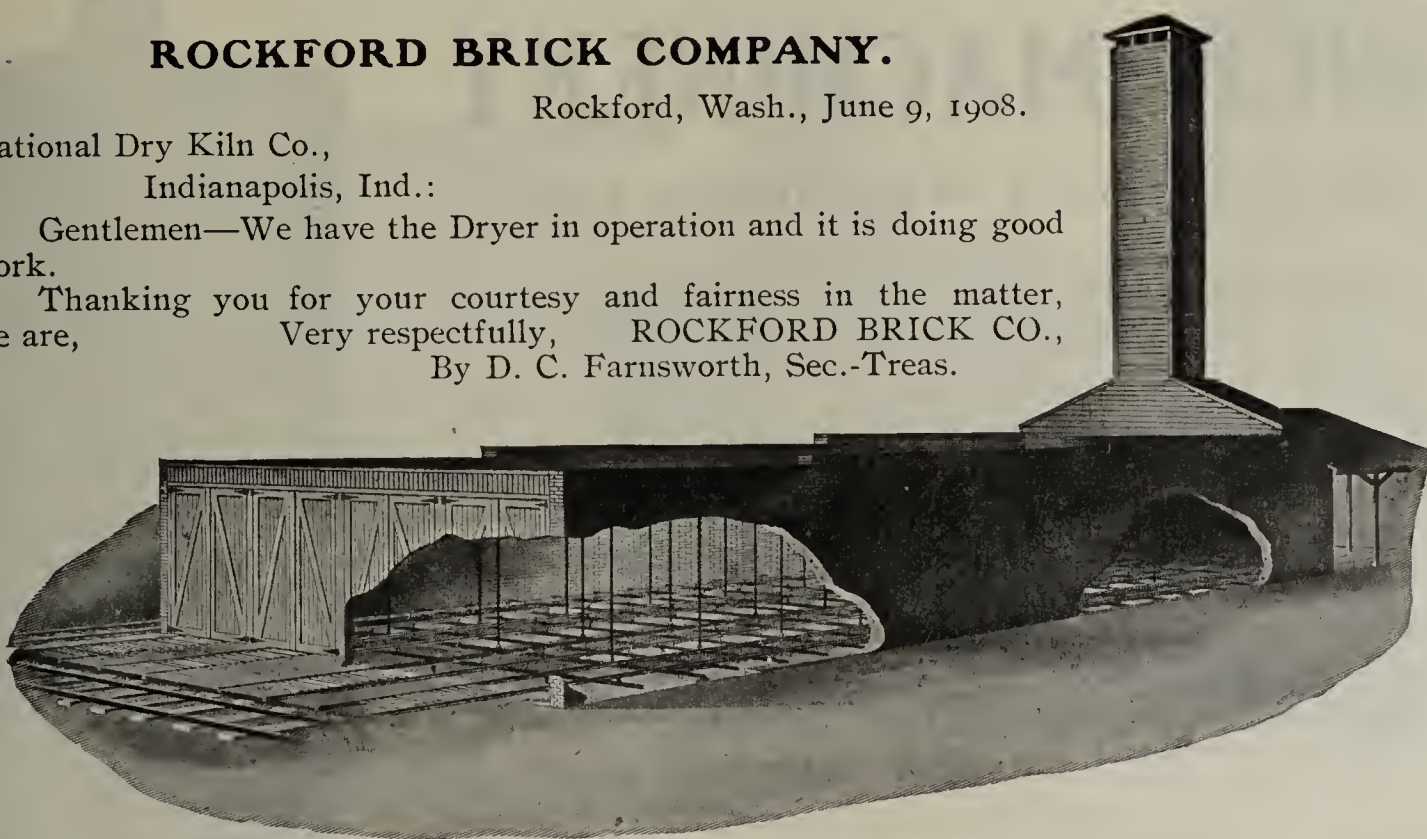
Rockford, Wash., June 9, 1908.

National Dry Kiln Co.,

Indianapolis, Ind.:

Gentlemen—We have the Dryer in operation and it is doing good work.

Thanking you for your courtesy and fairness in the matter, we are,
Very respectfully, ROCKFORD BRICK CO.,
By D. C. Farnsworth, Sec.-Treas.



No Fan.
Steel Roof Supports.

No Engine.

No Fire Danger.
Steel Roller Bearing Cars, etc.

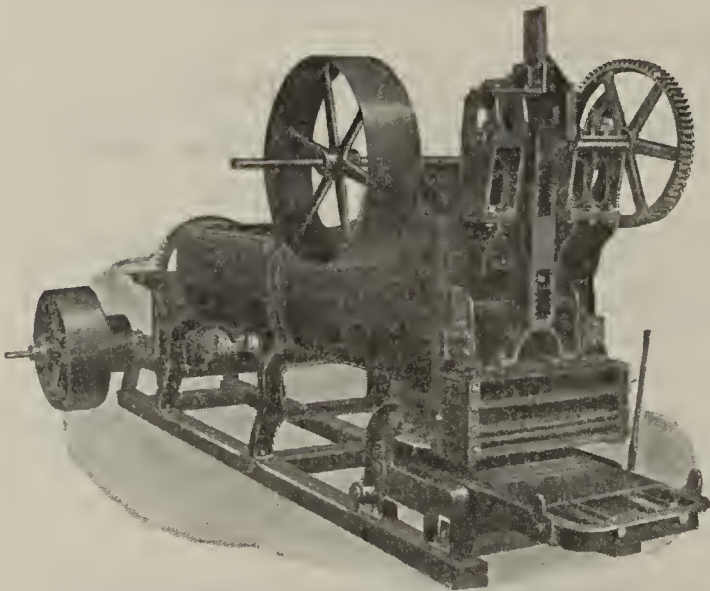
Steel Foundations.
Ask for Cat. 200

C. H. BEALE, Southern Manager,
Montgomery, Ala.

The National Dry Kiln Co., Indianapolis, Ind.

Mention The Clay-Worker.

The Potts Horizontal All Steel and Iron Sand Mould Brick Machine,



DISINTEGRATOR

having Chilled Rolls, Adjustable Steel Cutting Bars and Ring Oiling Bearings, and

MOULD SANDER

makes the Best and most complete outfit for making sand mould brick.

Cost of repairs reduced to minimum.

Quantity and Quality of brick made can not be equaled by any other outfit, no matter what you may pay for it.

The best Drying proposition ever offered.

DONT FAIL TO WRITE FOR CATALOG.

C. & A. Potts & Co. Indianapolis, Ind.

We manufacture a complete line of

BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BARROWS.

The best built. Price \$6.50 each.

Stock size wheel, 20 inches diameter.
(If wanted, 18 inches.)



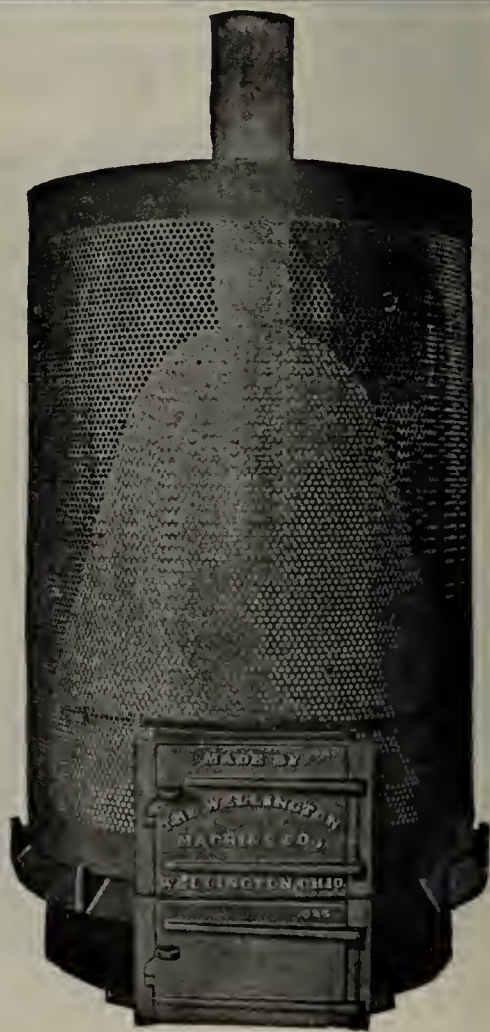
There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.

For catalogue and any further information address

James W. Hensley,

Successor to S. K. Fletcher.

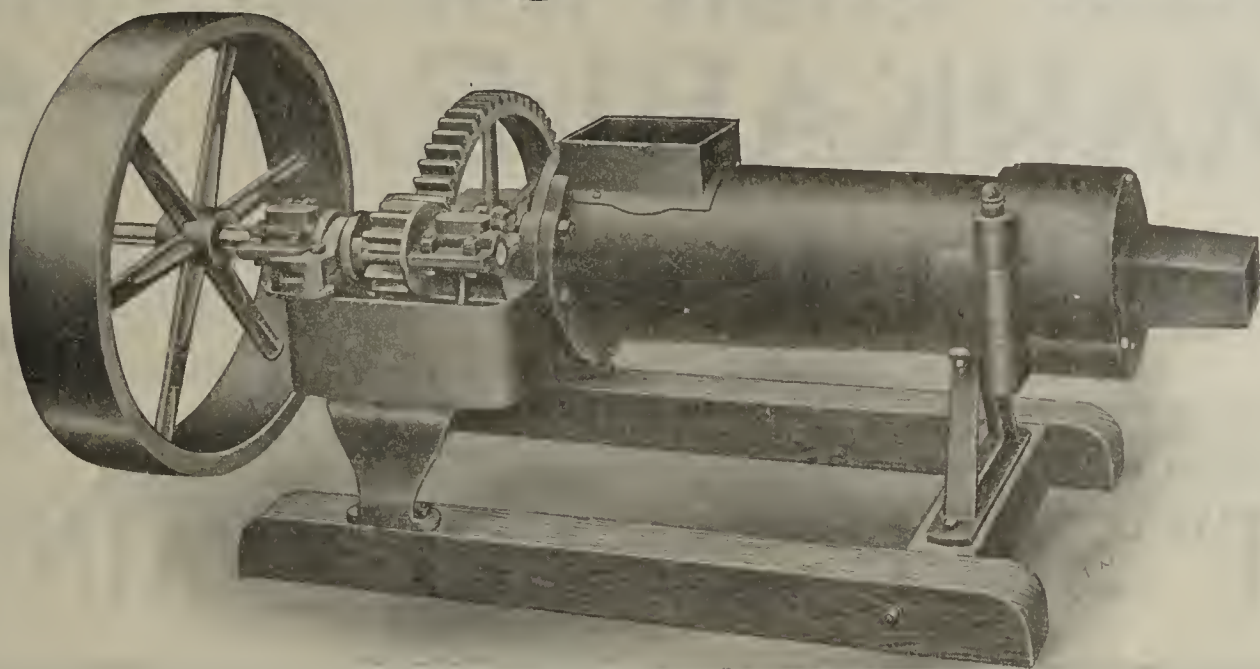
Indianapolis, Ind.



SAND DRYER.

Weight, 1,100 lbs. Every brick work needs one. Diameter over all, 3 ft. 1 in. Height 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

Money-Saving Brick Machines.



No. 2B Brick and Tile Machine, With Square Hopper.
Capacity 12,000 brick or 5,000 to 8,000 3-inch tile or over daily. Horse power required, 10 to 12.

For catalogues and further particulars address

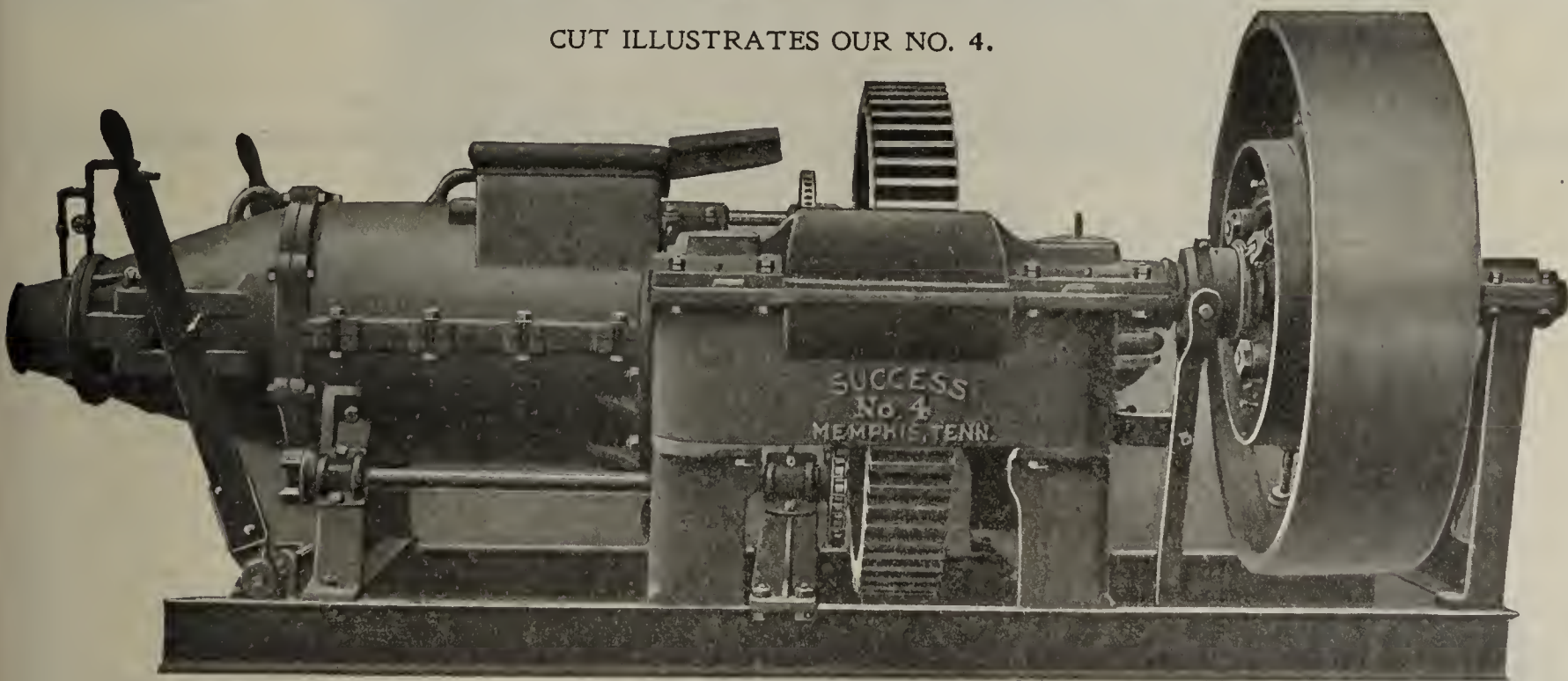
Michigan Brick and Tile Machine Company,

[ESTABLISHED 1856]

Morenci, Mich, U. S. A.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for ; write us.

Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.

REMARKABLE OFFER.

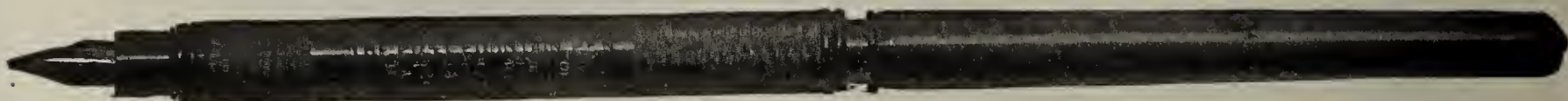
We will send this famous Gold Pointed pen, post paid, and The CLAY-WORKER for one year, to any address in the United States and Canada for

\$3.00



The New Way.

“POST” SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen. Guaranteed by Makers.
NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



The Old Way.

Gen. Lew. Wallace: The author of “Ben Hur” writes, “I have tried every kind in the market and unhesitatingly give the preference to the “Post.”

Judge Luther L. Mills, Chicago: The “Post” Fountain Pen is the Best I have ever used; simple, reliable, durable.

Dr. Josiah Strong: The great author of “Our Country” says: “I have been hunting for twenty years a perfect fountain pen; have tried many, and they have tried me; but the “Post” leaves nothing to be desired.”

The CLAY-WORKER, INDIANAPOLIS, INDIANA.

**DO
IT
NOW**

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE “POST” FOUNTAIN PEN and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued, beginning with the.....Enclosed find \$.....

Name.....

Postoffice.....

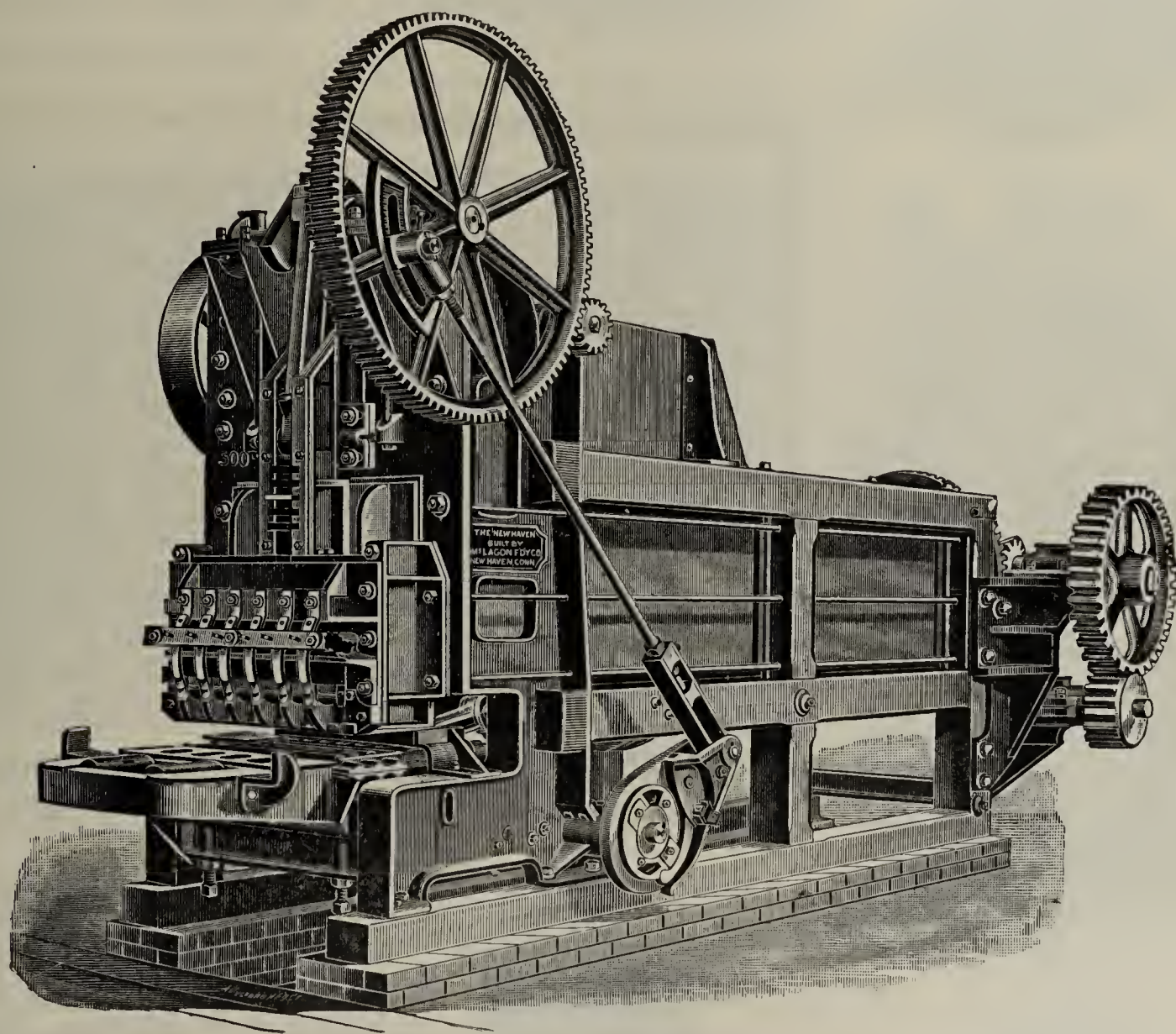
Street and Number.....

County..... State.....

History of New Haven Machines a Record of Success.

The following quotation from the letter of the manager of the L. I. and F. I. Brick Co., Sag Harbor, L. I., N. Y., tells the story of a Horizontal brick machine purchased by them May, 1891, seventeen years ago.

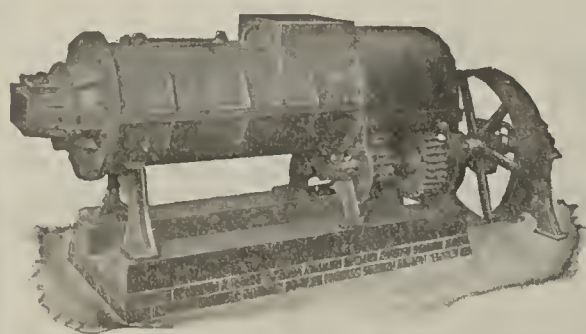
"I wish you could see how nice this old New Haven Horizontal Machine works. It has been running steadily all summer, and I don't think there has ever been a belt off the pulley. I never saw anything work nicer."



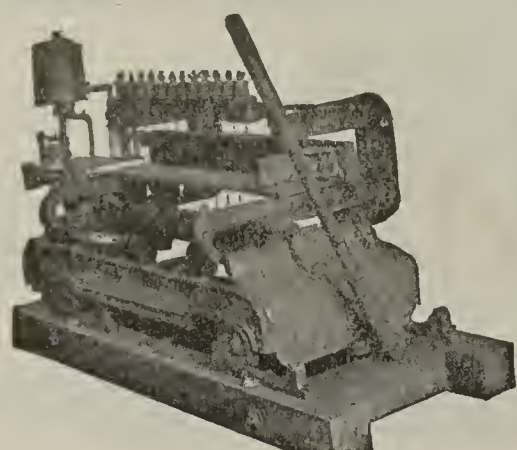
"New Haven" Horizontal Brick Machine.

We build only **SOFT MUD BRICK MACHINES** and we build them so well that first cost is last cost. The New Haven machines are the least expensive machines to operate because they **WORK EVERY DAY**.

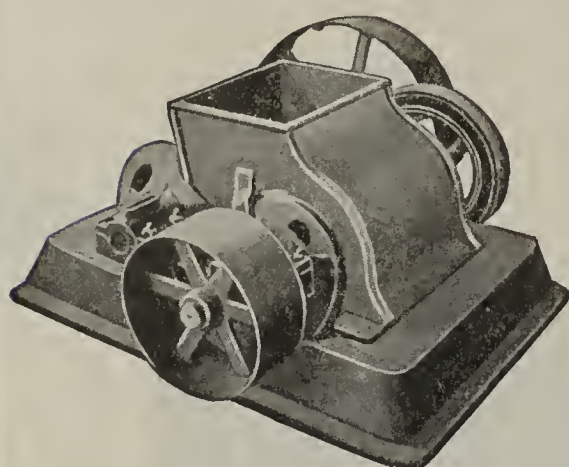
The EASTERN MACHINERY CO.,
NEW HAVEN, CONN.



NO. 1 AUGER BRICK MACHINE



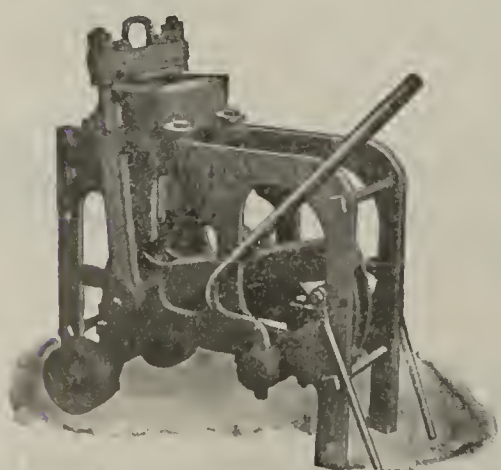
WIRE-CUT BRICK TABLE



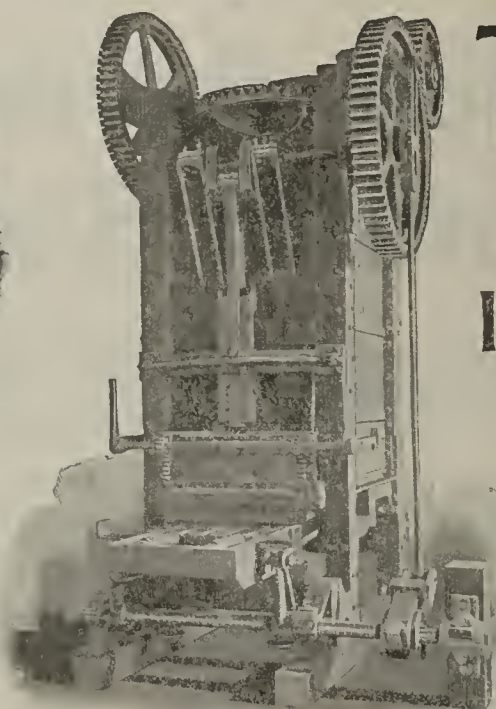
HIGH-SPEED CRUSHER



DRYER CARS



HAND REPRESSES



STYLE "A" BRICK MACHINE



HANDLING BRICK FROM THE MACHINE TO THE DRYERS.



HORSE POWER MACHINE

THE "MARTIN" MACHINERY IS FULLY GUARANTEED TO MEET ITS REQUIREMENTS

LET US FURNISH
YOU WITH A COMPLETE
SET OF DRAWINGS

LET US TALK OVER THE DRYER
QUESTION WITH YOU. THIS IS
NO EXPERIMENT BUT A PERFECT
SUCCESS. WE USE--NO CARS,
NO TUNNELS, NO FANS. DRYER
PRACTICALLY FIRE-PROOF.

WRITE FOR PARTICULARS
THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

THE "MARTIN"

BRICK DRYERS

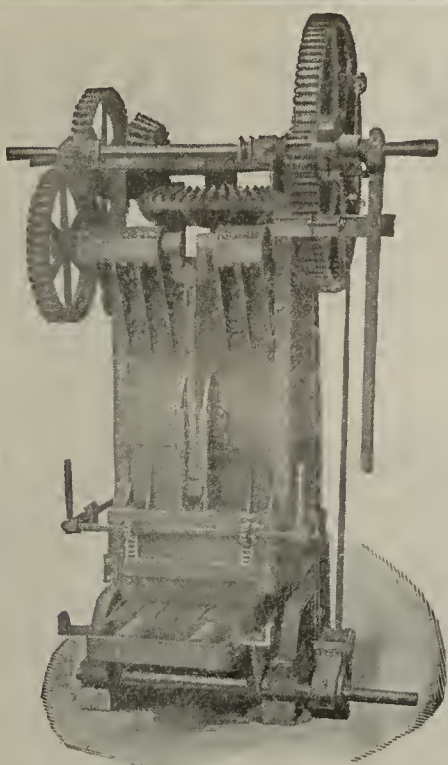
ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

FULLY COVERED BY PATENTS

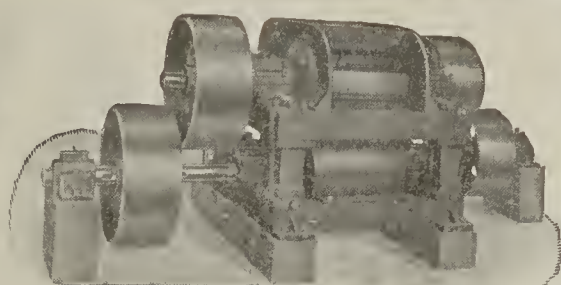
PATENTED

Feb. 22, 1898 - - 599509
Oct. 10, 1905 - - 95520
Nov. 14, 1905 - - 804489
May 26, 1908 - - 888831

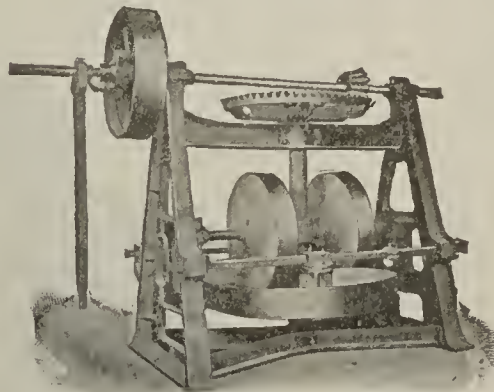
UNITED STATES & CANADA



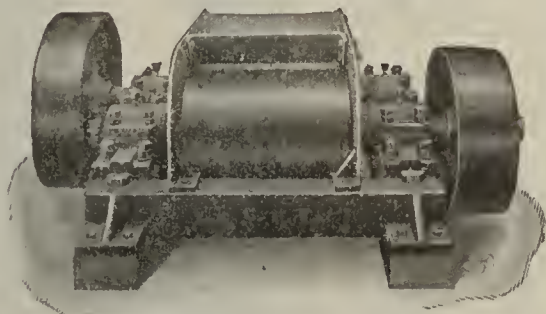
STYLE "P" BRICK MACHINE



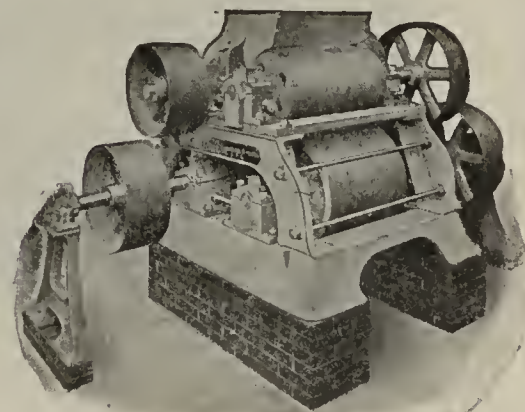
STYLE "P" CRUSHER



DRY OR WET PANS



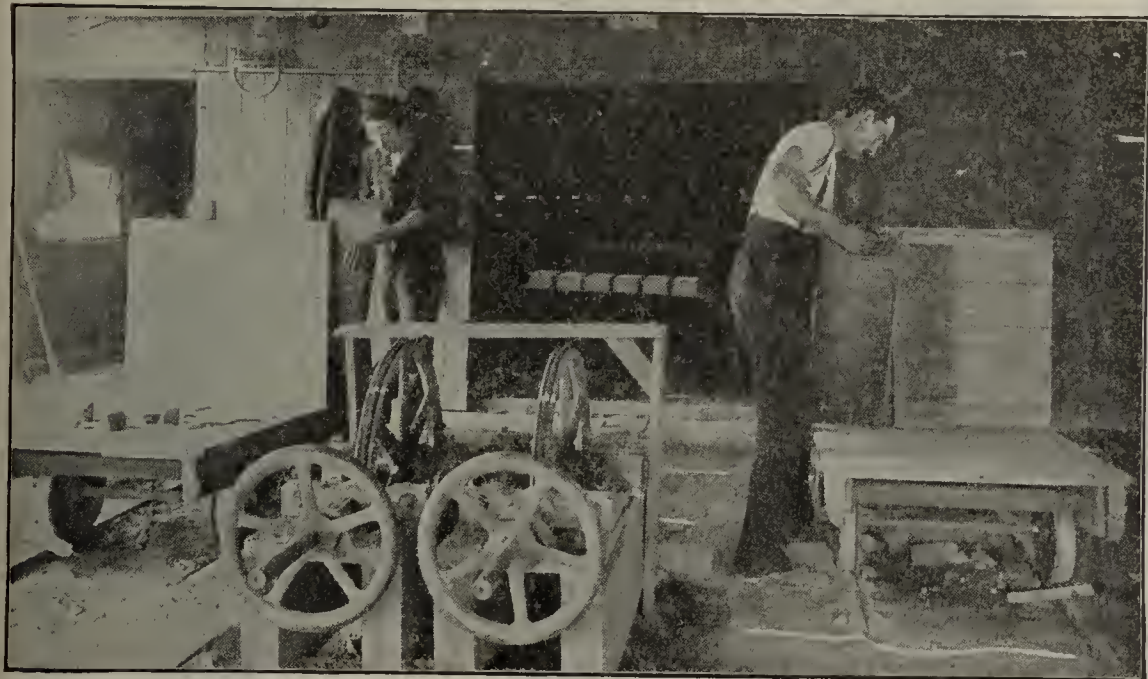
DISINTEGRATOR



4-ROLL CRUSHER



STEAM POWER REPRESS



THE BRICK COMING FROM A "MARTIN" PATENT DRYER

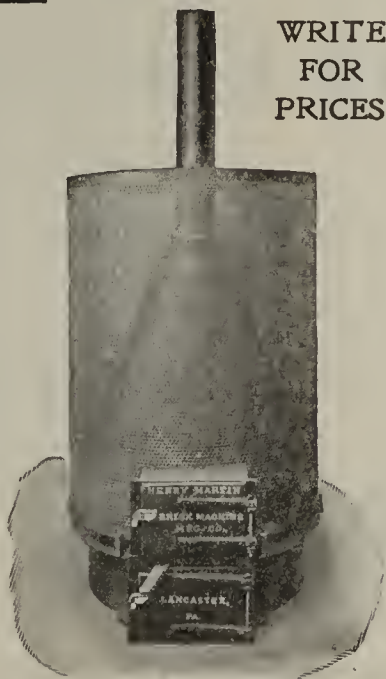
THE "MARTIN" COMPANY
AT LANCASTER, PA.

Own and Control These
Important Dryer Patents
and Have Authorized
— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

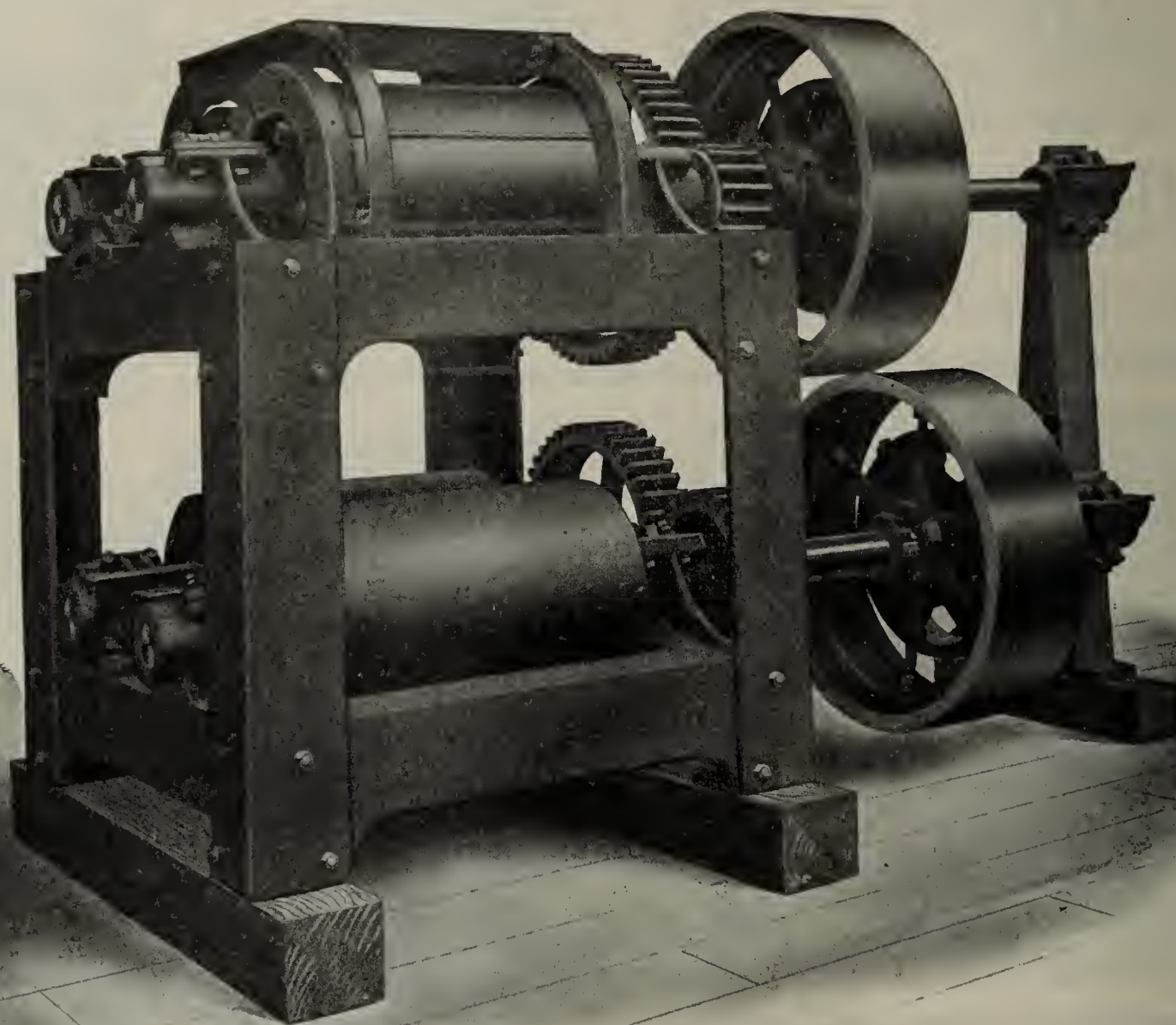


SAND DRYER

WRITE
FOR
PRICES

CLAY CRUSHERS.

We build Conical Roll Crushers, Straight Roll Crushers, Beaded Roll Crushers, Compound Crushers, Disintegrators and Dry Pans. Two sizes of each. Anything you need in the Crusher Line.



THE BREWER NO. 11

is a Compound Crusher-Disintegrator of special merit and large size. It weighs 13,500 pounds. All rolls have removable white-iron shells. Any roll may be removed without disturbing any other. There is plenty of room between the two parts to avoid choke. The construction is rigid and dependable.

Get our complete catalog. It costs nothing and is worth having.

If Marked



It's Good.

H. BREWER & CO.,

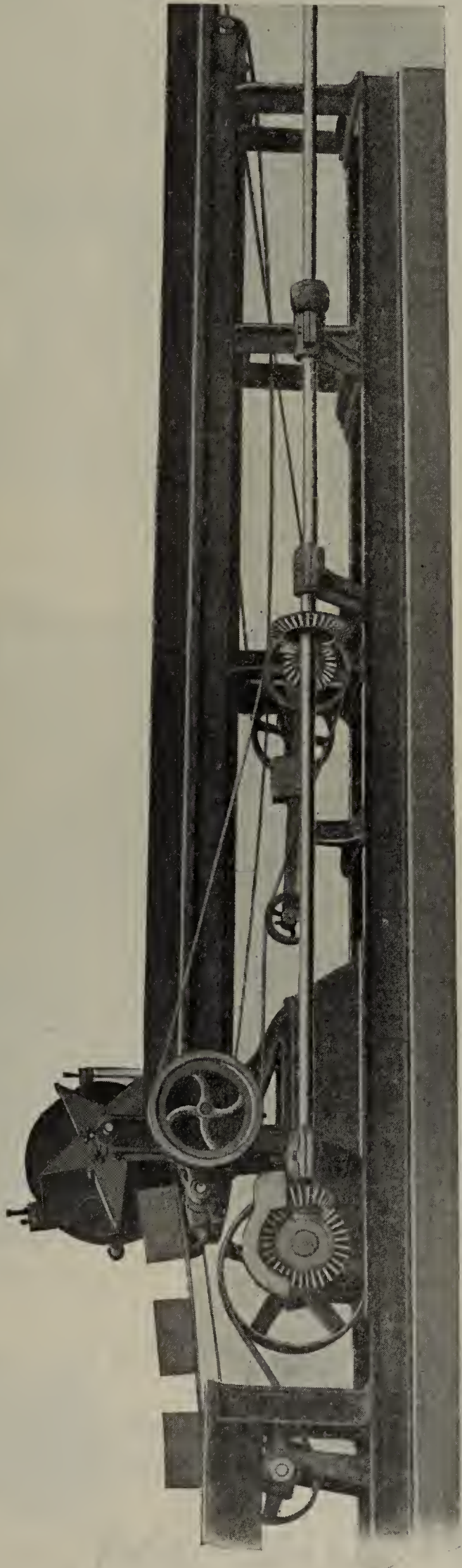
Tecumseh, Michigan.

If Marked



It's Good.

The Steele Automatic Cutter.



Messrs. J. C. Steele & Sons, Statesville, N. C.:

Gentlemen—It is pleasant and delightful work when operating your No. 3 machine with a 20 h.p. engine and making 3500 bricks per hour. Your rotary automatic cutter can't be beat; it cuts square and smooth, Messrs. Bowers Bros. of the Canon Brick Yard, came to my plant at Royston, Ga. to see my machine work and of course were so pleased they ordered one of your machines. I have run two machines of other manufacture and they were both more complicated and expensive to keep repaired. I recommend your machines to anyone entering the business.

Lavonia, Ga., Dec. 9, 1907.

Very respectfully,
W. E. STEVENSON.

(Signed)

We build a complete line of clayworking machinery.

Write for further information.

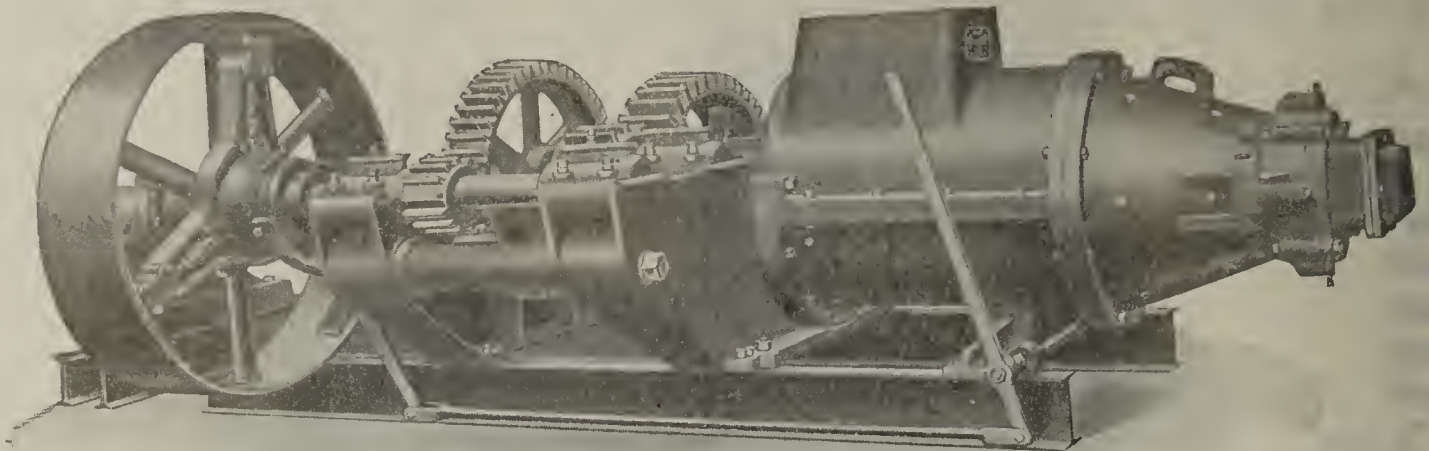
J. C. STEELE & SONS,

Success Brick Machinery Co., Memphis, Tenn.,
Western Agents.

Mention *The Clay-Worker*.

STATESVILLE, N. C.

Modern Clayworking Machinery

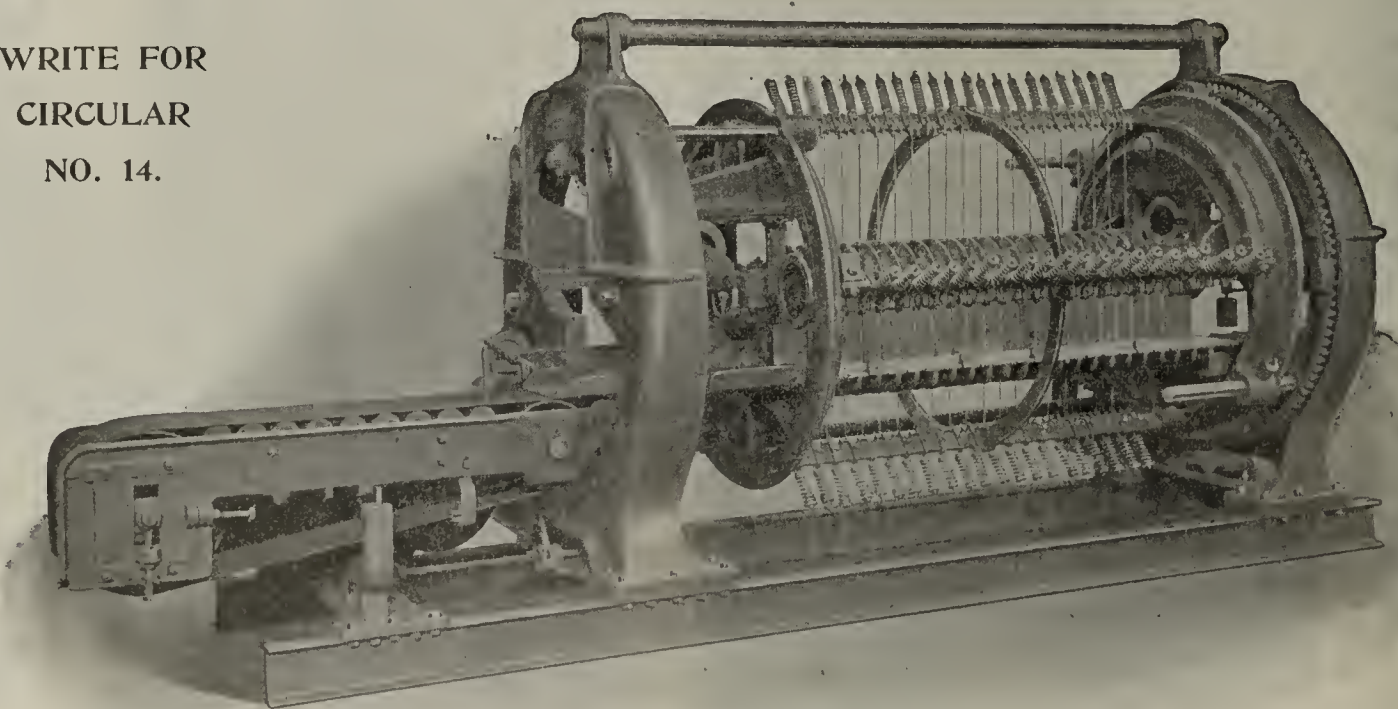


No. 10 Auger Brick Machine.
Capacity 50,000 to 75,000 per Day.
A GOOD MACHINE AND EASILY GET-AT-ABLE.

CANTON REPRESS is the Best of its Class.

ASK US FOR THE PROOF.

WRITE FOR
CIRCULAR
NO. 14.



Rotary Automatic Cutting Table.
Capacity Up to 100,000 Daily.

Cuts Brick Within 30 Inches of the Die. End Frames are Stationary.
COMPLETE LINE OF CLAYWORKING MACHINERY.

THE BONNOT COMPANY,

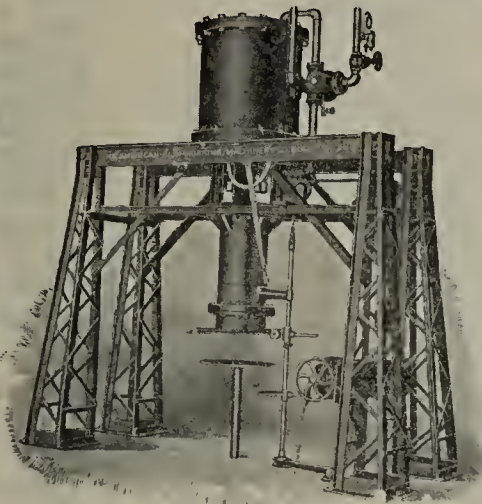
305 NEW YORK LIFE BLDG.,
KANSAS CITY, MO.

Canton, Ohio.

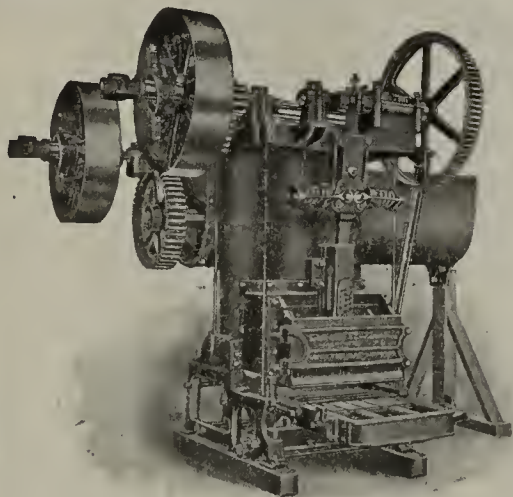
THE AMERICAN CLAY & MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

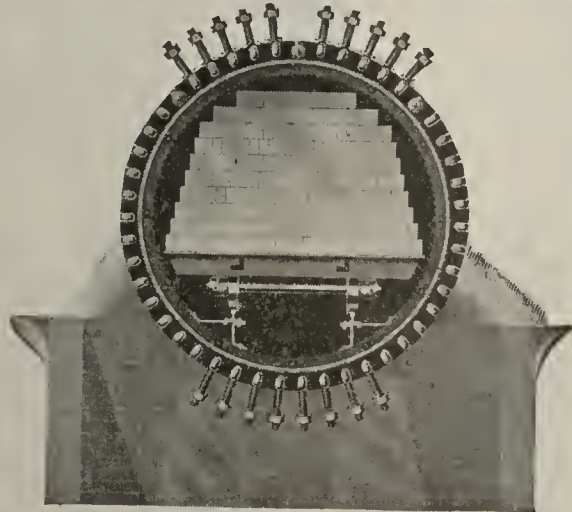
BUILT RIGHT RUN RIGHT



Sewer Pipe Machinery



Upright Stock Brick Machine



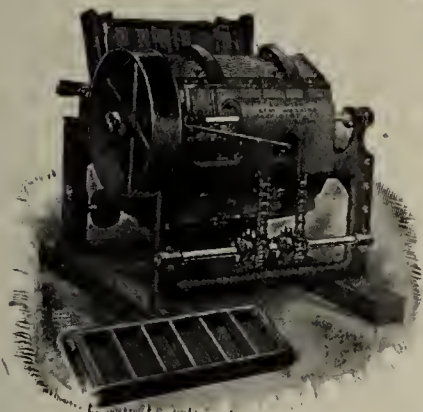
Sand-Lime Brick Machinery



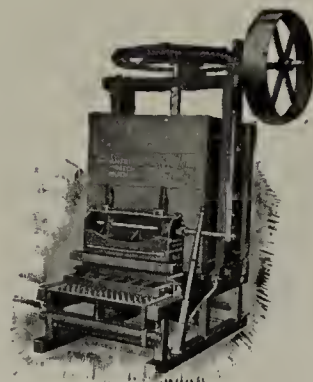
No. 64—9 Foot Wet Pan



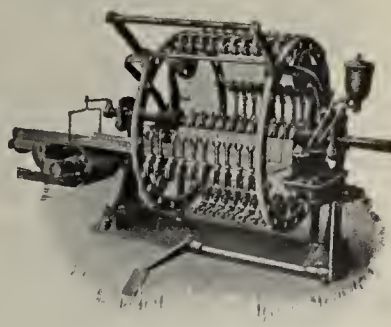
Blower Dryer Apparatus



Mold Sander



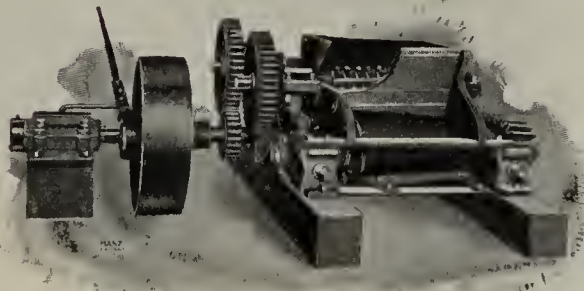
H. P. Brick Machine



No. 62 Hand Power Cutter



Dry Cars



No. 25 Smooth Roll Crusher

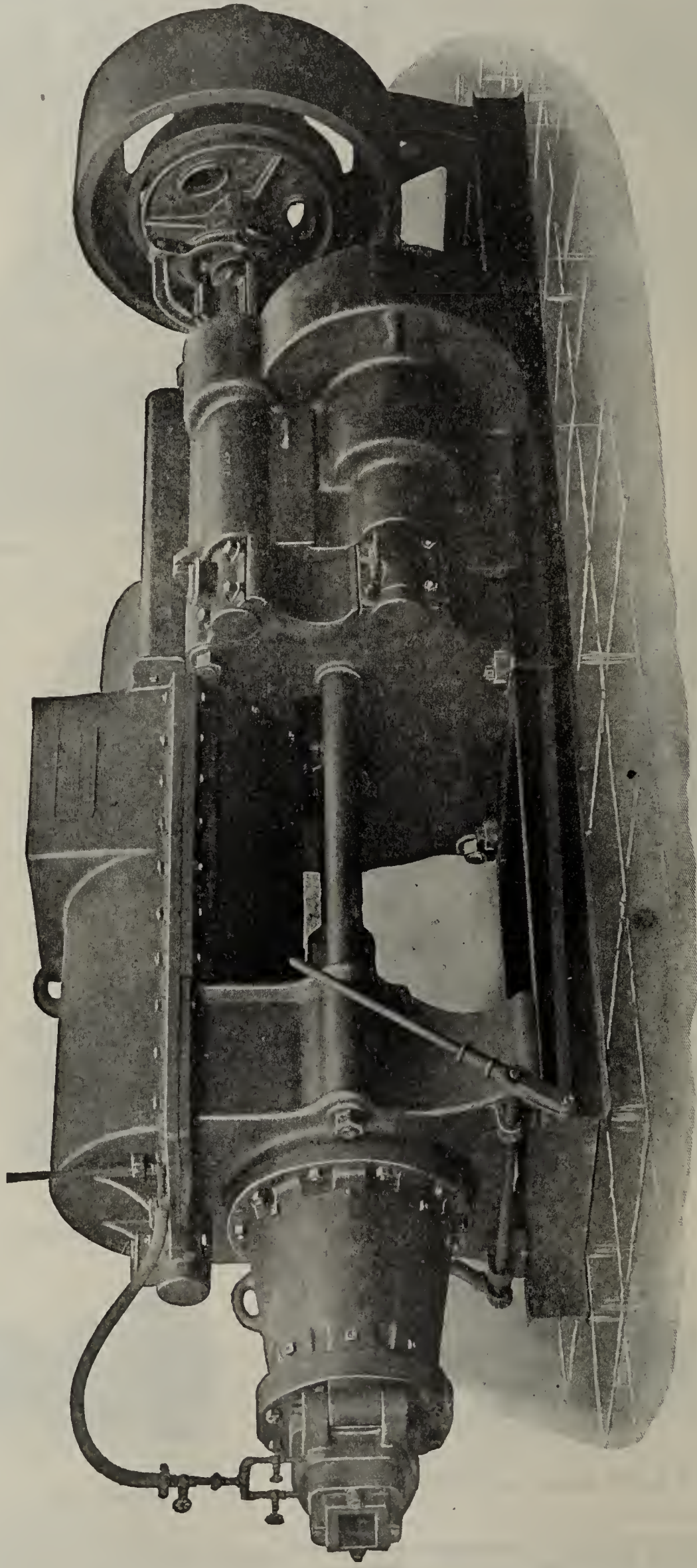


Winding Drums

We Are Much the Largest and Much the Most Extensive Manufacturers of Much the Best Clay-working Machinery in the World.

(See ad on page 246.)

Another Brick Machine.



This is a Brick Machine of massive proportions and of modern construction throughout, designed for large capacity and severe service. The gearing, shafting and other parts are very heavy. The gearing is protected by a removable dust and accident proof covering, hinged for convenient access to the interior. The feeding chamber is of ample diameter and length, and this result is obtained without excessive overhang of auger shaft. The auger shaft is supported by three journal bearings of sufficient distance apart to give it a substantial support. The part of the auger shaft in the clay chamber is about 4 feet in length, while the part outside is more than 9 feet long.

The machine is mounted on steel 'I' beam sills between which are placed heavy cast iron spreaders with flanges, affording a substantial method of attaching the machine to its foundation.

Height from floor to top of hopper, 5 ft. 8 in.

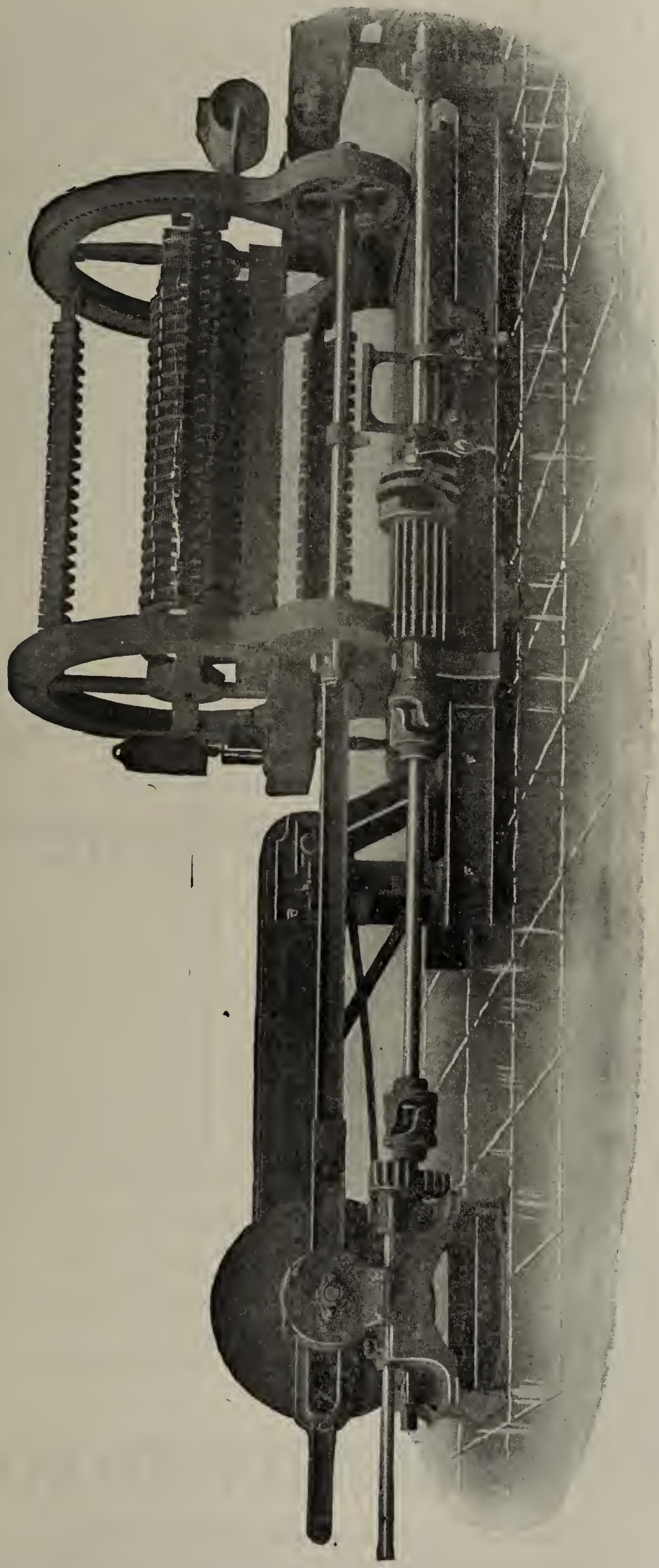
Weight of machine about 26,000 pounds.

Length of machine over all, 19 ft.

Size of hopper, 26-in. x 26-in.

E. M. FREESE & CO., Galion, Ohio.

An Improved Rotating Automatic Cutter.



Our Rotating Automatic Cutters are the result of many years' constant hammering at a single type of Cutter. One of the three sizes we are building will suit your Stiff Mud Brick Machine.

We ship on trial—YOU say whether our guarantee of "satisfactory operation" is fulfilled.

If desired a man will be sent to arrange details of installation.

These Cutters will give you satisfaction when all others have failed.

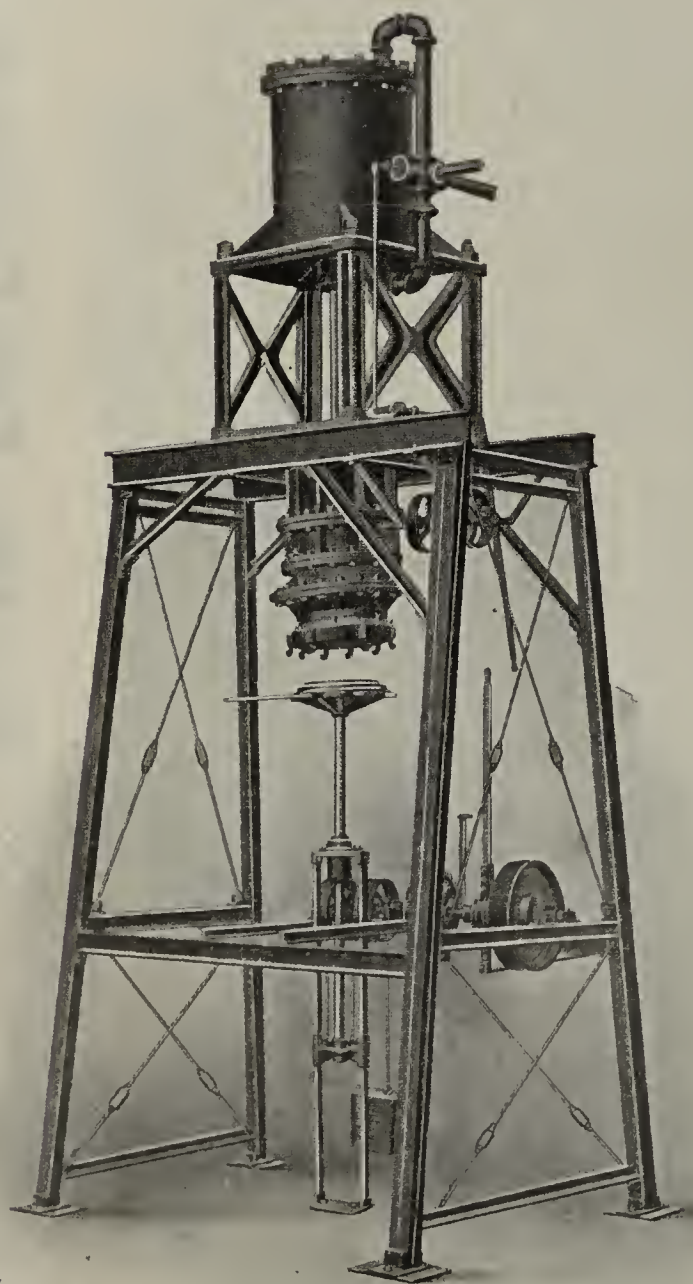
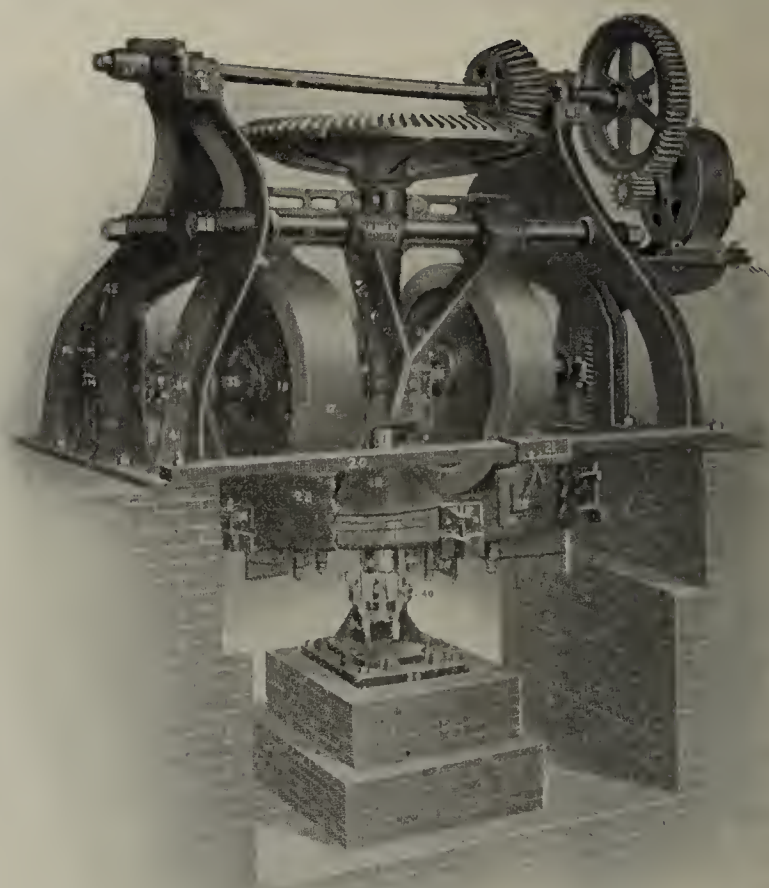
(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

THE HARRINGTON AND KING PERFORATING CO



PERFORATED STEEL FOR CLAY SCREENS.

Samples or blue prints with prices furnished on request.

For Chute or Gravity Screens, Shaking or Vibrating Screens, Revolving Screens, Dry Pan Screens.

For Cleaning and Grading Clay, Shale, Sand, Cement, Coal, Stone, Etc.

For Pallets or Trays, Car Bottoms, Drying Floors, Conveyor Bottoms, Separators, Etc.

NEW YORK OFFICE
No. 114 Liberty St.

No. 231 North Union Street,

CHICAGO, ILL., U. S. A.

FROM ABC TO XYZ

we know our business—the drying of clay products. In

Rodgers Waste Heat Dryers

we dry SATISFACTORILY most of the brick of western manufacture.

If that part of your business which has to do with the drying of your product is not satisfactory to you, we'll make it so, at your request, in proof of our assertion that we know our business

From ABC to XYZ.

PUT US TO THE TEST.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment
in the United States.

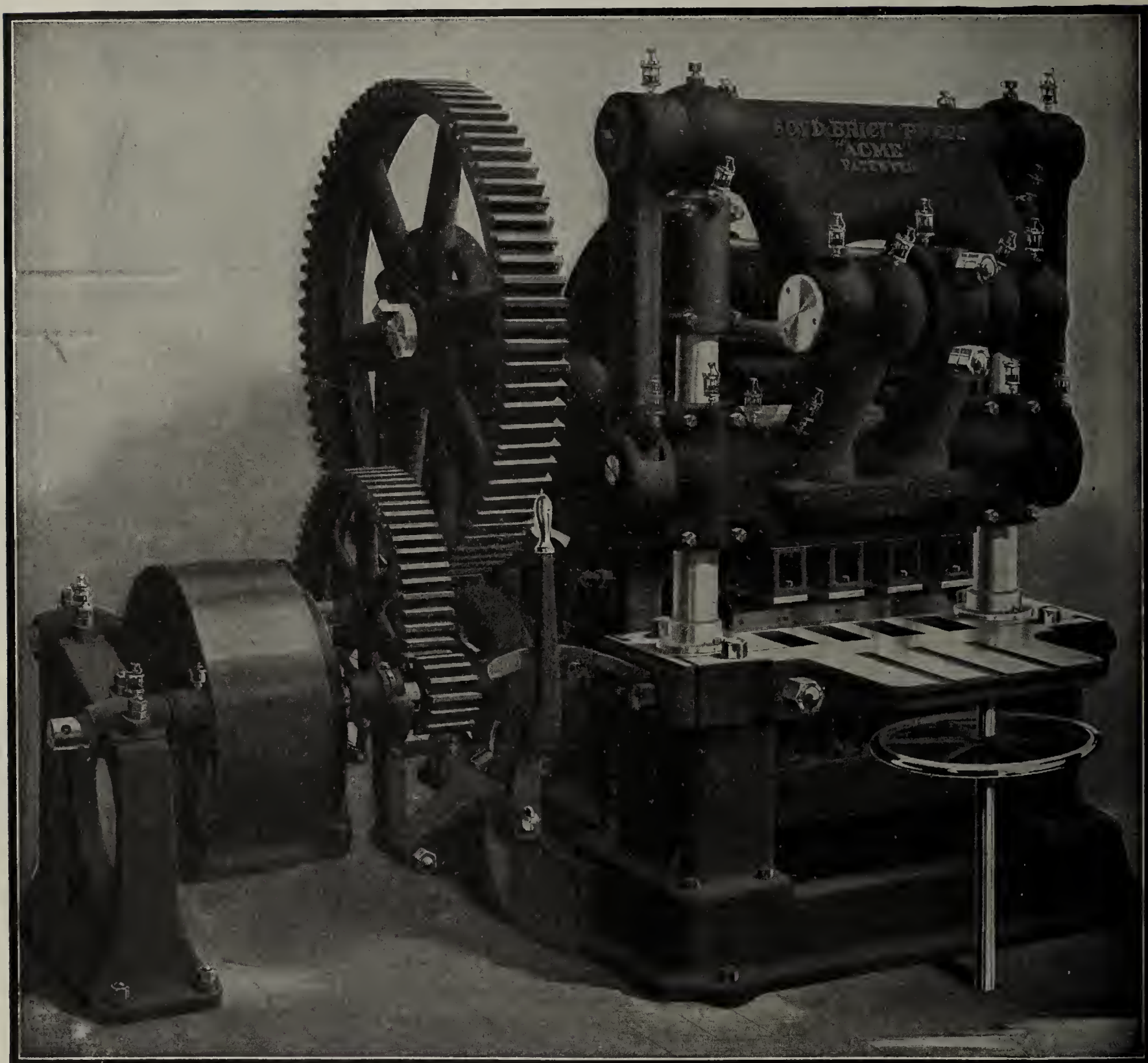
108 LA SALLE ST.

CHICAGO.

Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold "Acme."



We have been building this type of machine for over ten years. It has all improvements to date and embodies all the special features of the original Boyd Press.

Detailed perfection, strength, endurance and quality of product have made THE BOYD the Brick Press by which all others are judged.

We will send to any responsible party a *Boyd Brick Press on trial* under the broadest and safest guarantee. We take the machine back if not satisfactory.

Chisholm, Boyd & White Company,

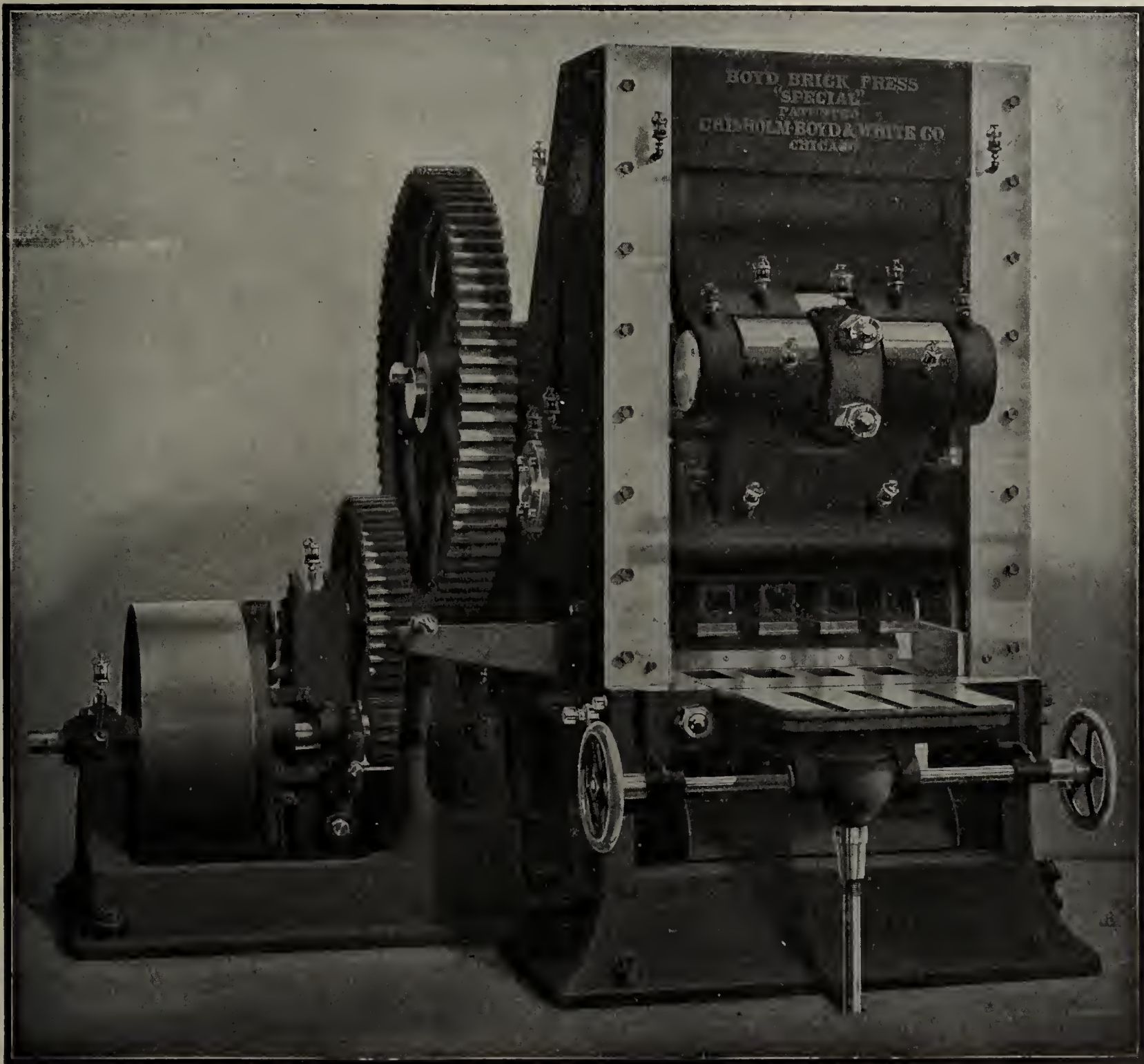
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Boyd Brick Press

Built in Two, Four and Six-Mold Sizes.



FOUR-MOLD SPECIAL.

BRICK PLANTS designed and complete machinery equipment furnished. Machinery and product guaranteed.

More Boyd Presses in use than all other Press Brick Machines combined.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 19 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Grath Special Brick Press

Patented.

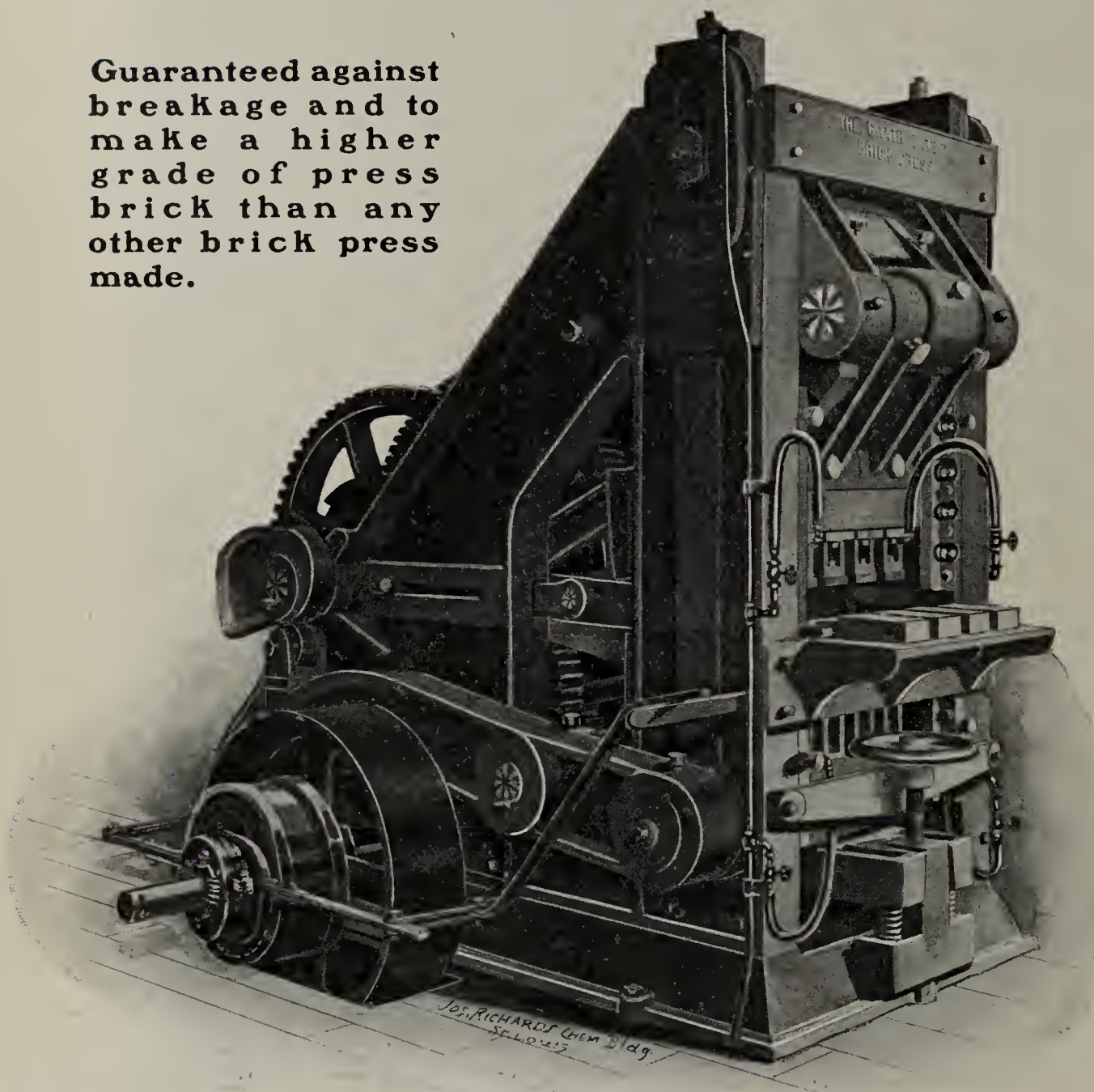
Made in Two, Three, Four and Five-Mold Sizes.

THE ONLY PERFECT BRICK PRESS

For SAND-LIME and DRY CLAY BRICK of Unequaled Quality.

FOUR MOLD MODEL.

Guaranteed against breakage and to make a higher grade of press brick than any other brick press made.



BRICKMAKERS

Do not buy Brick Presses every month or year.

When you **do** buy get a **modern** press. It costs no more than one which is **out of date**.

Unless the press is **double geared**, with gears between frames and bearings, which prevents all side strain and twisting of crank shaft, it is out of date and behind the times.

The above construction is contained in the **Grath Special** and is securely covered by patents. All infringements will be prosecuted.

THE PRESS OF TODAY.

THE ALBERTA PORTLAND CEMENT CO.

W. P. Grath, St. Louis, Mo.:

[Copy]

Sandstone, Alta., Sept. 26, 1907.

Dear Sir—Replying to your favor of recent date regarding Grath Special press purchased from you, would say that after working your press alongside another well-known make, your press has proved itself vastly superior in every way; it is stronger, simpler, easier of adjustment, makes more brick, and of much better quality.

After a long experience with presses, having operated five (5) different presses each of different makes, I consider yours "THE BEST YET," in short, "AN IDEAL PRESS."

Wishing you the success your press merits

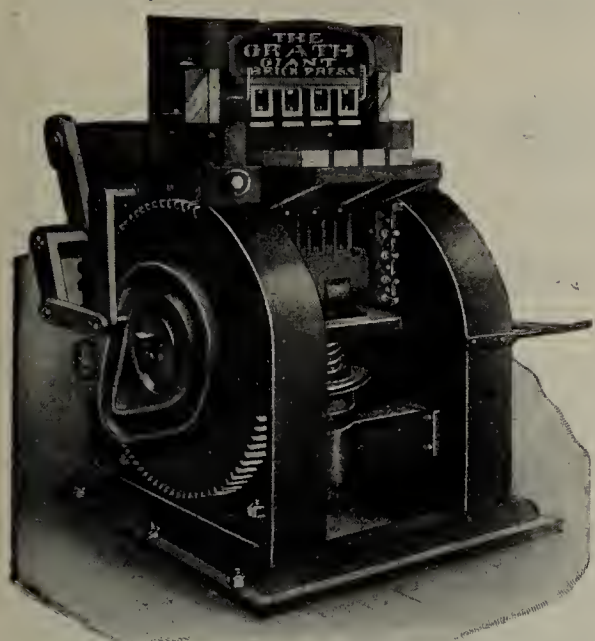
Yours truly, G. W. DELLER, SUPT.
Alberta Portland Cement Co., Limited.

Illinois Supply & Construction Co.,

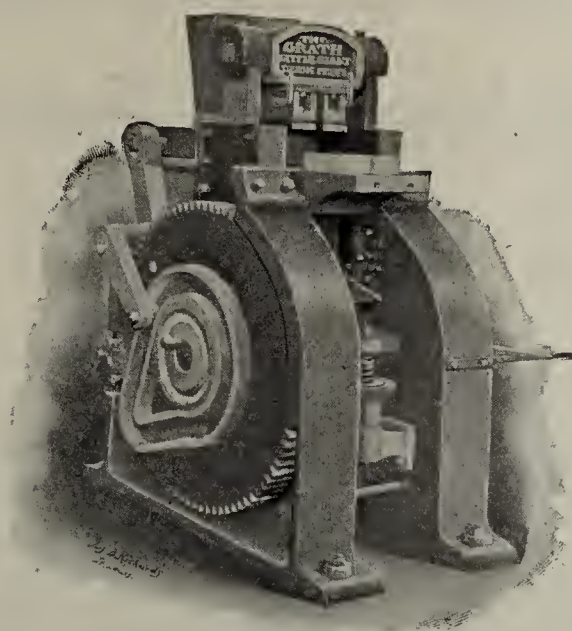
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St. Louis, Mo., U. S. A.

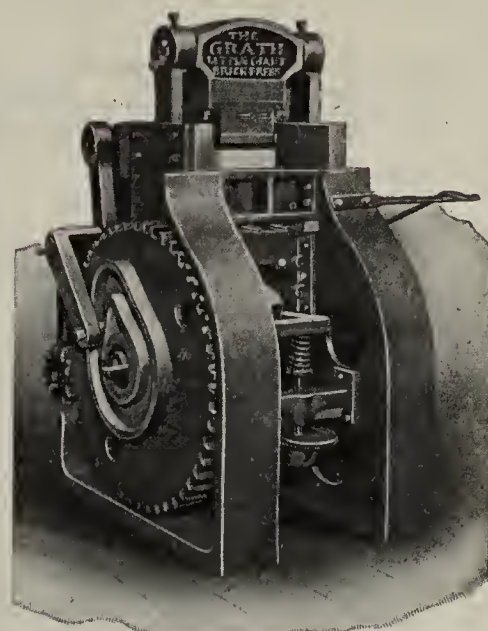
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**THE GRATH GIANT FOUR MOLD
BRICK PRESS**
For Fine Press Brick
From Dry Clay or Sand-Lime.



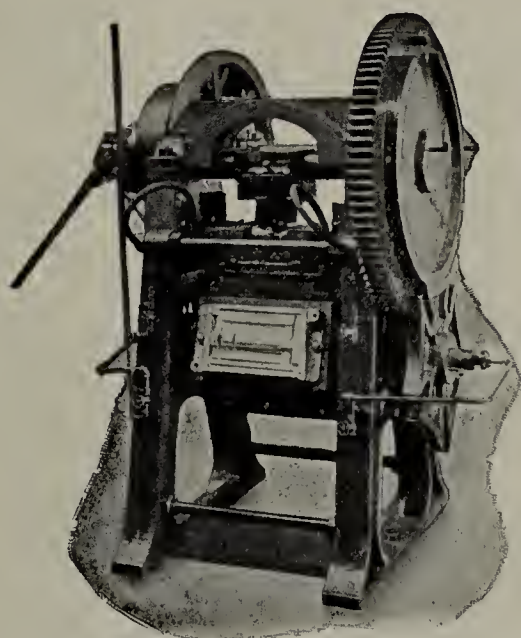
**THE GRATH LITTLE GIANT TWO
MOLD BRICK PRESS**
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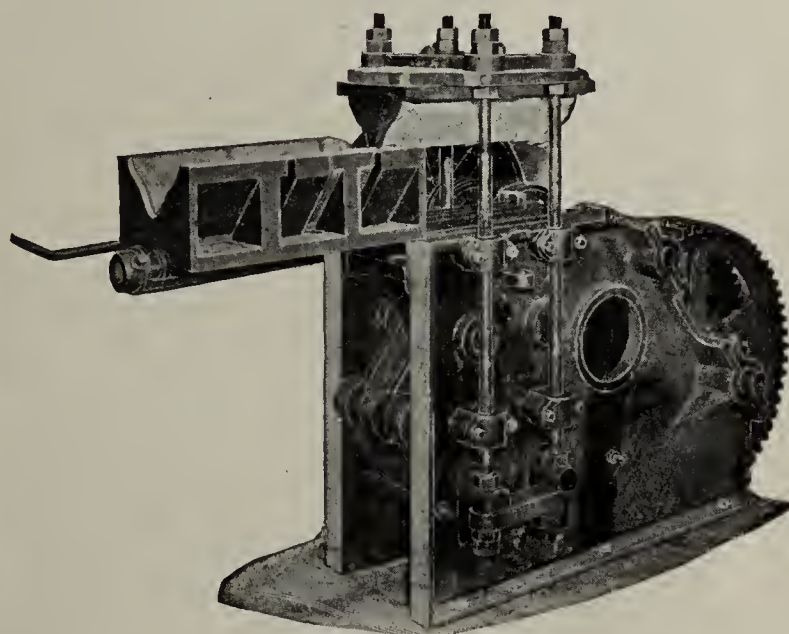
**THE GRATH LITTLE GIANT
ONE MOLD BRICK PRESS**
For Perfect Sand-Lime or
Dry Clay Face Brick.



**The Grath Special Hand-Power Brick
Press, for Plain and Ornamental
Press Brick.**
From Dry or Semi-Dry Clay or Sand-Lime
Guaranteed against breakage.

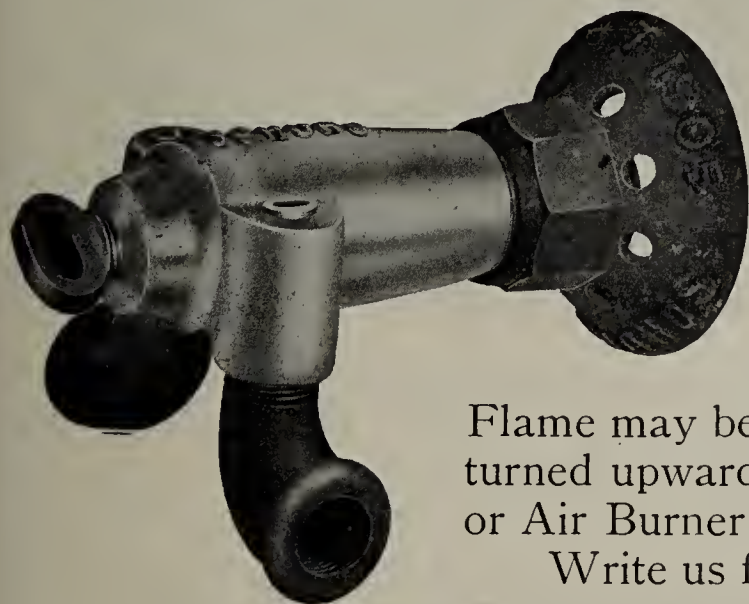


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Tile Press.**
Strongest and Simplest Made.
For Plaster or Metal Dies.
Top Cross Head and Pentagon Adjustable.



The Grath Roofing Tile and Trimming Press
No Roofing Tile Plant
Complete Without This Press.
For Plaster or Metal Dies.
For Special Tiles, Hips and Crestings.

GUARANTEED AGAINST BREAKAGE.



**Selling Agents for The
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OIL BURNERS**

Especially designed for burning Brick, Tile, Terra
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Flame may be regulated as desired and to produce any heat, can be
turned upward, downward or sideways. Most economical Steam
or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices and information.

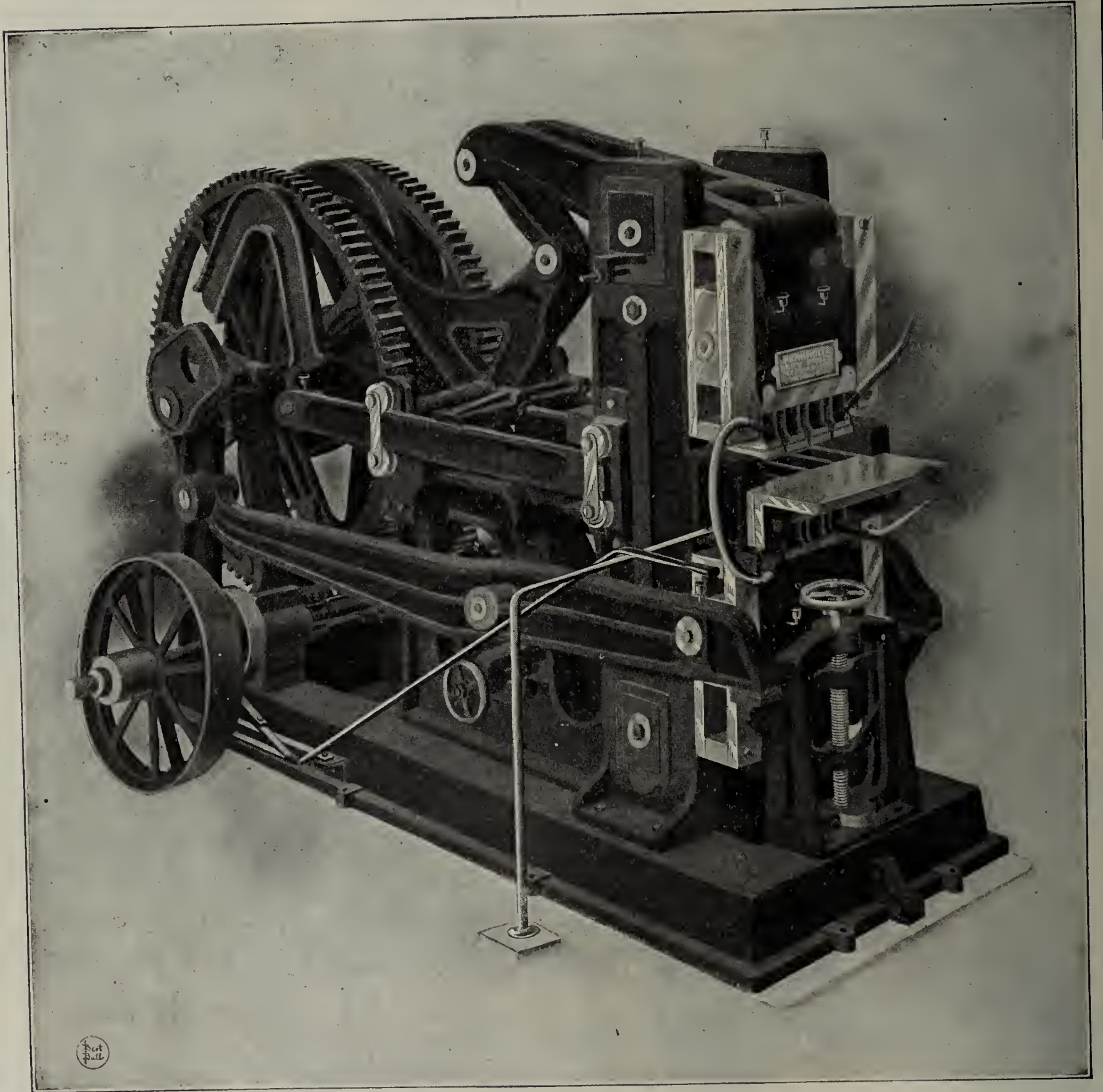
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HOLLAND BLDG., ST. LOUIS, MO.

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GRATH, St. Louis.

Long Distance
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The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

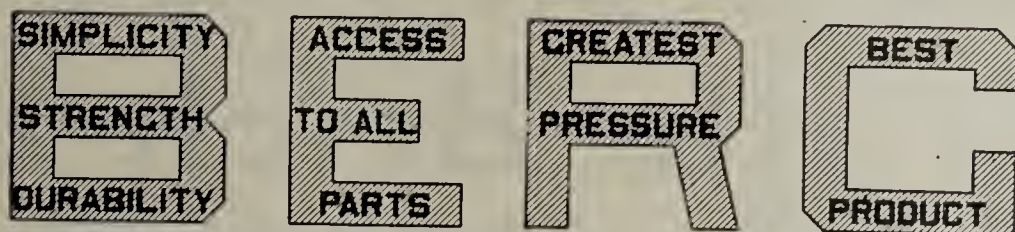


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

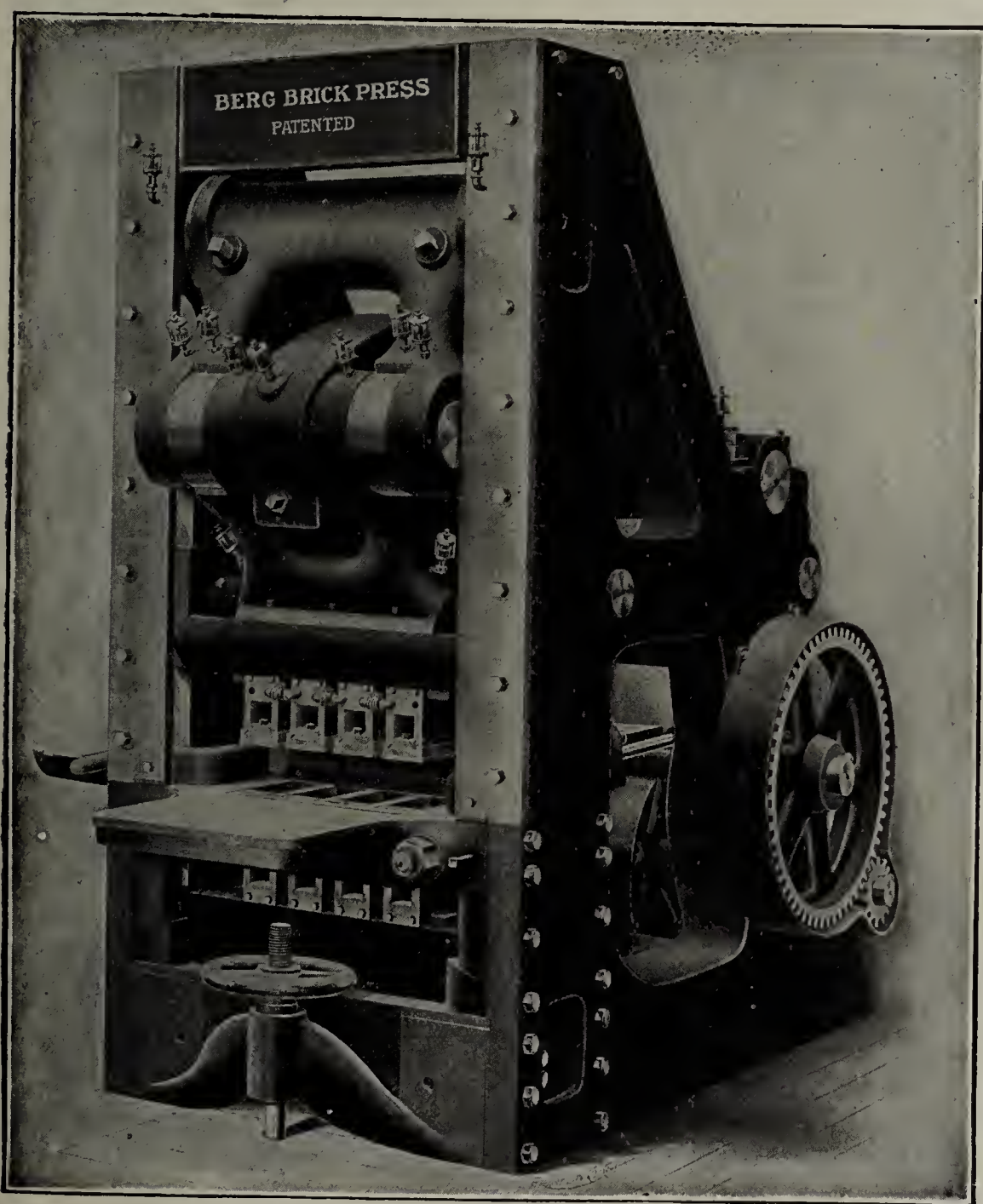
The Fernholtz Brick Machinery Co.,

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WHAT'S IN A NAME?



The "Berg Press" is The Highest Development in The Art of Brickmaking Machinery, so Pronounced by The U. S. Government.



IMPROVED BERG BRICK PRESS.

THE BERG PRESS EXCELS
for

Shale Pressed Brick.
Clay Pressed Brick.
Sand-Lime Pressed Brick.
Sand-Cement Pressed Brick.
Fire Brick.

THE BERG PRESS
Gives THREE Distinct PRESSURES:
Result is,
No Granulated Centers.

THE BERG PRESS
HAS ALL WORKING PARTS ABOVE
Clay Line.

THE BERG PRESS
is fitted with "THE BERG PATENTED
MOLD BOX"—the DELIGHT of brick-
makers, and which many OTHERS
have tried to IMITATE.

All Sizes and Shapes
Can be Made.
Molds Can be Changed in a
Few Minutes,
Owing to the
SIMPLE MECHANICAL
CONSTRUCTION.

Cut Gearing, and many other steps forward in *Improvements*, and built of the *Highest Grade of Material and Workmanship*. *Fully Guaranteed* as to its *Success*.

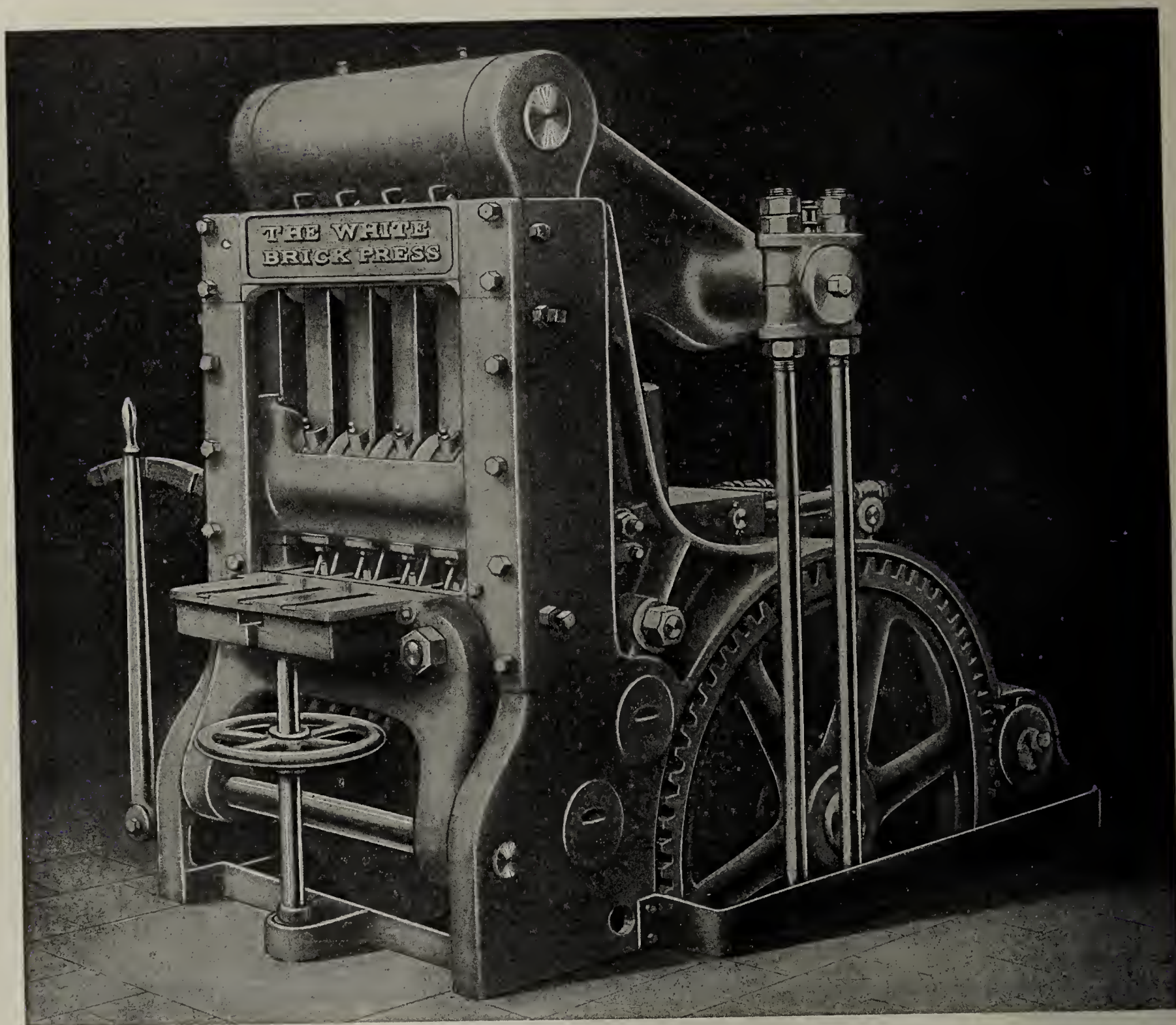
Manufactured by its Inventor in Toronto, Canada, exclusively. Also all equipments for Pressed Brick Plants to make *Sand-Lime Brick*, *Sand-Cement Brick*, *Shale Brick*, *Clay Brick* and *Fire Brick*. Correspondence solicited.

A. BERG & SONS,

Mention The Clay-Worker.

Manning Chambers, TORONTO, ONT., CAN.

ALWAYS ON THE JOB—
The White Brick Press.



When you learn of a Breakdown on the yard, you
may be sure it is NOT the Press if it is a

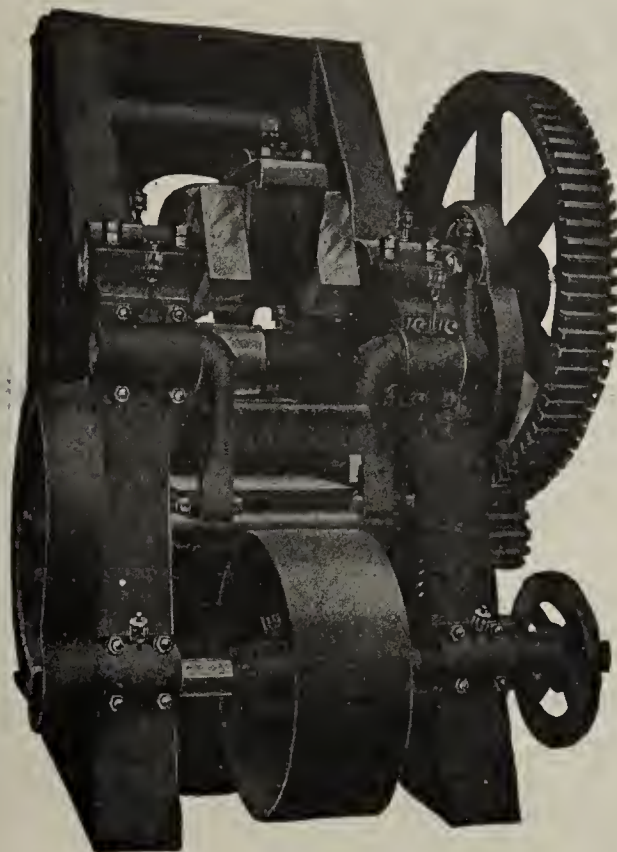
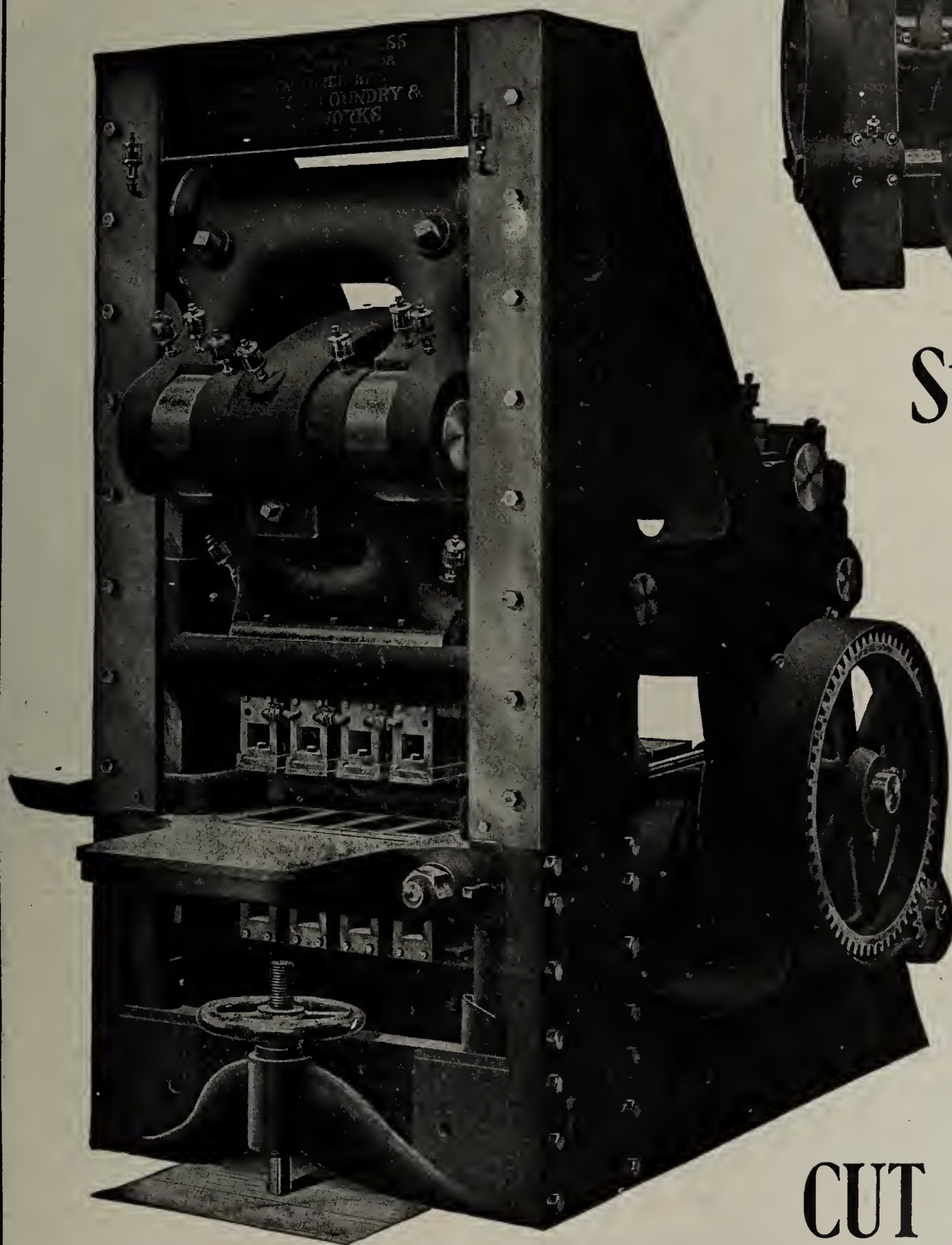
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CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

New Model Berg Brick Press



Back View.

Still in the
Lead
and
One Step
Further
Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact, and

SHIPPED IN ONE
PIECE.

Provided with

CUT GEARING

of either iron or steel, if desired.

Sold by

CHICAGO BRICK MACHINERY CO.,
Great Northern Bldg.
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Manufactured and Sold by

Anderson Foundry & Machine Works,

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ANDERSON, IND.

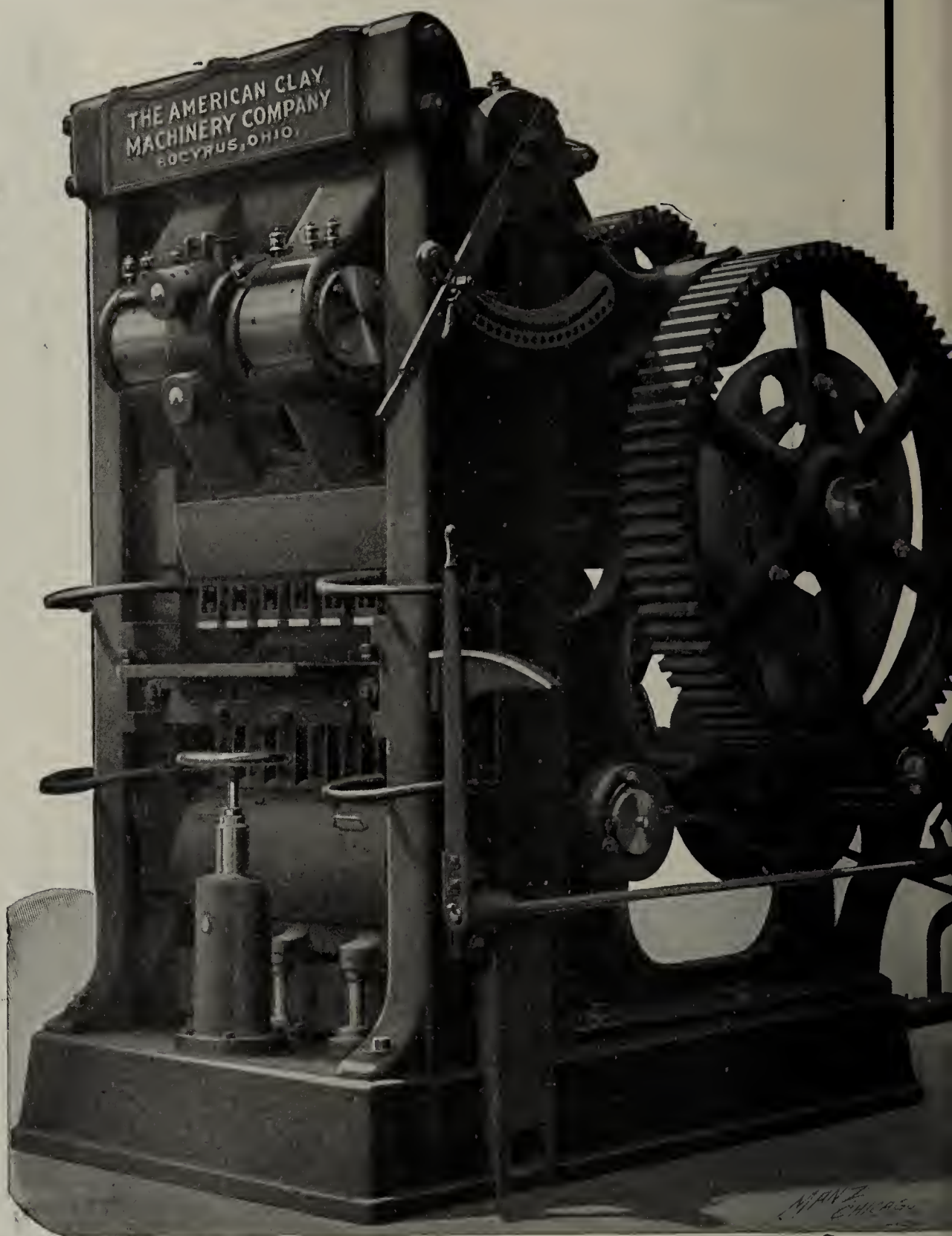
Six-Mold Dry Press Machine.

We Build the Most Ex-
tensive and Complete
Line of Presses on
the Market.

So complete is this line that we can exactly meet the needs of any plant without the necessity of overloading a press or without unnecessary investment in a capacity not needed.

Write for our New Catalogue describing and illustrating our complete line of Presses and other "Built Right Run Right" Clayworking Machinery.

Presses range from one mold to six.



The above illustration shows our **No. 515 Six Mold Dry Press**. In this press we have the highest type of Strength, Durability and Capacity. Although very heavy and massive in all its parts, nevertheless the 51,500 pounds of iron, steel and other metals entering into its construction, have been so proportionately distributed that none of the details are unnecessarily heavy, all have an ample factor of safety, and all movements are smooth and in good balance. All shafting and tension bars are made of high grade steel forgings of our own make, and all other parts which sustain the great strains of pressing the brick are of open hearth steel castings. Full description for the asking.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



See ad on page 449.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryer, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Price \$1.00.

A review of present practice in the manufacture, testing and uses of Vitrified Paving Brick.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting of Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Burning Brick in Down Draft Kilns, by W. D. Richardson. Price \$1.00.

A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvements.

T. A. RANDALL & CO.,

Indianapolis, Ind., U. S. A.

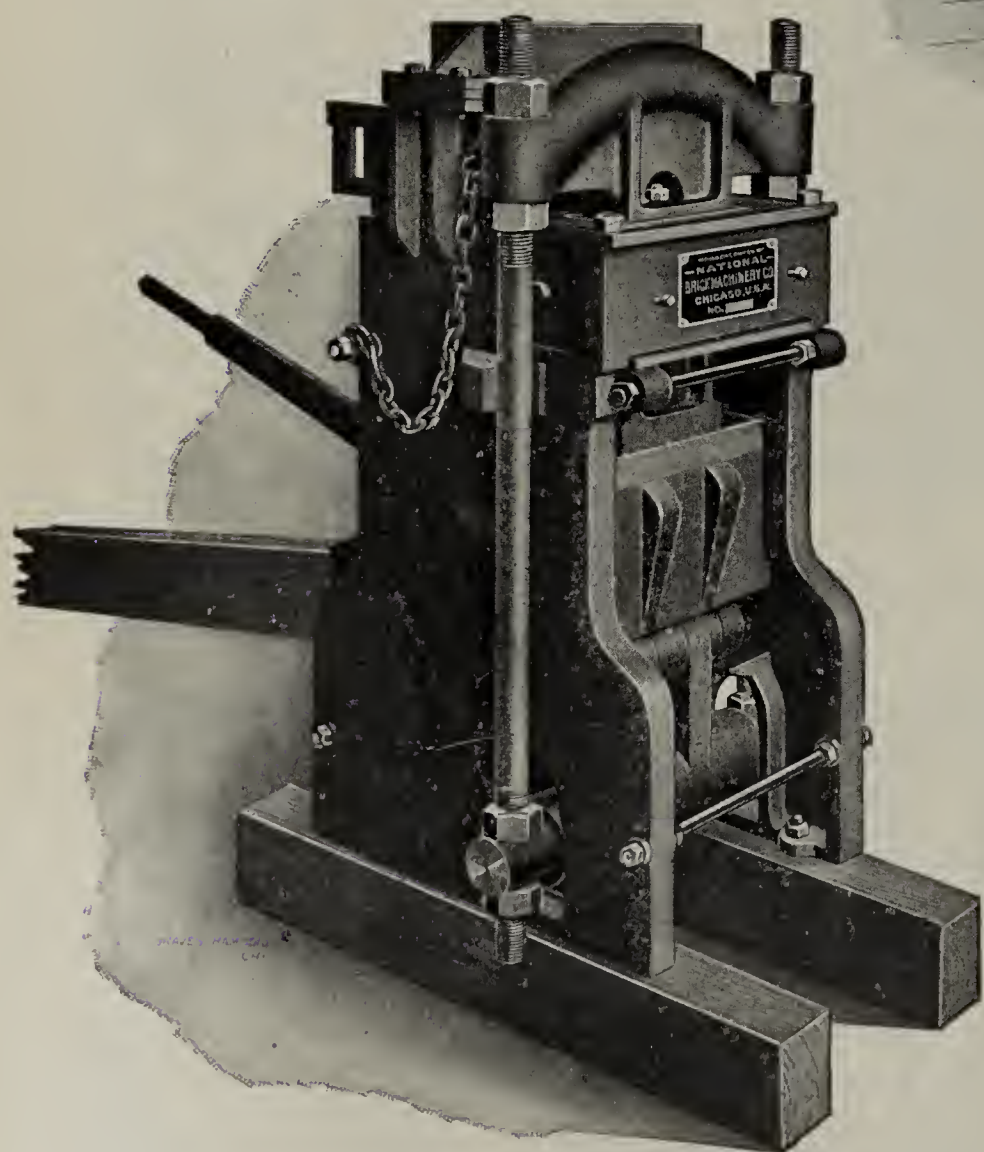
Complete Outfits for Brick Plants.

SEND FOR OUR NEW TREATISE
ON
DRY PRESS BRICKMAKING.

Write for prices on supplies of all
kinds for your yard.

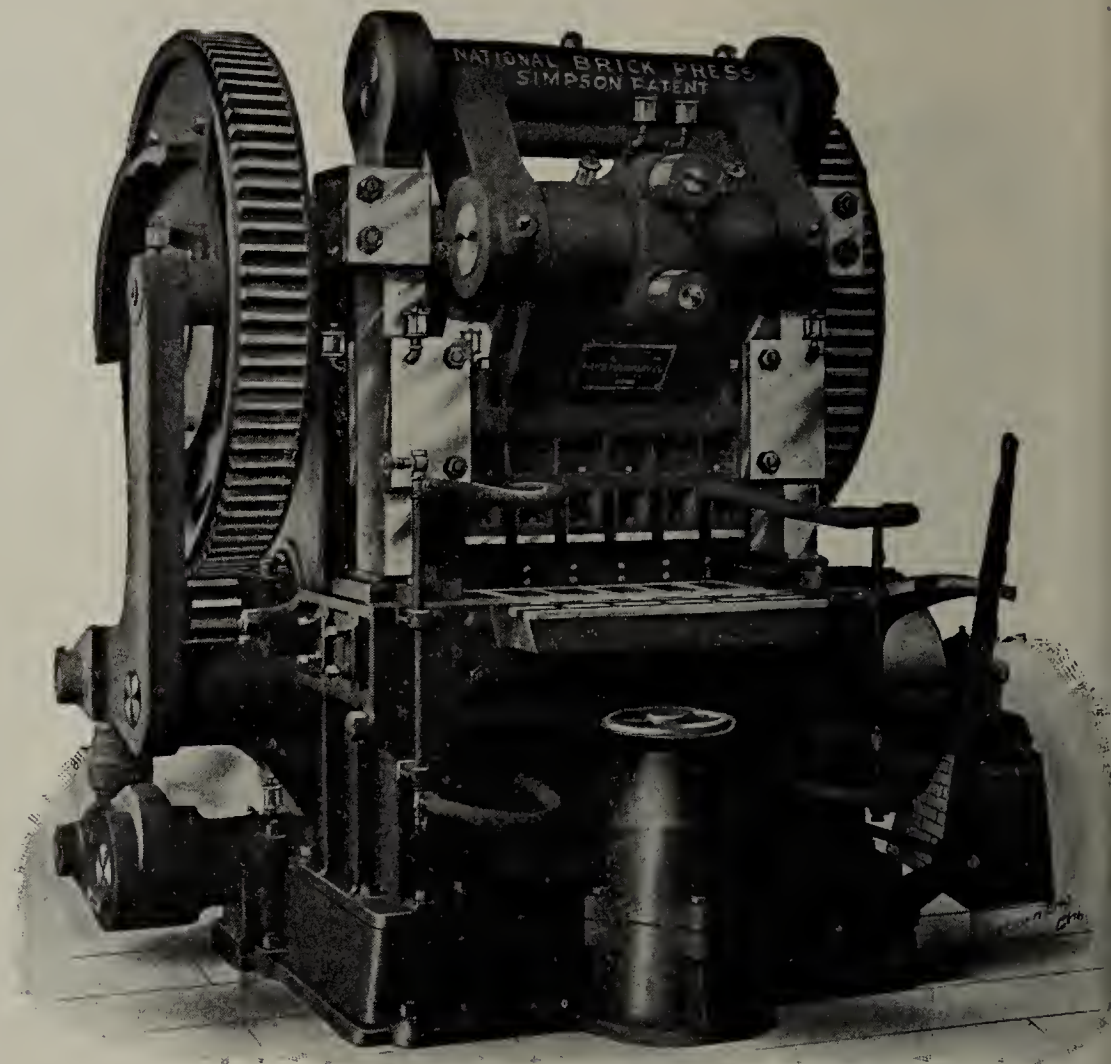
Correspondence solicited.

SIMPSON HAND PRESS.

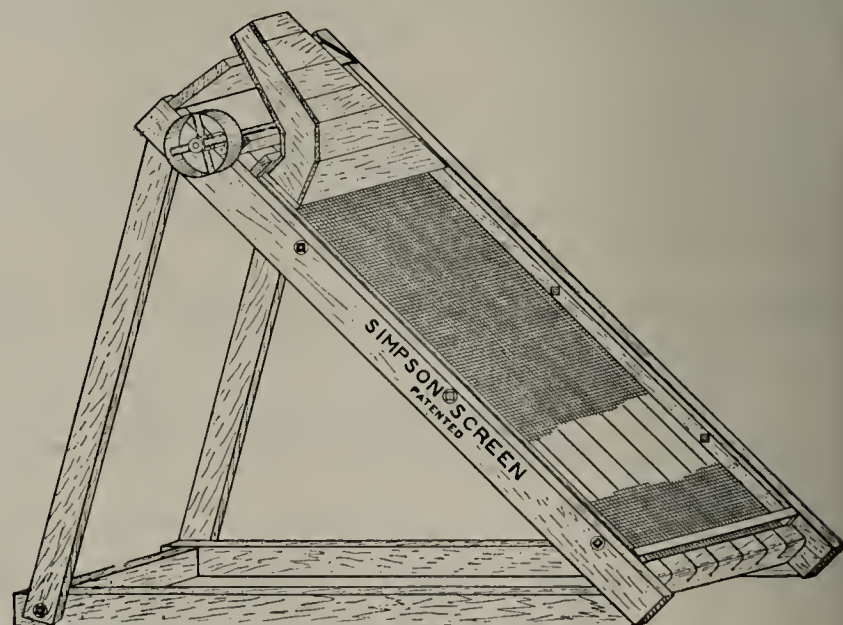


NATIONAL BRICK PRESS (SIMPSON PATENT)

Built in Four, Five and Six-Mold Sizes.

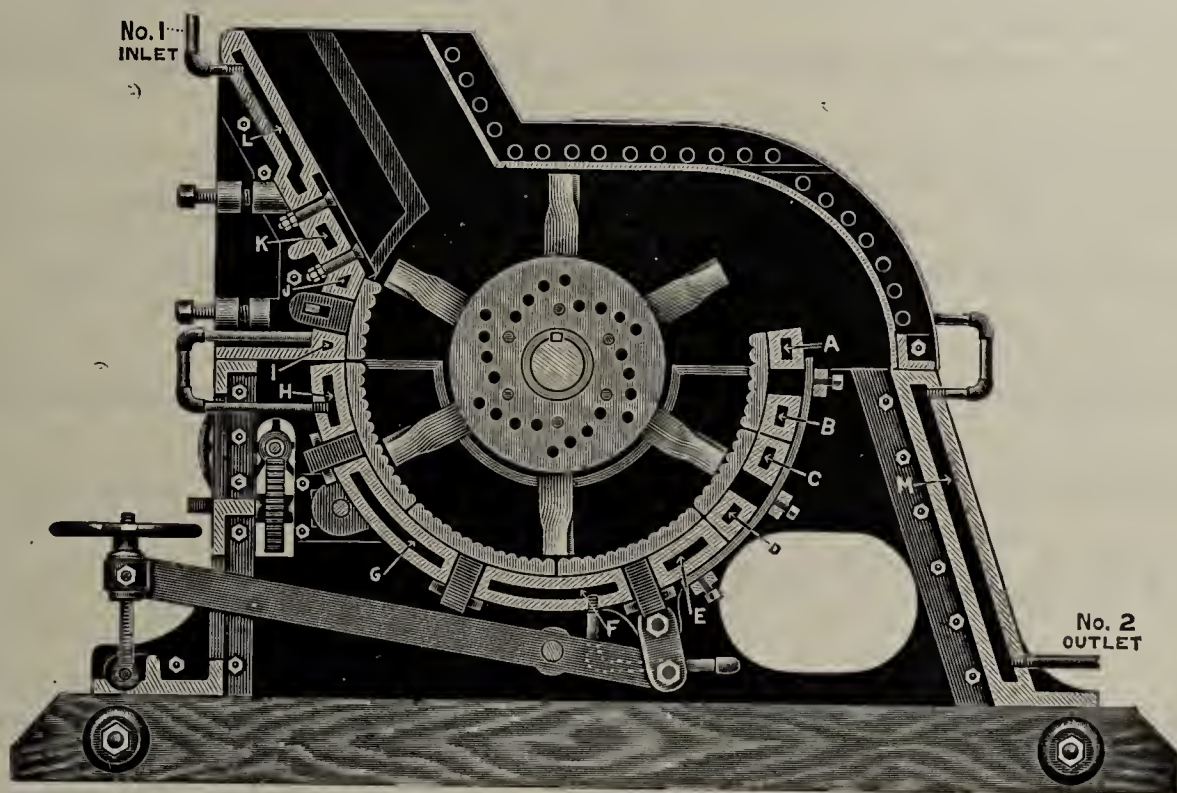


SIMPSON SCREEN.



National Brick Machinery Co.,
Chamber of Commerce Bldg. CHICAGO, ILL.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

Williams Patent Crusher and Pulverizer Co.

St. Louis, Mo., U. S. A.

Old Colony Building, Chicago.

456 Empire Bldg., Seattle, Wash.

1531 Maines Ave., Los Angeles, Cal.

Write for Bulletin 21.

Over 1300 of the Williams Hinged Hammer Crushers and Pulverizers in daily operation.

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The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:

"Directions for Laying Brick Street Pavements."

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Address **WILL P. BLAIR**, Corresponding Secretary, 522 Board of Trade Bldg., Indianapolis, Ind.

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Manufacturer of

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SEWER AND HARD BUILDING BRICK.
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Vitrified Shale and Fire Clay Paving Bricks and Blocks.
Burned in Yates' Patent Kiln.

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VITRIFIED PAVING BLOCKS, CHOCOLATE-RED
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PAVING BUILDING • BRICK AND BLOCK • SIDEWALK FOUNDATION

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POSTON BLOCK and
ORIENTAL BUILDING BRICK.
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THE DECKMAN-DUTY BRICK CO.,

Manufacturers of

High Grade Paving Brick.

Factories at Collinwood, Malvern and Carrollton, Ohio.

Main Office, Rose Building.

CLEVELAND, OHIO.

Thurber Vitrified Paving Brick
and Pressed Building Brick of Superior Quality.

Made of the finest shale, absolutely free from lime.

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CLEARFIELD BRICK MANUFACTURING CO.,
CLEARFIELD, PA.

Works at Krebs, Clearfield Co., Pa.

FIRE CLAY PAVING BRICK.

The Danville Brick Company,
Manufacturers of the Unsurpassed
Danville Paving Block.
Danville, Ill.
LET US QUOTE YOU PRICES.



The Best
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Made

SIX FACTORIES
DAILY OUTPUT
500,000

The Metropolitan Paving
Brick Company
CANTON, - - OHIO

How to Properly Construct Brick Streets.

Drop us a postal and we will send you free of charge
a complete set of

DIRECTIONS.

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Successors to
TERRE HAUTE BRICK AND PIPE CO.,
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VITRIFIED PAVING BRICK,

Sewer and Hard Building Brick,

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The Wabash Clay Company,

MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS,
"SPECIALS," for crossings on macadam streets, GUTTER BLOCKS,
COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

Our material has for over fifteen years successfully stood the
heaviest traffic of Indianapolis, Terre Haute, East St. Louis and
dozens of other large cities of Indiana and Illinois. We ask inves-
tigation and comparison by those seeking the best paving material.
Samples furnished on application.

Office and Works at VEEDERSBURG, IND.

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Manufacturers of the Highest Quality of

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Which are offered to the municipalities of the Cen-
tral States under positive guarantee as to wearing
quality. None better.

Prices and samples sent on application.

Correspondence solicited.

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Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DE-
POSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kao-
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Have been in the business for TWENTY-FOUR
years, and are prepared to meet every reasonable demand.
Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,

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J. G. BUTLER, JR.,
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MANUFACTURERS OF

BESSEMER BLOCK,

An unexcelled repressed shale paver.

Correspondence solicited.

The Purington Paving Brick Co.,

of GALESBURG, ILLINOIS,

HAS the largest and best equipped plant in the United States for the manufacture
of Paving and Sidewalk Brick. The Galesburg Paving Brick have a reputation
second to none, and this Company points with pride to its record for quality of
material and its methods of conducting its business.

Correspondence respectfully solicited.

"Borrowing from Peter to Pay Paul"

THAT is what the brickmaker is doing who uses waste heat for drying.

Saving fuel at the manufacturing end of his business. Losing profits at the selling end—because of the inferior quality of the product dried by the waste heat system—the small proportion suitable for front brick.

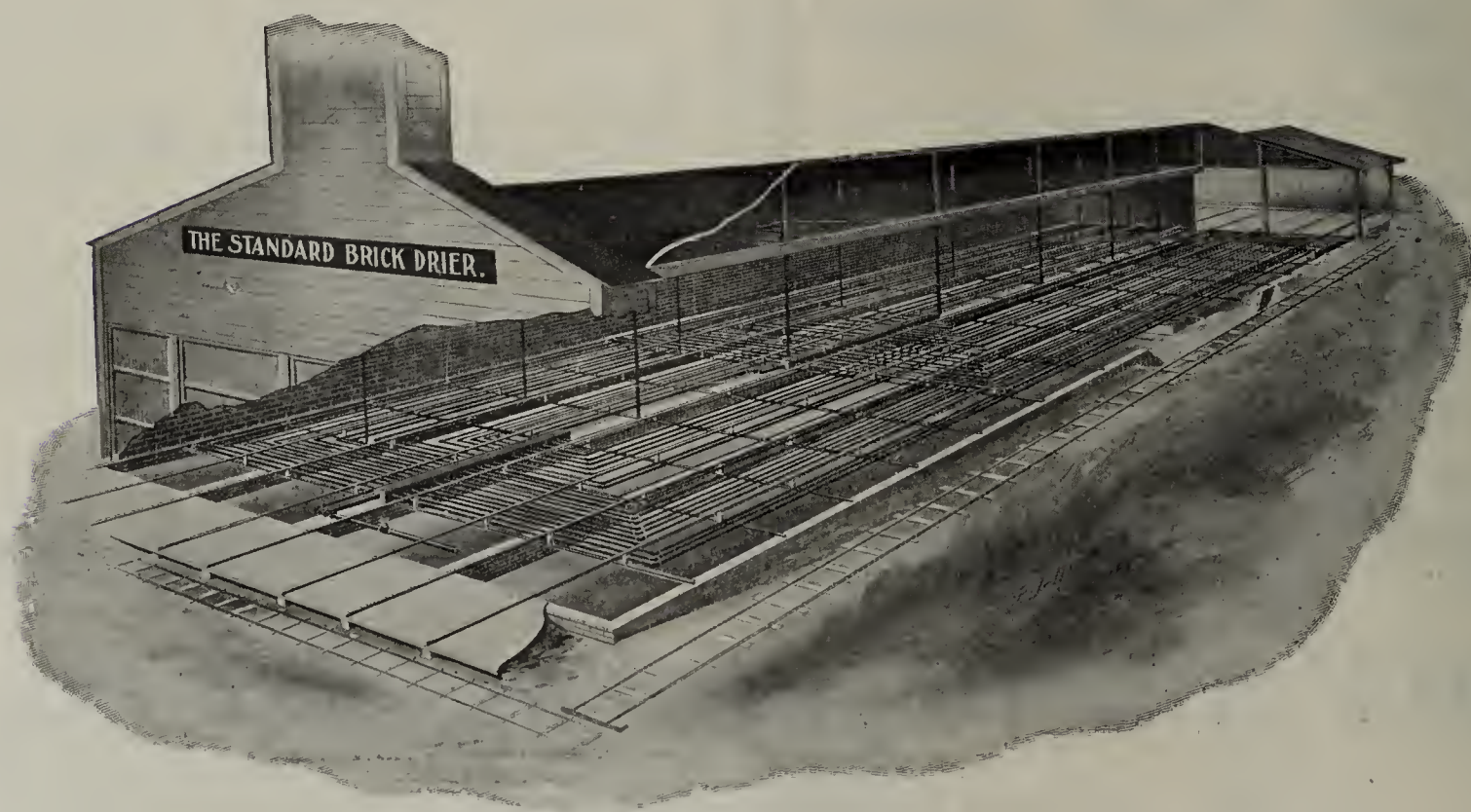
At that, it wouldn't be so bad for the brick man if the saving at the one end were equal to the direct loss at the other.

But the trouble is, the two don't balance at all. The actual loss in profit is far greater than the actual saving in expense.

Don't believe this because we say so. But get the facts from brick manufacturers who have been "through the mill." They are unbiased.

Write us for a list of those who have discarded the waste heat system after a fair trial—and are now getting 50 to 100 per cent more front brick from

The Standard Steam Drier



THE STANDARD DRY KILN COMPANY
 647 South Pennsylvania Street :: INDIANAPOLIS, INDIANA

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. L.

INDIANAPOLIS, IND., OCTOBER, 1908.

No. 4.

Written for THE CLAY-WORKER.

EVOLUTION OF THE BRICK SCHOOL BUILDING.

MODERN FIREPROOF STRUCTURE A GREAT IMPROVEMENT FOR LIGHT, VENTILATION AND GENERAL USEFULNESS.

SINCE THE DAYS of the log schoolhouse, brick has been used almost exclusively to construct the schoolhouses which dot this vast country. Occasionally wood or stone has been used, but scores of those historic "little red schoolhouses" of even the early days were of brick. Perhaps no one type of structure illustrates the advance in brick architecture better than school buildings. They are to be found almost everywhere, and are associated with the lives of even the oldest.

The city of Cleveland has been selected as a basis for study because it is a typical city of the United States, and is just about a century old. It has grown rapidly, and there are still in existence types of those buildings representing all periods of architectural advance.

In one section is still standing a little brick structure one story high, which, seventy years ago, served the purpose of a schoolhouse. A short distance away is the very newest type of brick school building, which satisfies all the demands of the architect as well as the instructor.

Simple in design and construction, that old building has weathered the storms of many a decade. The brick are still firm and show no evidences of decay. They are the small oblong type, made by hand, and made to last. It was built in 1835, and for years served as a schoolhouse, being converted into the town "meeting hall" one night in the week.

Within the last fifty years the architectural design of the

schoolhouse has changed with almost every decade. An attempt to give them a classic turn has resulted in the construction of many buildings which are considered to be positively ugly in appearance. They are all gables and towers, the windows are small, and no attempt has been made to embellish them with ornamental brick designs. In attempting Gothic designs the architects sacrificed light and ventilation, but it was the type the school board wanted, so it was built.

All this, however, has changed in most cities. Schools are being built to use, as well as to please the artistic sense.

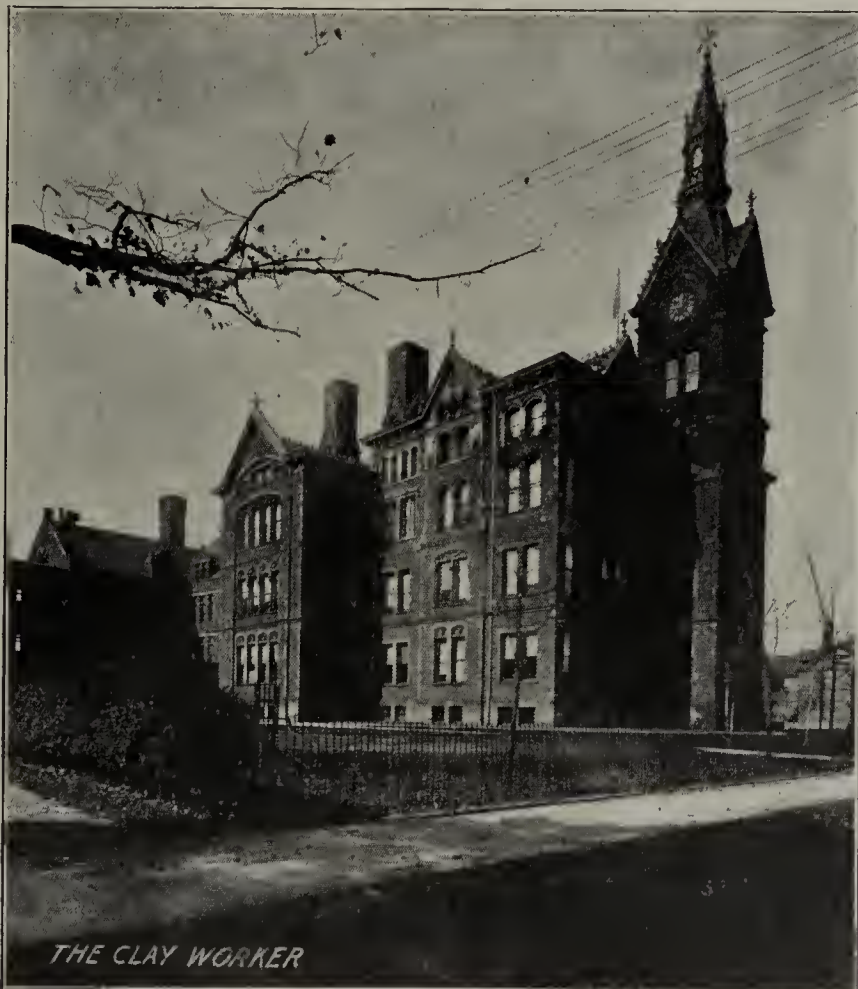
They are common sense structures, severely simple in design, but constructed of ornamental brick and tile in such a fashion as to make them very attractive in detail, as well as general appearance.

The latest brick school building is constructed in a U shape, to admit of plenty of light and ventilation. The structure is usually planned with some regard to the lot it is to stand upon, and care is taken to get the right lights when possible. There is something soundly substantial about the brick schoolhouses which are now coming into vogue in our large cities. They cultivate the practical as well as the artistic taste of the pupils who attend them. The very building teaches one to be economical, for is not every inch of space in the structure used to advantage? One is inspired with confidence by even studying the

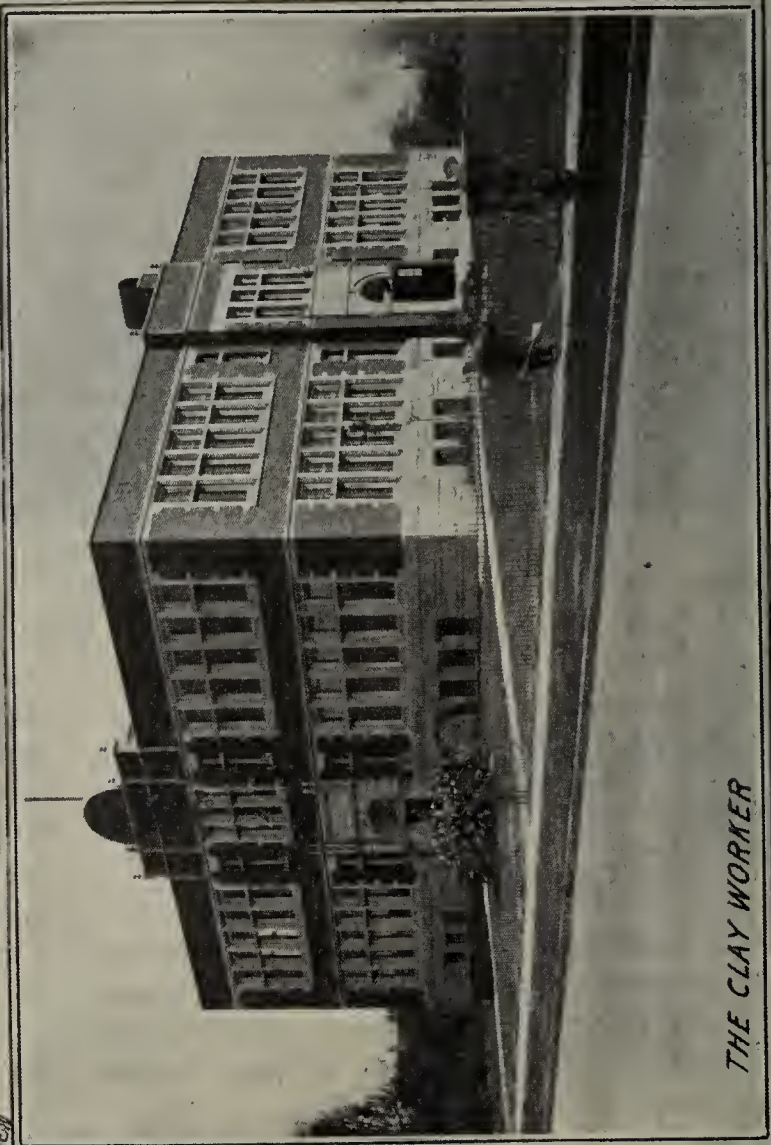
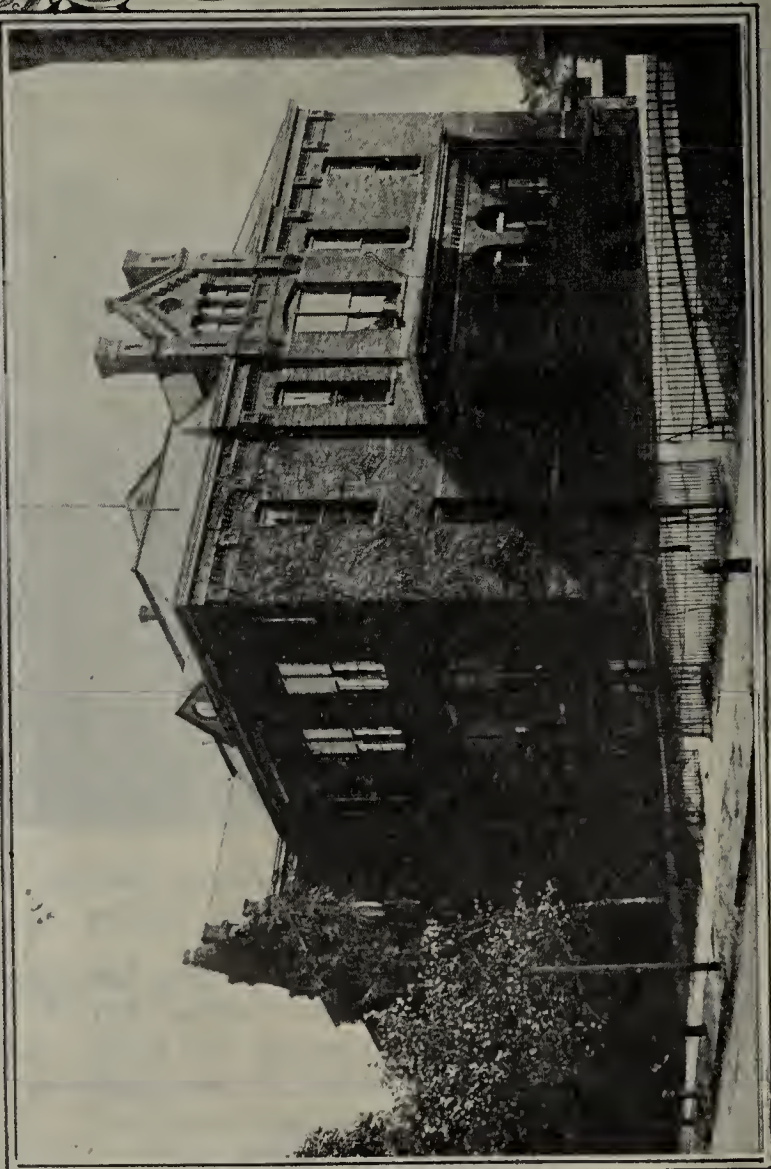
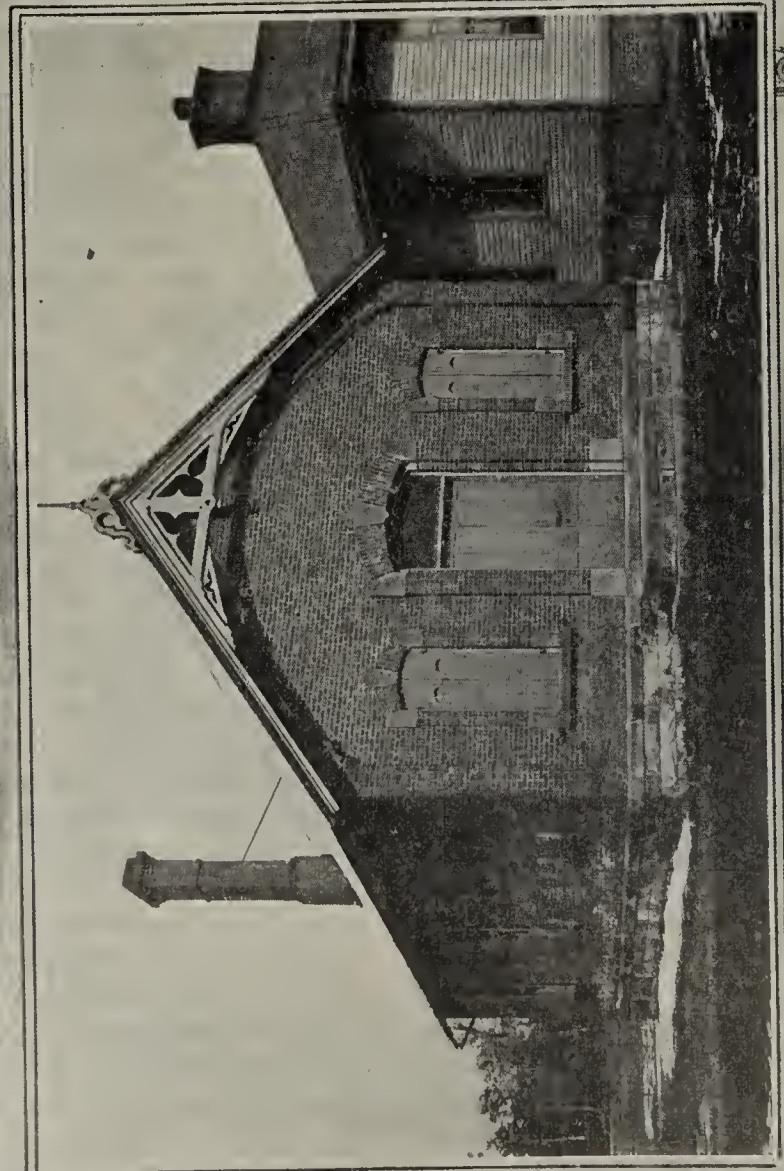
firm, conservative lines of the newest type of school.

In the newest style, the basement is used for manual training classes. It is finished in smooth-faced brick, and is most attractive.

The advantage of the brick school building as it is now being constructed is the minimum amount of material required. There are no wings, dormers, or towers to build and



An Old Type of School Building, Elaborate With Gables and Towers, But Lacking Light and Ventilation.



THE CLAY WORKER

EVOLUTION OF THE BRICK SCHOOL BUILDING AS SEEN IN CLEVELAND.

- (1) Earliest Type of Brick School Building Built 70 Years Ago. (2) An Outlandish Design Built 30 Years Ago. (3) Type of School Building Built 15 Years Ago.—Note Gradual Change From the Lofty, Ornamental Type to the Low, Substantial Structure. (4) Type of the Modern School Building.

take up extra material. The contractor knows to a brick how many he will need for a given plan. In this saving of brick there must also be remembered the fact that there is an equal saving of all other material, as well as the item of labor.

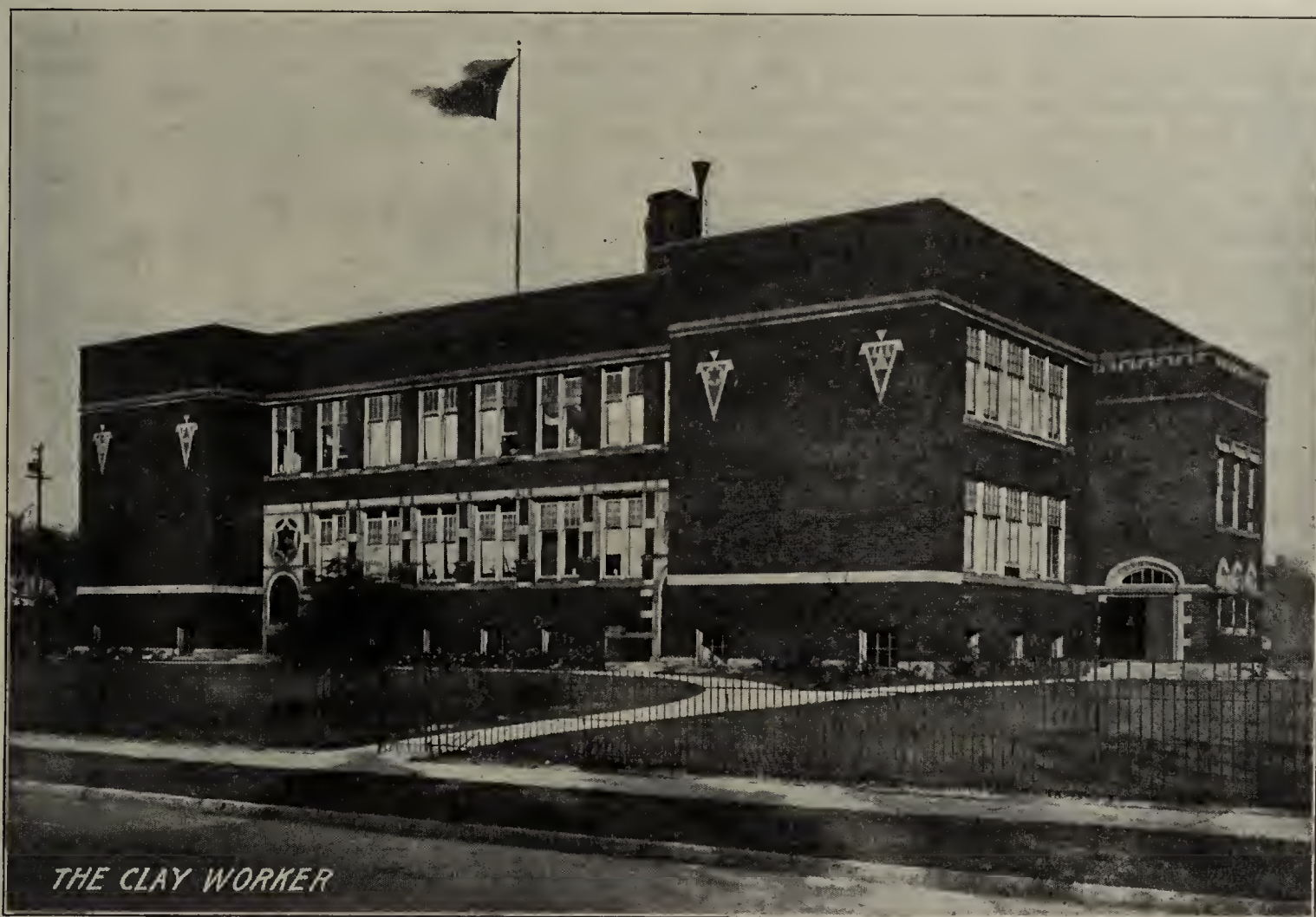
Given the same amount of stone or cement block it would be a bare, uninviting building, which would result if built on these latest plans. But warm, attractive looking brick conform to the style perfectly, the few ornaments heightening the effect to a degree scarcely imaginable. Verily, the brick schoolhouse of today eclipses them all.

Written for THE CLAY-WORKER.

FAULTY BUILDING METHODS.

The records show that in old Rome, when they used concrete construction in their larger buildings, a protest was made to Nero by the conservative element in his entourage against the use of that material, because its accidents and

lapsed, killing one man. In 1903 there were many and fatal collapses of reinforced concrete buildings. February 3, a highway bridge at Trenton; February 5, the Lawrence Savings and Trust Bank building, at New Castle, Pa., one man killed; March 23, floors of the Johnson Service building, at Milwaukee collapsed—this building was most carefully superintended, and was, apparently, of the most perfect materials; May, the Peavey grain elevators, at Duluth, Minn., collapsed after being in evident successful operation for months; May 5, collapse in Dayton Arcade Company's building, at Dayton, Ohio, seriously injuring one man; June, second collapse in the North Homestead School building, Pittsburg, Pa.; October 3, collapse of concrete factory building of Will & Baumer, Green Point, N. Y., one man killed; October 30, collapse in the new Court House at LaCrosse, Wis.; November 20, collapse in the Clarke County Court House, Clarke County, Ill.; December 2, collapse in the Carnegie Library, Binghamton, N. Y.—a specially strong reinforce-



The Simon-Pure Brick School, Containing All the Elements of Beauty and Usefulness.

collapses caused so many deaths among the slaves that worked upon those buildings that it was feared those workmen would mutiny. Since the revival of concrete construction within the past ten or twelve years there has been some very successful work done, but, on the other hand, collapsing dams, leaking reservoirs and cracking retaining walls have become so common that it is a wonder that a reputable engineer would undertake the employment of that material.

Its questionable behavior under fire has been fully shown in Baltimore and San Francisco, and in the awful catastrophe at the Iroquois Theater in Chicago. Its other very grave danger is that buildings of it are so susceptible to collapse, particularly when nearing or just reaching completion. In 1900 a great bridge in Paris collapsed on account of that faulty construction; in Madrid, in 1902, another concrete structure collapsed, killing nearly 300 people; November 20, 1902, the Paddington Apartment House, in Chicago, col-

lapsed, killing one man. In 1903 there were many and fatal collapses of reinforced concrete buildings. February 3, a highway bridge at Trenton; February 5, the Lawrence Savings and Trust Bank building, at New Castle, Pa., one man killed; March 23, floors of the Johnson Service building, at Milwaukee collapsed—this building was most carefully superintended building; December 10, the Wing & Bostwick Department Store, Corning, N. Y.; December 20, Norman Street School building, Boston, Mass.; December 4, the Bellefield Apartment building, Pittsburg, Pa., ten concrete floors collapsed, killing several workmen and endangering the lives of two hundred and fifty others; December 8, the Mott Iron Company's new plant, Trenton, N. J., killing two men. This building was just completed and under test, and the test caused the collapse. March 3, 1904, the Darlington Hotel building collapsed, New York City, twenty-one killed; September 1, the Boos-Basso building at Battle Creek, Mich.; March 5, 1905, the Peter Benner building, Central Park and Fifty-ninth street, New York City; March 26, 1906, one man killed and three injured by the collapse of a concrete building at Atlantic City. Then, in September of the same year, there were two fatal collapses within ten days of each other, one at Elyria, Ohio, and the other at Minneola, L. I. A few days after, the

Bixby Hotel, at Long Beach, Cal., collapsed, killing ten men, and on November 21 one of the Kodak buildings at Rochester collapsed, killing three workmen. April 3, 1907, the roof of a concrete building at Lawrence, Mass., collapsed; August 20, five stories of a building at Lille, France, collapsed, killing thirteen and injuring five men, and a few days prior to that there were four killed and many hurt in the collapse of the Bridgman Brothers' Warehouse, at Philadelphia, Pa., then this last collapse at the Pickford Apartment House, Washington, D. C., with two killed.

And this is but a partial list of the troubles that have beset this so-called novel and economical form of construction. In England there have been floor failures and wall collapses, the Bexley Asylum and at Cambridge College; then at Berne, Switzerland, and at Milford, N. H.; and a bridge at Bellefontaine last April, and the great Stadium at Harvard reported to be failing; a huge chimney collapsed at Newburg, N. Y.

It would certainly seem to behoove our city authorities to safeguard against the repetition of such disasters, even if individual builders are reckless and careless enough to be willing to undertake the grave risks that this mode of construction apparently involves. We take police precautions against the commission of crime, and do our best to close up resorts and places where crime may become habitual. Prevention is now the watchword. If building in such a manner as to imperil even the lives of the humble workmen engaged upon them in construction is not a crime, according to our legal definitions, then it is time that those definitions be changed and still more timely that drastic action be taken looking to the prevention of such senseless jeopardizing of life and property.

PROFIT BY THE EXPERIENCE OF OTHERS.

Some Pregnant Suggestions by the Colonel as to the Best Means of Promoting the Brick Business.

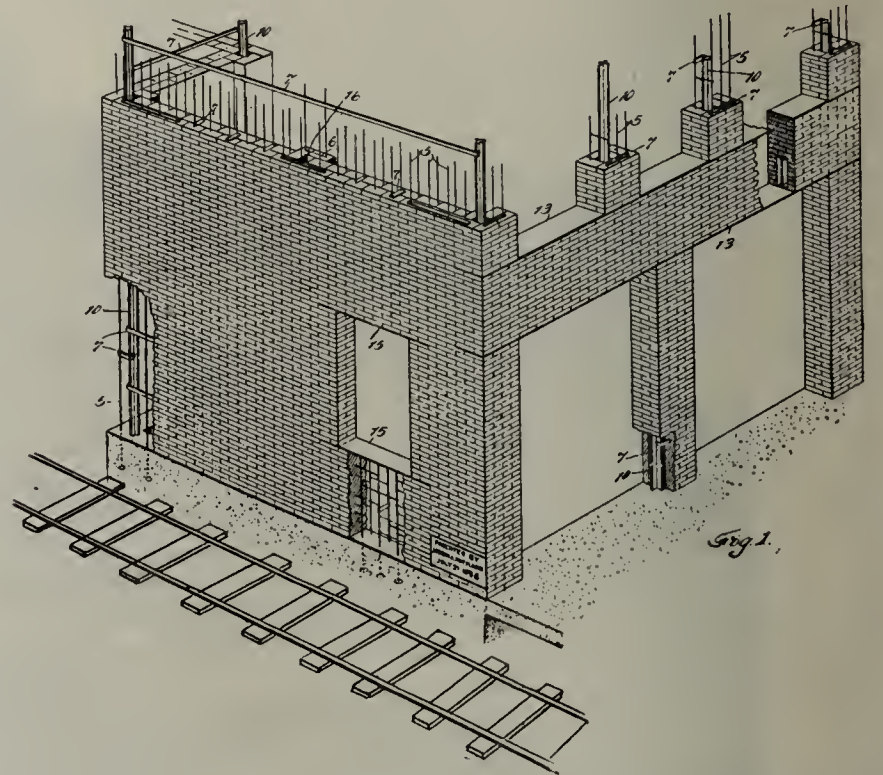
THE VALUE OF ADVERTISING, especially of advertising in country newspapers, is a subject that is receiving a lot of attention these days at the meetings of retail lumbermen throughout the country.

Some of these lumbermen, too, it must be borne in mind, are dealers in brick and other building material. Some take the position that advertising in such papers is practically barren of results, while others take the opposite position, and maintain that country newspapers are the best aids to building up business.

Following the course of these discussions, one is impressed with the fact that where advertising is barren of results the fault is more frequently with the advertisements themselves than with the publications. There is really no room for doubt about the value of country newspapers as an advertising medium. Any one having building material to sell in the country could apply in a great measure the same logic that is being worked on by lumbermen, which applies equally well to brick manufacturers. If a brick manufacturer had an excellent clay bank, he wouldn't expect to get returns out of it unless he worked it up properly and made from it that which it was best fitted to make. The same thing is true of buying space in a country newspaper. To buy that space and let it stand with just a card or with some catchy, freak picture, is too much like putting a sign on the clay bank to tell people you own it. You wouldn't expect that sign to make you money, yet many people expect such a sign in the newspapers to bring them results. The first thing a man should do when he begins forming an acquaintance with the local paper is to figure on just how much space it will take for his use, and then turn to and make use of that space. Fill it full of the same kind of talk he would give his customers and prospective customers when they come

to him, or call on him personally. Put specific information into the space, and put it there so that it will not only catch the eye, but be interesting and hold the attention of the reader, and be of some value to the reader as well as to yourself. If you will do this, you will not only find it brings returns, but it will win you a lot more respect and attention from your local editor, and he will be glad to have you talk with him and give publicity in his reading columns to ideas about building and building material. Every newspaper man is glad to get ideas from live, up-to-date people, and that is what you prove yourself to be when you get to using your advertising space right.

As the inimitable Met L. Saley puts it, in one of his talks before a meeting of lumbermen: "The support the local newspaper receives from the business men of a town is an index to the life of that town. Dead advertising columns mean a dead town wherever you see them. The live business man may be likened to a star; he is desirous that his personality, his enterprise, his success shall radiate in every direction. He places evidences of these on his office door, on the signs which stretch along the crowns of his buildings, on fences, and in the columns of his home town papers, and I think he has discovered that in no other way can he reach the same number of people with a variety of wording



so cheaply as through the medium of the paper that has 1,000 tongues."

Yes, the country newspaper, like every other newspaper, has value, but its full value need not be expected when you buy advertising space and just put a sign on it. Just as you must work up a clay bank to get a specific product out of it you must also make good use out of your advertising space to get fruits therefrom, and, instead of finding fault, and turning away from the country newspaper, it would be better for more brick men to buy more space therein, and give more attention to filling it with interesting and valuable matter pertaining to the use of brick in various ways.

BRICK INDUSTRY IN HOLLAND.

The principal brickmakers of Holland are members of the Association of Netherland Brick Manufacturers. The association publishes every year statistics regarding production. One hundred and fifty-five brickyards reported a total production of 717,806,500 brick in 1907. Along the River Waal there are forty brickyards, while on the River Rhine we find thirty-two brickyards. The business throughout the year was very poor. The yards are all stocked with brick, and the building operations are very poor. The yards were opened late

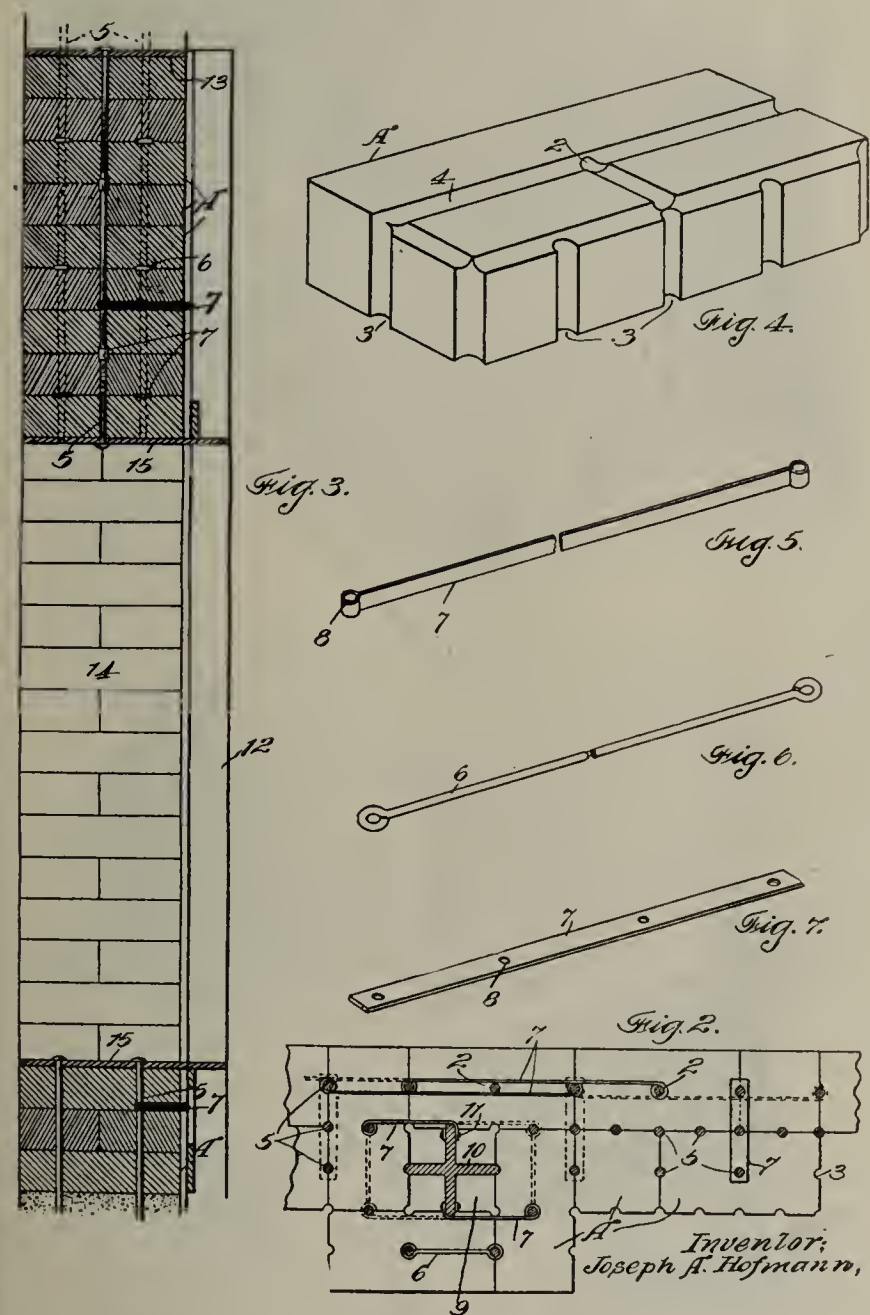
on account of the high stages of the rivers throughout the spring. The prices remained the same, but general conditions among the brickyard people are not encouraging.

Written for THE CLAY-WORKER.

REINFORCED BRICK CONSTRUCTION.

Building Structure Recently Invented Claimed to be Earthquake, Fire, and Windproof.

WE ARE PLEASED TO PUBLISH in our columns a few of the many good points attributed to the latest building invention by its author, Mr. Joseph A. Hoffman, of Mill Valley, Cal. This is certainly an innovation in brick building construction, and, if practical, will revolutionize the building trade in many respects. The inventor claims that



all the advantages of reinforced concrete construction are gained by this method, without the labor and expense of wooden forms, and that the greater strength of the reinforced brick construction will permit of brick walls being at least one brick thinner than under the present method of building, thereby saving expense.

This new method of construction is pronounced suitable for all kinds of buildings from the first class "A" office building to the smallest dwelling house or cottage, and other structures, such as chimneys, walls, piers, columns, buttresses, etc., and can also be used with terra cotta, cement, or concrete block, and artificial stone or tile material.

The invention consists of parts, and the combination and construction of parts, as shown in the illustrations, by means of which, through a careful study, the reader can obtain a

clear conception of the wide field this invention will command.

Fig. 1 is a perspective view of a store, office building, warehouse, or railroad depot.

Fig. 2 is a plan view of a fragment of a wall.

Fig. 3 is a vertical cross section.

Fig. 4 is a perspective view of a brick or block.

Fig. 5, 6, 7 show various types of bond irons.

Fig. 8, 9 show the different types of bricks or blocks made of clay, cement, or other material.

Fig. 10 is a perspective view of a corner section of a building.

Fig. 11 is a front view of a dwelling, an apartment house or flats.

Fig. 12 is a partly built dwelling, showing the interior in perspective.

Fig. 13 is a perspective corner of a wall.

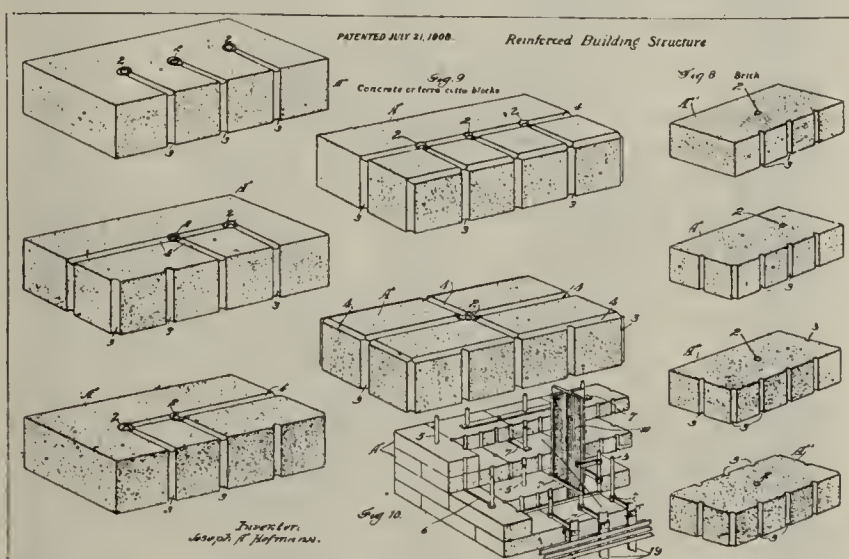
Fig. 14 shows the wall built between the cross beams of a Class "A" steel frame building.

Fig. 15 shows a garage, barn or stable built of brick, concrete or cement blocks, or artificial stone.

Fig. 16 is a bungalow or cottage built of brick, artificial stone, cement, or concrete blocks.

Fig. 17, power house or pumping station.

The bricks or blocks "A" have each one or more central vertical perforations 2, and one or more vertical end and side grooves 3, and some of the blocks have the top grooves 4; but where the blocks are used for facing the front, side or



corner of a building, only one end and one side, or possibly one side only, or one end only, would have the grooves 3.

Preferably, the perforations 2 and grooves 3 are arranged as shown, so that they will be brought easily into proper register when the bricks are laid one on the other in break-joint formation, or at right angles to one another. It will thus be seen that the rods 5 which pass through one brick, pass outside of the immediately adjacent upper and lower bricks.

These bricks or blocks are laid up in usual break-joint courses, with a suitable filling of cement or cement mortar and metal rods 5 passing through the bricks or blocks and between the blocks. These rods are composed of sections, each 4 or 5 feet long, so the bricklayer can pass the bricks over the rod in laying them, and are firmly imbedded in the foundation, in various ways, as shown at 17, Fig. 12, and as the courses reach the end of the section of the rod another section is added to it by welding, or screwed in a socket connection, or otherwise; the rods being bonded together by the bond-iron 6 or 7. Where the bond-irons 6 (which are made of wire) are used, they fit in the groove 4. Where flat bond-irons as 7 are used, they being thin are laid between the bricks either horizontally or vertically; the bond-irons are made with eyes or perforations 8, through which the rods 5 pass.

The bricks or blocks "A" may be made either of clay, cement or other material of suitable size and shape, with the

perforations of any size or shape, in the center or elsewhere. The rod 5 may be made of steel, iron or other material of any size or shape desired (round, square, polygonal, etc.)

When the top of the building is reached, the rods pass through a plate of steel or iron, or other material, of suitable thickness, and are then riveted or bolted firmly, or fastened in any other way most convenient, as shown at 15, Fig. 11.

When piers are to be built, as at the corners, or elsewhere, a hollow space, as 9, is left, in which is placed a metal column 10, which is cruciform in cross section. This column 10 is bonded to the bricks by the bonding ties 7, the rods 5 passing through the eye at one end and being riveted at the other end to the column 10, as shown at 11; the edges of the column 10 being shaped to fit the corresponding vertical grooves 3 in the adjacent blocks, and the space 9 left open for gas or water pipes if desired, or filled in with concrete or cement.

This structure is particularly adapted for use in conjunction with a steel frame 12. In the elevation shown in Figs.

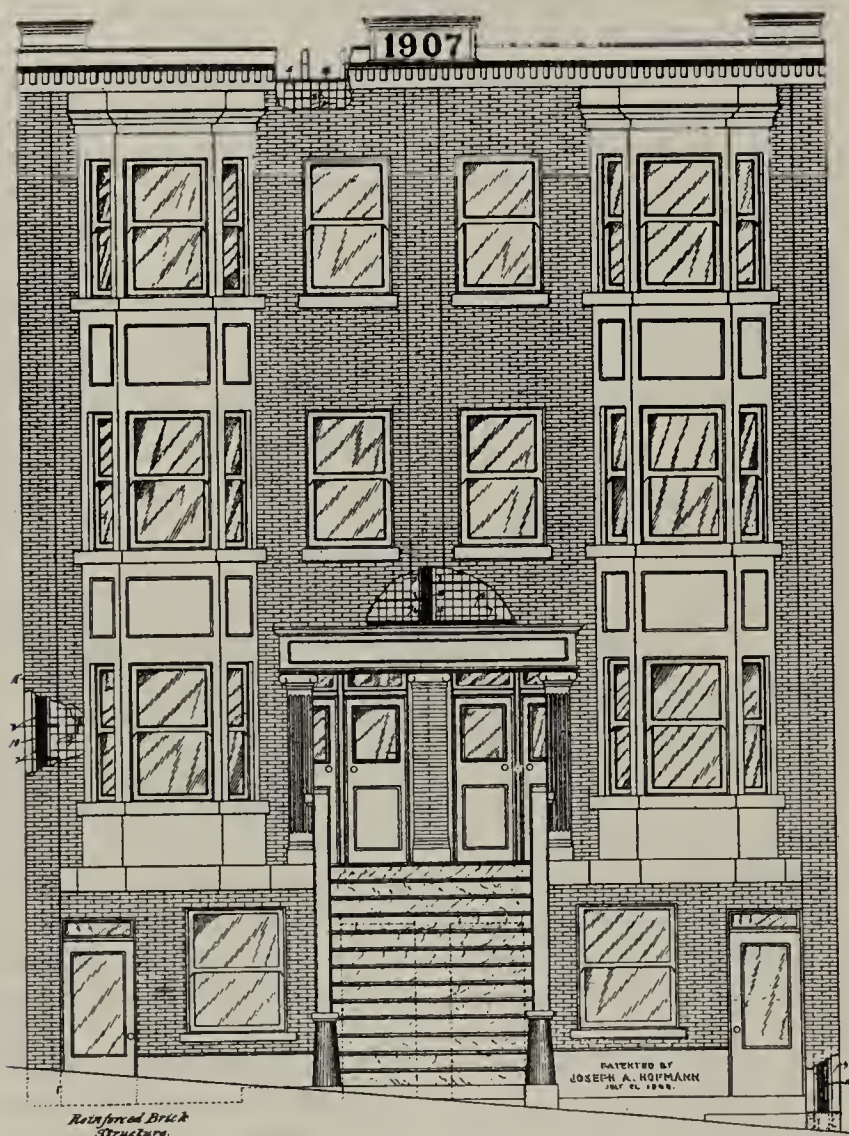


Fig. 11.

3 and 12, this steel frame is provided with lateral projecting plates 13 at suitable intervals, say at each story, which extend part way between the courses of the brick, and are perforated so as to pass the vertical rods 5. The walls being strongly braced across at each story by heavy metal rods or girders, as shown at 18, Fig. 12, gives increased rigidity to the structure, especially in very tall buildings; the above plates being firmly welded, bolted or riveted to the cruciform columns or steel frame.

At a window opening, as shown at 14, the frame carries the top and bottom plates 15; at these window openings the vertical rods 5 are cut and riveted, bolted or fastened in any way desired, to the plates 15. At occasional intervals, the steel frame 12 is bonded to the vertical rods 5 by the bonding ties 7, as shown in Figs. 1 and 3, and more particularly in 19, Fig. 10, where they occur more frequently on the inside of the wall to be used to attach the furring for either wood or metal laths.

The pier columns 10 can be arranged at more or less

intervals in a long wall, according to the character of the building and the strains it may have to undergo, and also when needed to act as a flue or flues for a chimney, as shown in Fig. 1 at 16, when the metal column is left out.

A structure as shown here, bonded together in the manner indicated, and laid in the best cement or cement mortar, the joints being well grouted, has the extreme of rigidity and staunchness, and is capable of withstanding the severest shocks, twists, strains and vibrations, rendering the highest buildings proof against the forces of the heaviest winds and storms.

The partitions between the rooms and hallways can be

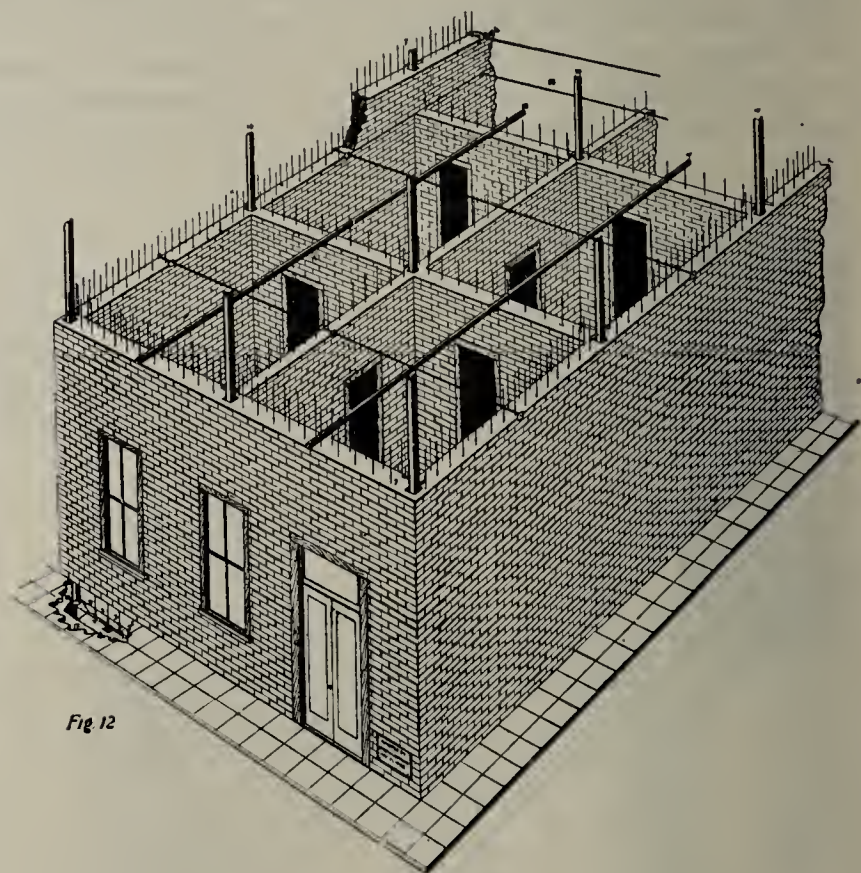


Fig. 12.

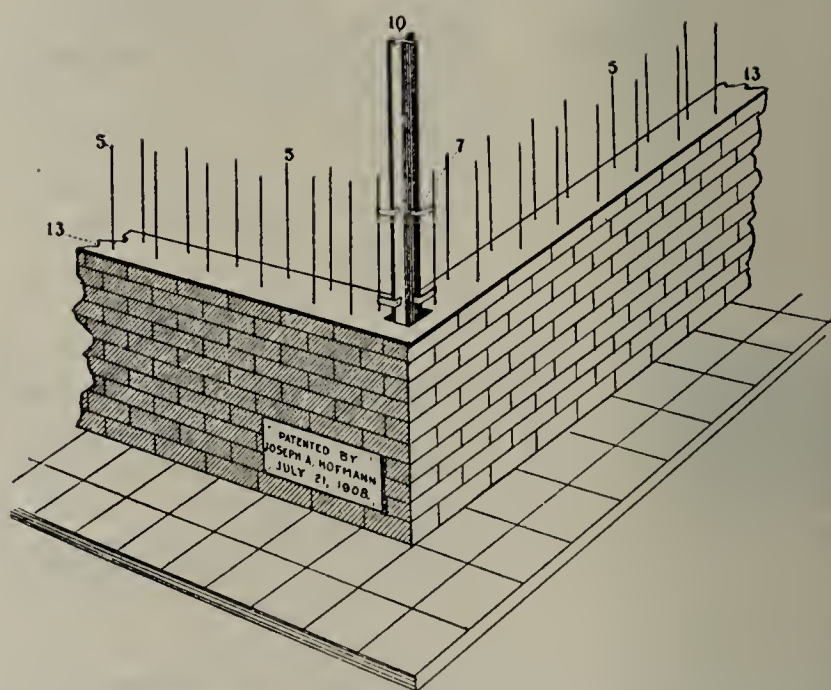


Fig. 13.

built of brick, as shown in Fig. 12, making the structure thoroughly fireproof, and they may be supplied with metal doors, concrete floors, ceilings, etc.; also insuring a sound-proof and vermin-proof building.

This style of building is particularly adapted for warehouses, dwellings, flats, tenement and apartment houses, at about the same cost as that of an ordinary well-built brick building, and a good substantial structure is assured, making it as safe to live in as any frame house or building during an earthquake or cyclone.

A peck measure of trouble won't hold a quart of the right kind of ambition.

Written for THE CLAY-WORKER.

TWIN CITIES AND THE NORTHWEST.



THE BUILDING SEASON in the northwest is rapidly drawing to a close, and already plans are being projected for the coming year. There is still considerable building going on, of course, and some new work will even be started this fall, but, for the most part, the work will consist of finishing up the present season's work already under way and in putting in foundations for next year. The season has, on the whole, been a

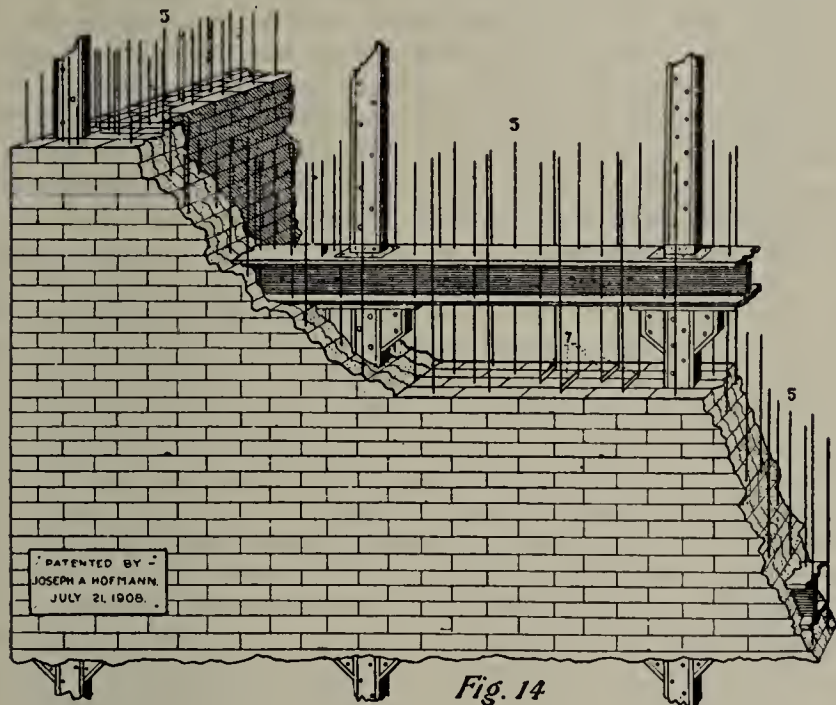
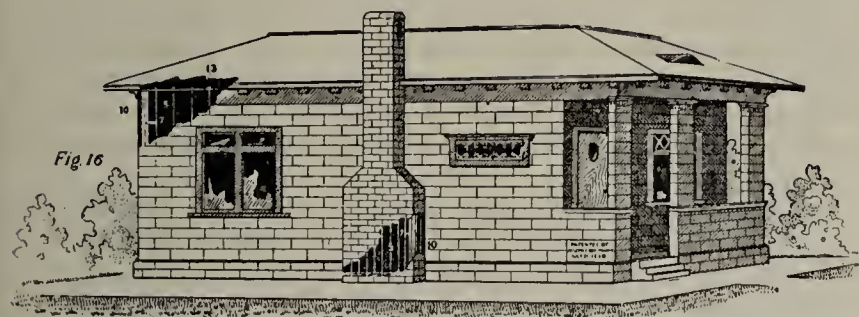
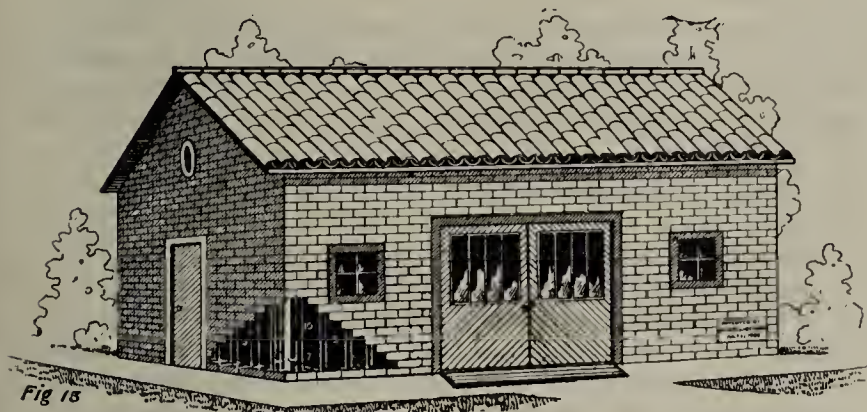


Fig. 14

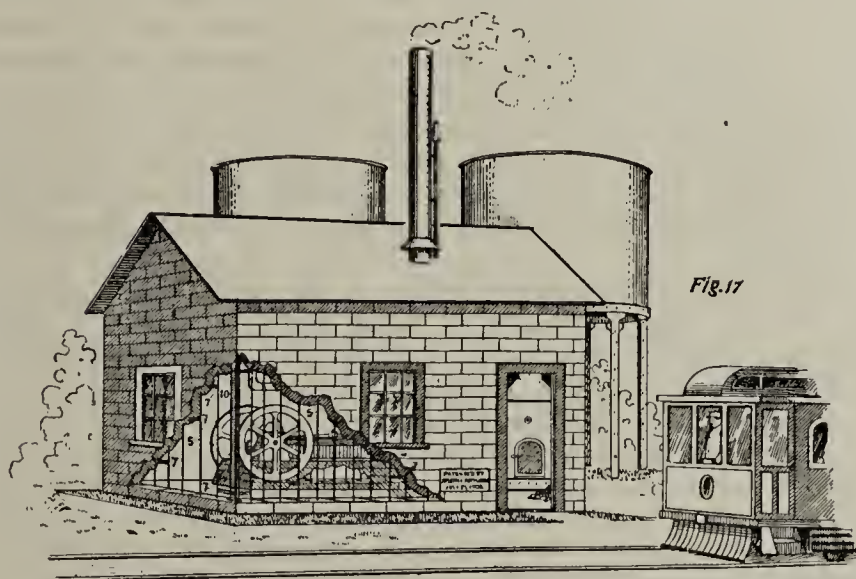


fairly good one, and the total building done will compare favorably with any former year with the exception of the last two. Construction work has gone along steadily without any commotion or disturbance to interfere with it. The financial trouble of last winter was undoubtedly the cause of holding down operations to some extent, but not so much as had been predicted early in the year.

As the season advanced, the situation gradually improved, the presidential campaign having been so quiet in this section as to cause no serious forebodings. Distinct advances have been made during the last six weeks, and, while it is now too late for the improvement in conditions to cause any records to be shattered, it will, nevertheless, have a good

effect, and, barring unforeseen difficulties, will be of sufficient moment to make possible the prediction that next year will see some new records. Already men are planning for 1909, and some of the projects are of sufficient size to make the next year a bright one, even though only a portion of them reach a state of material realization. Prices of building materials have remained about stationary for some time, but have shown indications of strength which have precluded any chance of further decline, and it is generally looked upon as being an opportune time for carrying out projected plans for building. The business situation in the northwest is promising. Crops were fair this year, and prices are almost abnormally high, making money easy and increasing confidence in general. The past season has put a stop to that feeling of over-confidence which has pervaded the business field for several years, and has induced a spirit of conservatism which can not help bringing good results to this section. Everywhere are heard words expressing faith in the outlook, and confidence that the coming year will be a prosperous and busy one.

Two moves of more than ordinary importance to the building trades, and which will mean much, not only to those lines of business thus directly interested, but to the public of St. Paul at large, have been announced during the month. The most important of these is the closing of the deal for St. Paul's handsome million dollar hotel, the erection of which has been eagerly anticipated for a number of months. A committee of the Business League and the Commercial Club has had the preliminary arrangements in charge, and



the negotiations were completed by an exchange of bonds between L. P. Ordway and John C. Roth. The former agrees to erect the structure, and the latter gentlemen to lease it for a period of twenty-one years. their direction. The plans call for a building eleven stories high, containing 325 rooms, and will be by far the most magnificent hotel in the northwest. It will be thoroughly modern and fireproof, of brick and steel, with terra cotta exterior, and will cost approximately \$1,000,000.

The other large structure already decided upon for next year is the new Mechanics Arts High School, which is to be erected near the State Capitol building. The competitive design of Rankin, Kellog & Crane, of Philadelphia, has been accepted, second prize of \$400 going to C. H. Johnston, of St. Paul, and third prize of \$300 to Nathan Meyers, of Newark, N. J. The building will be of pressed brick. The plans provide for a building costing \$380,000, and they will be revised to keep within the appropriation of \$300,000.

It has been reported that Schwarzschild & Sulzberger, the big independent meat packers, are planning seriously on erecting a large packing plant on the outskirts of Minneapolis. Should the plans materialize, it will mean a large amount of work for the building trades, especially for those interested in clay products. It is altogether probable, also, that the Armour Company will start work next year on the immense plant proposed on the site already purchased in Northeast Minneapolis. The plans for the latter are supposed to have been completed. The cost of either plant would amount to several million dollars.

T. WIN.

Letters from a Young Clayworker to His Younger Brother.

The Question of Draft—Letter No. 3.

CLAYBURN, IND., March 13, 1908.

Dear Jack:

Yours of the 3d duly received, and I am glad to know that you were interested in what I wrote you about the various sorts of practice employed by different kiln burners in regard to the use of draft. Am also gratified to note that you have been talking these things over with the burners with whom you come in contact, and that they are free and open in telling you what they have observed, and what their ideas and opinions are. A good many burners are inclined to be close in this respect, sometimes because they feel that their knowledge is their stock in trade which they can not afford to give away, but I think usually because they find it hard to express what they want to say. If you listen carefully to everything you are told, you will hear a good deal in course of time, and you will find when you have it sorted out and properly pigeon-holed, that you have acquired a large amount of practical information in that way that would have cost you an awful lot if you had shut your ears and tried to get it all first hand. But while you are absorbing, don't be stingy. You have a fund of technical knowledge that is also valuable, and it needs shaking up and airing now and then to keep it from getting in such bad order that you can't use it. Now you'll find that your burner friends have observed things that they would understand better if they knew more chemical facts and physical principles, and that they will be glad to learn some of these things which you do know. But you don't want to wrap up your information in a package of technical terms that sound to the average man like a foreign language.

Now as to that draft business. I note that you are of the impression that the men who finish their kilns with a high damper; that is, with a strong draft, must do it either with small grate areas and thick fuel beds, or with a big air excess. You say that with small furnaces a high draft is necessary in order to burn coal fast enough to get a kiln burned off in a reasonable length of time, but that, with large furnaces and a high draft, a burner would ruin his kiln of ware unless he let in a large proportion of cold air in addition to what was actually used to supply oxygen to burn the coal; also, that the excess air might be let in either by keeping so thin a fuel bed on the grates as to admit it through the grates or by leaving an opening for air to pass in over the fuel bed, but that the result would be the same—burning coal wastefully to heat up outdoor air. You don't see any room for doubt that, so far as economy is concerned, the best practice is to let in as little excess air as possible, since the air not used for combustion can not make any heat and does absorb heat, which takes coal which costs money.

Now that is all perfectly true so far as it goes, but it is not the whole truth, and unless you round up the whole bunch of facts your conclusions are apt to be misleading. As you know, the ordinary down-draft kiln, of whatever type, is a wasteful proposition the best you can do with it. When you burn your brick in such a piece of apparatus you throw away four or five times as much heat as the brick absorb, and you can't help yourself. The down-draft kiln is, as compared to the less wasteful continuous kiln, cheap, simple and easy to handle. We know what we can do with it and we keep on using it. Well, so long as we are going to throw away most of our heat, it is simply a question of the best way to do it. When a burner heats up a lot of cold air and sends it up through the bags, you would say that he has wasted so much fuel. I should say that that is not necessarily true, and I think you will agree with me a little later on.

If you could burn the coal in the chamber of the kiln, right among the brick, and could have the setting arranged in such a way that the heat did not have to travel far to reach all the brick, you would want only fuel enough to make the heat and oxygen enough to burn the fuel. With such condi-

tions it would simply be a question of generating heat, but with a practical kiln there is also the necessity of making provision for carrying the heat from the furnaces to the ware in the chamber. Practically all the heat which reaches the ware that you are burning has to be carried to it by the hot gases which come from the furnaces. Very little heat, comparatively can reach the ware by radiation and we can not depend on the heat traveling along from brick to brick, through one and into another at sufficient speed to be of much benefit. No further evidence of the importance of the heat-carrying power of the gases is needed than the failure to get hard-burned ware in any portion of the kiln where the draft is poor and the gases do not travel freely. The manner in which the gases do their work in the kiln is as follows: Coming from the fuel bed at a high temperature, they start for the kiln chamber with a load of heat, just like a man carrying a hod. But as they pass out of the furnace they have to pay toll; or, in other words, as they rub against the brick work of the furnace arch they have to give up some of their load of heat, for the brick work is cold in comparison and exacts its percentage for services rendered. Then, in passing up through the bag and under the crown this tax-paying is a continuous performance, and our gas starts down through the setting with only a part of the heat burden with which it left the furnace. What happens next depends entirely upon the stage of the burn. Suppose the kiln is just coming red. In that case it is safe to assume that the ware in the kiln, even in the top courses, is a good deal colder than the gases just coming up out of the furnaces. That being the case, the gases commence to unload rapidly as they pass down through the setting. The colder brick absorb the heat as the gases batter their sides, and the load is rapidly disposed of. Of course the greater the difference in temperature between the gases and the brick, the more rapidly the brick can take up the heat. Now as these gases get down lower than the first few courses they become colder, but the gases that went through ahead of them had also been robbed on the way, and, as a consequence, the latter ones find the brick in the lower courses are still cold. They are accordingly able to continue to give up heat. Now, as a matter of course, the longer a certain quantity of hot gas remains in contact with a cold brick, the more heat it gives up and the colder it is when it goes down to the brick in the next lower course. If the gases travel slowly they give up almost all their heat in the top part of the kiln. If they travel rapidly they are still hot when they reach the bottom. You may see some connection between this reasoning and the practice of the kiln burner referred to in my last letter, who carries a high damper until near the finish in order to make the kiln heat evenly; that is, to prevent the bottom from lagging behind the top.

On the other hand, when the kiln is nearly finished and the top brick are about as hot as it is safe to heat them, it is usual for the bottom brick to require some more heat. The temperature of the gases must now be kept down in order to avoid overburning the top brick. The difference in temperature between the kiln gases and the brick, even those near the bottom of the kiln, is necessarily small. Therefore, if the gases pass through the kiln rapidly at this stage in the burn they pass out into the stack without having had time to give up much heat. The amount of heat wasted by the escaping gases is naturally great during this period, and, since they do not in any case lose much heat among the top brick, it seems reasonable to allow them to pass slowly, so as to accomplish all they will in the bottom before leaving the kiln. This corresponds to the practice followed by most burners of "soaking" the kiln with a low damper to finish the bottom.

Now before trying to draw any final conclusions, I want to remind you of one factor that I think is underestimated by kiln burners. The "Heat Balance," as measured and calcu-

lated by Prof. A. V. Bleininger, shows that in actual, everyday practice, the various types of down-draft kilns waste a great deal more heat in other ways than by the escape of the heat in the gases as they go up the stack. A hot kiln is a sort of benevolent institution, genially endeavoring to warm up Mother Earth and all outdoors. The longer you keep the kiln burning the longer the kiln exercises this futile generosity, which the heat balance shows to be tremendously expensive. Anything which shortens the time of the burn naturally cuts down this loss, and if by passing the gases through the kiln rapidly it is possible to shorten the time, there is some justification in doing it. Now, as a rule, a great deal of time is spent in "getting the bottom," and if, by keeping the gases moving rapidly while the brick in the kiln are comparatively cold, the bottom can be favored so that by the time the top is hot enough the bottom is pretty nearly finished, the time can be considerably reduced. Supposing that in order to have the bottom come along well, it is desirable to pass the gases through the kiln rapidly; there is only one way to accomplish it. A given kiln set with ware has a definite amount of open space in its cross-section, and as this space is always filled with the hot gases, the faster they move the larger quantity per minute must pass through the kiln. In other words, to distribute the heat to the brick properly, and particularly to the bottom, we must have a sufficient volume of the hot gases entering the kiln.

Well, granting that up till somewhere near the finish of the burn it is best to throw a good volume of hot gases through the kiln, the next question to consider is how to do it. Your kiln has a given grate area. With a given draft and a fuel bed of a certain thickness you get the right temperature but insufficient volume. Your fire box is hot and the top brick are heating, but the bottom is slow. If you give the kiln more draft and fire, so as to get perfect combustion with little or no air excess, you would expect a higher temperature, perhaps too high. In fact, it is safe to say that with the majority of the ordinary clay products it is impossible to get a rapid flow of gases of a suitable temperature without admitting a considerable excess of air. Theoretically, if we take good coal and burn it in a closed vessel that will not absorb any of the heat, using only as much air as is required for complete combustion, the temperature of the resulting gas will be in the neighborhood of 2,700 degrees Centigrade. In an ordinary paving brick kiln we do not go much above 1,100 degrees Centigrade, and in many cases not as high as that. That would look as if when we burn without any air excess we waste quite some heat before the products of combustion get to the top of the bags. There must be some connection between this and the enormous radiation loss shown by the heat balance. As a matter of fact, we usually have a good big air excess in our kilns, and it would seem to be a good thing. If we allowed only as much air as is necessary for combustion, the greater part of the heat generated would have to be gotten rid of in some way before the products of combustion reached the brick we were burning or we would melt the brick. Take the case of the Deville furnace. With coke for fuel and ordinary air to furnish the oxygen, a temperature can be produced sufficiently high to melt good fire brick, and some heat is absorbed by the furnace at that. The reason we never get such high temperatures in our ordinary kilns is that in the first place the kiln walls and crown absorb a great deal of the heat before it reaches the ware, and, in the second place, that we dilute the products of combustion with excess air. Now the heat taken up by the kiln wall is wasted. What becomes of the heat which is taken up by the air entering through the furnace has already been suggested. If it be true that our furnace fire is twice as hot as the ware itself will stand, would you consider it best to allow the kiln walls to dissipate half the heat, or would you mix in a lot of air that will take up most of it and carry it down to those poor shivering brick in the bottom of the kiln? Your kiln wall will throw away heat just about so fast, no matter what you do. Will you keep this wasting process going as long as you can, or will you railroad heat into the famine district over the Hot Air Route? Or, to vary the question, if you had to carry water from the creek to the wash house in a pail that had a bad leak that you couldn't fix, would you hurry?

Well, I'll admit that it is possible to overdo even a good thing. I wouldn't advise you to discard the dampers. Better use them along toward the last of the burn, anyhow. I meant to make a couple of suggestions along that line, but I think I had better leave it until another time.

Yours, as ever,
SI ENTIFIC.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



HERE IS VERY LITTLE life in the local building brick market at present. In fact, it has been very dull all summer, but there are now several nice prospects in view which will help out considerably. Toledo business has been the slowest in years, but, fortunately, there has been a healthy demand from the outside territory, and large consignments of building

brick from here to meet the needs of the rural districts have gone a long ways toward keeping up at least an appearance of business. Out of the nine brick plants in Toledo, all but three are now closed down, and there is no lack of building brick.

Prices have been ruinous, and it is safe to say that there has been practically no profit in the building brick trade for months. So far as paving brick and sewer pipe are concerned, it is a different story. A nice business has been carried on all summer, and, with the exception of a short period when municipalities found more or less trouble in marketing their bonds, business may be said to have been brisk. Prices have also held up well all the time. There is still plenty of business in sight ahead to keep the paving brick men busy for weeks, and perhaps months. The effort to furnish employment for the unemployed is still going on through the medium of public improvements, all of which means business for the paving brick and sewer pipe men.

As the election draws near, it has become apparent that the so-called Toledo Brick Trust cases will cut a big figure in the present campaign. A year ago last April a trust-busting campaign was inaugurated, with the astounding result that more than a hundred of the leading business men of the city were caught in the drag net and charged with violating the Valentine anti-trust law of Ohio, by forming and maintaining a conspiracy to control prices of building materials. Among others, nearly all the brick men of Toledo were indicted and brought into court. The brick men entered a plea of guilty to a technical violation of the law, and a fine was imposed, the cases being later carried to the Circuit Court, where they are now pending. Numerous other trust cases have kept the courts busy ever since, and many of them are still pending. The effect upon local business was simply deadening, and the building business received a blow from which it has not yet recovered. There was much dissatisfaction expressed at the wholesale onslaught upon Toledo business interests, and that sentiment has never died out.

Prosecutor Wachenheimer, who was responsible for the criminal proceedings, and Judge Morris of the Common Pleas Court, who became notorious for his bitter arraignment at the time of sentence, are both candidates for re-election to their respective positions. The opposition is cropping out on all sides, national issues are being forgotten, and the city is now in the midst of a political fight which has never before been equalled for bitter personality in all its history; and Wachenheimer and Morris are the central features, and the trust campaign the overshadowing issue of the fight. Whether they are re-elected or not, there is no question but their attitude toward the Toledo brick men has resulted in costing them numerous votes. The outcome is being awaited with much interest by the local people, most of whom have taken sides, and entered the battle for or against the "trust-busters."

M. F. O'Sullivan recently landed about \$12,000 worth of Toledo street paving contracts. The work will be done with vitrified blocks. Streets to be improved are Fitchland avenue

and Earl street. At the same time Henry Sheehan was given the paving with vitrified brick of Dove Lane, at the agreed price of \$1,975.50.

A solid brick wall 15 feet high will be built around the Toledo Workhouse in the near future. A number of escapes through the gaps in the old board fence which formerly surrounded the place led to the conclusion that something more substantial was needed.

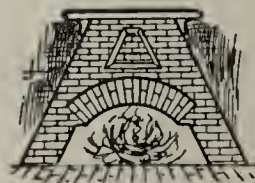
Sewer work amounting to \$4,122.11 was recently awarded to H. S. Ench by the Council of Elmore, Ohio. The work was to have been let a month previous, but at that time there was but one bid, and that was about \$700 in excess of the engineer's estimate.

The Woolson Spice Company at Toledo will erect a large brick addition to its present structures on Huron street. The work has not yet been awarded, but the improvement will furnish a market for a large quantity of brick.

Settlement of the paving squabble which has been in progress for the past six years between the city of Fremont, Ohio, and F. C. Sullivan, the Toledo contractor, has been finally made. It was claimed that the city and the Lake Shore Railway Company both paid Sullivan for the same work. By the terms of settlement, Sullivan repays to the

Written for THE CLAY-WORKER.

A NEW AND PROSPEROUS PLANT IN UTAH.



THE KAYSVILLE, UTAH, is located the interesting plant of the Kaysville Brick Company, which was incorporated in the fall of 1906 with a capital stock of \$100,000. The company owns sixty acres of fine clay land, which averages from 50 to 60 feet in depth, so that with successful management this plant is expected to prosper for many years to come. The plant has been successfully operating since July, 1907, and has at the present time a daily capacity of 150,000 building brick. The machinery and general equipment of the plant are of the most substantial make and up-to-date in every detail. The principal feature is the electric power plant. There is a complete sub-station, receiving current from two independent circuits at a voltage of 28,000, passing through an automatic oil switch and then entering three 175 k. w. General Electric transformers to the different motors, all of the Westinghouse type; two 100 h. p., one 75 h. p., two 50 h. p.,



A General View of the Kaysville Brick Plant, Kaysville, Utah.

city \$4,500, and the railway company pays the sum of \$1,000. The city claimed an overcharge of \$6,700.

Contractors Poley & Rumsey are progressing nicely with the work of paving portions of four streets at Fostoria, Ohio. Work was begun the same day the contract was signed up, and will be pushed rapidly to completion. The price named is \$21,406.57.

Extensive street paving work is being carried on at Defiance, Ohio. There was some hitch in the matter of selling bonds, but the matter was amicably adjusted, and work is now under way. Enck & Sheenan, of Lima, were the successful bidders.

Strange as it may seem, Toledo contractors are not bidding on any of the vast amount of municipal work planned by towns of northern Ohio and southern Michigan.

Very close bidding characterized the letting of the contract for a sewer in Webber street, Toledo, recently. The successful bidder was just \$8 under his closest competitor. M. Lewandowski, the lowest bidder, named \$5,818 as his price, while John McMahon offered to do the work at \$5,826. Other bidders were several hundred dollars out of the way.

T. O. D.

one 20 h. p., one 10 h. p., two 5 h. p., and one 3 h. p., making a total of 418 h. p.

The clay field is a distance of 1,250 feet from the plant. The clay is gathered by means of four Quincy clay gatherers and hauled to the plant on a double track. At the plant proper the cars are hauled up an incline by a double electric hoist and discharged into a 200 foot storage bin of 1,500,000 capacity under which runs a 36 inch conveyor for distribution. The brick are made by two processes, the stiff mud and dry press.

A complete line of machinery, purchased from E. M. Freese & Co., of Galion, Ohio, is used in the stiff mud process. This consists of an extra special Union machine with an open top feeding chamber, two mills, one a No. 4, and the other a No. 12 counter geared mill, a roll disintegrator of 100,000 daily capacity and an automatic cut-off with a 200 foot off-bearing belt. This equipment is the pride of the company and makes 90,000 wire cut brick daily, 25 to 30 per cent. of which are sold for front brick. In this department they have also a No. 1 intermediate machine for making hollow ware, etc., and two hand cutting apparatuses.

In the dry press department they have a 6-mold Ross-

Views of the Kaysville Brick Plant, Kaysville, Utah.



View of Conveyor Shed.



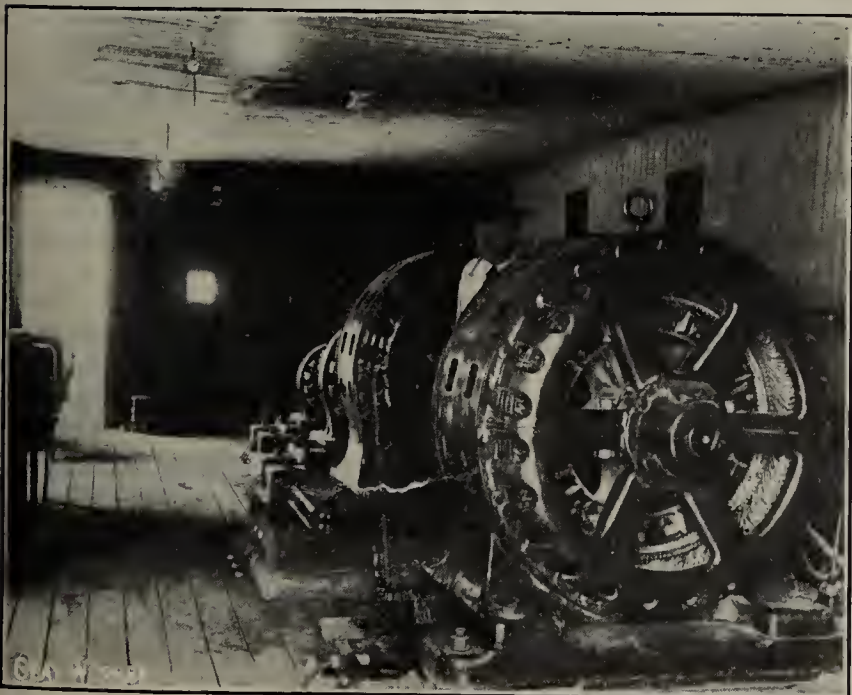
The Clay Bank.



On the Kiln Yard.



The Down-draft Kilns.



Motor Room.



Snapshot of Dry Sheds and Up-draft Kilns.

Keller dry press, which has a daily capacity of 20,000 face brick. The clay for the dry press process is ground in a Stedman disintegrator, elevated up to a height of 58 feet, at which point it is discharged into a Dunlap screen and thence goes into a storage bin of a capacity sufficient to make 20,000 brick. The stiff mud brick are dried on a solid concrete floor, which has an area of 34,500 square feet, covered by transportable canvas roofing of the D. M. Warner system. Steel tilting trucks are used for conveying the brick into and out of the dry sheds.

The stiff mud brick are burned in six up-draft clamp kilns, each having a capacity of 450,000 and equipped with the Boss system of burning. The company is thoroughly pleased with the success they have attained from this feature declaring it has given excellent results, not only in the quality and color of the brick produced, but also in fuel saving. Four down-draft kilns of 65,000 capacity each are employed in the burning of the dry pressed brick.

The entire plant was designed and constructed by Mr. Gustav Voelcker, a German clayworking engineer. The plant has every indication of a brilliant future and the owners are enthusiastic over their investment. Mr. John R. Barnes, of Kaysville, is president, and Mr. Robert H. Siddoway, of Salt Lake City, Utah, is secretary of the company.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE BUILDING PERMITS for the month of September broke the record of the year to date, and it looks as though the fall season would be an active one. The aggregate of new buildings for which permits were issued during September was \$3,799,543, as compared with \$2,215,945 for August, \$3,139,027 for July, and \$2,315,211 for June. Probably a smaller proportion of the total will go for brick than was the case a year ago, when a large number of fine office buildings were under way, but the large increase represents a very considerable increase in the consumption of brick, and, as the season advances, the demand for brick will increase considerably, since the late fall and winter construction will tend more to brick and less to frame. There is still a considerable area of business property in the downtown section of the city that is uncovered, and, now that the retail business is returning rapidly to the old district, there is a growing tendency for the rental value of this to advance. Moreover, the announcement by the larger savings banks that they are again in a position to lend money on city property for building purposes has begun to have its effect, and work has recently started on a number of business blocks of average size.

The chronic condition of over-supply in the common brick market that has prevailed here almost ever since the big fire is still in evidence, and none of the manufacturers will admit that business is at all brisk in common brick, though they report some improvement over the earlier months of the year. Prices, though fairly high in comparison with brick prices elsewhere, are low for this city. Good quality common brick are selling in this neighborhood at \$7 per thousand, with off lots going from one to two dollars lower. Fancy brick of various sorts are in fair demand, at a wide range of prices, according to kind and quality. Some enameled lines are sold as high as \$75, and some pressed brick have been sold below \$40.

The Material Dealers' Association of California has secured offices in the Balboa building on Market street, one of the new office buildings that now ornament Market street.

The Municipal Brick Company, of San Francisco, has bought fifty acres of land on the shore of San Francisco Bay at Glen Cove, between Vallejo and Benecia, at which point a brickmaking plant with 30,000 daily capacity will be installed. Paving brick will be manufactured. The company

has a good deposit of shale, from which vitrified paving brick will be made.

The State Mineralogist of California now has in the hands of the printers a report which shows, among other things, the location of the brick and pottery clay deposits and workings of this State. According to this report, brick clay is mined and utilized in Alameda, Contra Costa, Fresno, Humboldt, Imperial, Kern, Kings, Los Angeles, Marion, Merced, Madera, Mendocino, Orange, Riverside, Sonoma, Santa Clara, San Joaquin, San Mateo, San Diego, Santa Barbara, San Benardino, Sacramento, San Francisco, San Luis Obispo, Shasta, Solano, Tehama, Tulare, and Ventura Counties, and pottery clay in Alameda, Amador, Calveras, Los Angeles, Placer, Riverside, and Sonoma Counties.

The new plant of the Pymont Brick Company, at Lincoln, Cal., was given a trial run a couple of weeks ago, and will soon be turning out brick on a commercial scale. About one million brick will be required for the company's own buildings.

F. H. Welch, formerly superintendent of the works of the



Smokestack 125 Feet High of Radial Brick, Manufactured by the Kaysville Brick Company.

Western Brick Company, at Point Richmond, Cal., is now putting in a plant with a capacity of 40,000 near Oroville, Cal.

R. H. Smith, a pottery manufacturer of Zanesville, Ohio, is now at the Haywards Hotel, in Los Angeles, for a short stay, chiefly for pleasure.

Gladding, McBean & Co., of San Francisco, have been experimenting with several carloads of clay from a recently opened mine owned by J. H. Weise at Glen Ellen. The mine will be developed at once.

The Utah Fire Clay Company, of Salt Lake City, Utah, has begun the manufacture of paving brick, and will soon be in line to take care of all the business in that line that is offered. The company's terra cotta department is now making up a fancy terra cotta cap for the 560-foot chimney for the smelter at Great Falls, Mont. The company is also furnishing the electrical conduits now being used by the telephone company in placing its Salt Lake wires under ground.

The clay men of Salt Lake City, Utah, seem in a fair way

to win a considerable victory over the plumbers. In a new ordinance regulating sewer connections, a provision has been introduced providing that either iron or vitrified clay pipe may be used in making connections with the city sewers. If this provision is finally adopted, it will mean a considerable increase in the demand for vitrified pipe, and also will effect a considerable saving to the public at large.

F. H. Robertson, an expert of the Los Angeles Pressed Brick Company, of Los Angeles, Cal., has spent some time in examining the clay deposits of San Diego, Cal., with a view to installing a plant for the company at that place if the deposits justify it.

M. Kelsch, formerly of Whittier, Cal., has opened a brick-making plant near Kern, Cal.

Several brickmaking plants in and about San Francisco which have been closed down for some time, began operations again a few weeks ago. Among these are the Popular Brick Company and the Patent Brick Company of this city.

The California Ornamental Brick Company, of Los Angeles,



Mr. Gustav Voelcker.
Designer and Superintendent Kaysville Brick Plant.

Cal., was the lowest bidder and will receive the contract for the sewer pipe required by the city of Redondo in connecting its septic sewer tank with the recently established sewer farm.

Among the larger buildings in San Francisco announced for construction this month which will require a large quantity of brick are: The University Club building, to be of brick and stone, and to cost \$100,000; the six-story Pacific Gas and Electric building, to have brick walls and a brick and terra cotta front; the Gump building, to cost \$70,000, and to have an ornamental terra cotta front; the five-story brick Crocker Estate building, to cost \$85,000; the four-story brick Pacific Realty building, to cost \$78,000; the Class A Grand Hotel, which will have a stone and terra cotta front; the seven-story St. Paul building, and the H. L. Peterson building, to cost \$100,000.

SUNSET.

If you are looking for cheap machinery, scan THE CLAY-WORKER "For Sale" ads.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE GENERAL PRESS is carrying out a building boom, which, eventually, will lead to some results. The prices of lumber are down, and the cry is now, "Built at once, while lumber is cheap." That this has had some results is shown in the building permits issued. It shows a great increase in home building, while business blocks are far behind last year. The building permits for Seattle for the first nine months of this year show a falling off in value of \$651,537, as compared with last year, though the number of permits issued for the corresponding period increased 2,397. This apparent discrepancy is due to the fact that last year there were many permits for large buildings, while this year the permits show a decided increase in the number of small buildings, especially for homes for the outlying districts. In September there were issued 1,491 permits, aggregating in value \$1,104,631. The same condition holds good in Tacoma, Everett, and other towns along the Puget Sound. Tacoma issued 229 permits, of which 193 were for residences, the total aggregating \$528,393 for September.

The clayworking industry seems to have taken quite a hold on Tacoma, judging by the incorporations of the new companies in the month of September.

William W. Seymour, F. C. Brewer, and Frank D. Nash have incorporated a new company under the name of St. Louis and Tacoma Brick Company, with Otto U. Van Schraeder, of St. Louis, and James S. Gilbert, of New York, as trustees. The capital stock is \$500,000. The principal product will be brick.

The Gig Harbor Clay Company, of Gig Harbor, a suburb of Tacoma, has been incorporated by C. D. Fuller, J. Cozza, A. J. Jonsoni, and Louis Gasloli, with a capitalization of \$50,000. The plant of this company has been erected some time, and, while they have been making brick, the process which they installed has not proven to be a success. The dry press process was not adapted to the blue, hard clay which the plant operates, and the new firm will install a stiff mud machine and a dryer, and hopes to be ready for operation for the next spring trade. They have an excellent opportunity, and will find a ready market in Tacoma for all their brick.

The third company to incorporate in Tacoma is the Nisqually Clay Company, with a capital of \$150,000. Edward O. Clark and W. D. DeWolfe are the main parties in this company. The company intends to make vitrified paving brick, and also sewer pipe.

W. C. Mitchell, the Portland agent of the Denny-Renton Clay and Coal Company, had a large party of Portland councilmen looking over the brick pavement of Seattle. He hopes to convince the Portland people of the superiority of brick pavings.

The large contract for paving brick for North Yakima is nearly completed, and the Renton plant of the Denny-Renton Clay Company is shipping from four to six cars of pavers per day to that place.

The Northern Clay Company, of Auburn, Wash., has secured some large orders for their terra cotta in Seattle, Tacoma, and Chehalis. They are contemplating the erection of some additional claysheds for the winter storage of their clays.

The Columbia River Clay Company has just finished burning their first kiln. It was provided with the Williams patent oil burners, and proved a great success. They have another kiln of 250,000 brick ready to burn, and hope to finish this kiln before the end of the month.

R. H. Fleet, who organized a brick company early in the summer, has about completed arrangements for the erection of the brick plant at Hoquiam, Wash.

The Bellingham Brick and Tile Company, of Bellingham,

will increase the capacity of the plant greatly. They had a very good summer so far, and have increased their capital from \$30,000 to \$50,000.

The Washington State College, at Pullman, is about to issue a report about the clay deposits of Washington. Prof. S. Shedd, of the Department of Geology, has compiled the field notes, and the chemical part has been done by Prof. Bloor.

Prof. H. Ries, of the Cornell University, of Ithica, N. Y., and one of the foremost clay experts of the country, visited Puget Sound country as a member of the investigation tour of the Canadian Institute of Mining Engineers. SIWASH.

Written for THE CLAY-WORKER.

NEWS FROM THE KENTUCKY METROPOLIS.



FACT THAT THE BUILDING season is nearing a close is one reason assigned by clay operators, particularly the building brick men, why the demand has begun to show some falling off. Still there are plans for a number of apartment buildings under way, which will require considerable brick in their construction. The indications seem to favor a better demand in this line in the early part of next year, and the brick manufacturers are hopeful.

The differences between the Bricklayers' International Union, No. 1, of this city, and the local contractors have been settled by the latter recognizing the union. The members of the union have been practically out for over a year, though they have been able to get work by having the owners agree to use only union labor. There was not any disturbance of any nature during the entire time that the men were out, and this has been very highly commended. The strike has, however, seriously interfered with building operations here, and in this way has done some damage. It is now believed that the whole trouble is at an end. There was nothing said by either side as to the wage or time question, the matter simply being one of recognition for the union.

There is a movement on foot here to endeavor to secure for the country roads more attention. The Engineers' and Architects' Club of this city recently held a meeting here to take up the matter, and there will be something done in this respect soon. Ideas are being secured from other cities and localities, and there will be an active warfare begun to accomplish some better highways for this section. Vitri-fied brick will very probably be considered with the remainder of the materials.

Other lines are showing improvements in the way of demand, and there is reason to hope for a better business in the coming months. There has been some improvement in the demand along several lines, and it is confidently believed that the business will be very much improved after the election.

The Kentucky Vitri-fied Brick Company has noted a very much more pleasing aspect to its business in the past thirty days. It is considering the possibility of working overtime in order that it may be able to meet its demands. It is doing more business now than it has in some time, and says that the indications seem to be favorable as far as they can now see the matter. It is very much pleased with conditions.

The Burrel & Walker Clay Manufacturing Co. finds some improvement in the demand with it, and is inclined to take a more hopeful view of the situation. There has not been a steady increase, but the fact that there has been some increase denotes a stronger condition generally, and it is pleased to see the change. It is not looking for any decided improvement until after the election has been settled, and

feels that the people will then be ready to talk more about business.

The Falls City Brick Manufacturing Company reports that there is little change in the demand with it, and that the outlook is not at all displeasing. It feels that there will be enough business to make conditions continue favorable, and are satisfied with the demand now.

The P. Bannon Sewer Pipe Company says that conditions have improved with it, and that there is a good prospect for the remainder of the year with it. There has been a decidedly stronger feeling as to the outcome of the sewer pipe industry, and it is working full time at its plant. It has noted that the change has been of the kind that fortells a brighter period, and it is consequently happy.

The Hydraulic Brick Company says that there has not been much of a change in the demand with it, and that it does not see any reason to expect much until after the new year. Operations are being carried on with it about as it has been, and it is simply waiting for a better demand.

The West Point Brick and Lumber Company says that there is a very fair demand with it for brick, and that the future looks reasonably encouraging. It is inclined to take a favorable view of the situation, and, while this does not offer any very great increase in the near future, it is about all that can be hoped for within the next few months.

The Southern Brick and Tile Company finds the demand for both brick and tile to be about as it has been in the past month. There is still a very fair demand, though it is not as great as it might be. It is looking forward to a falling off in the general business for some time, owing to the time of the year.

The Louisville Fire Brick Works says that it has noted a nice increase in the demand within the past few weeks, and that it feels that there will be enough business this fall to make the conditions more nearly normal. It is pleased to see the change that has been coming over the situation in the past few weeks, and looks for a better demand during the remainder of the year.

The Louisville Brick Company finds that there will be enough business to make it active for some time. While the demand is not normal, it has been large enough to give it a very fair run. It is pleased to find the business no less than it is now.

The Louisville Pottery Company says that the demand with it has been showing some improvement in the past few weeks, and that it is reasonably active at its plant. It is not as busy as it was a year ago, but it does not look for anything of that nature this year. The conditions generally are very pleasing with it, and it is not inclined to complain.

COLONEL.

THE AVERAGE SELLING PRICE OF BRICK.

The United States, in compiling its 1907 statistics of clay products, has issued a report showing the average selling price of brick in every State in the Union. The highest average price for common brick is accredited to Wyoming at \$10.04 per thousand, and the lowest to Illinois at \$4.35.

The following list gives the thousands of common brick produced, and the average price in the Pacific Coast and Northwestern States:

California	339,439	\$7.32
Idaho		8.80
Montana	21,957	8.60
Oregon	42,857	8.30
Washington	101,905	8.31
Wyoming	7,774	10.04

The total production of the United States last year amounted to 10,027,039 thousands of common brick at the average selling price of \$6.11; there were 751,974 thousands of paving brick produced and sold at the average price of \$10.45 per thousand; and 617,439 thousands of front brick which brought on the average \$12.79 a thousand.—Exchange.



Auction Prices of Old Clay Products.—The prices paid for old clayware in recent auctions in Paris and London have been rather high. A French group in terra cotta was sold for 9,000 francs (\$1,600), a group from the sculptor Clodion brought 30,000 francs (\$6,000), while a medallion from Andrea della Robia brought 6,620 francs (\$1,340).—Keramische Rundschau No. 29, 1908.

New Use For Continuous Kiln.—A German clay manufacturer, who has a continuous kiln, inquires if he could use his kiln also for the burning of lime. The reply states that he can use the kiln for that purpose also, and that he will find that it will burn excellent lime. In order to use the kiln for this purpose, the draft should be good, and the firing should be done more frequently. It will take a larger quantity of coal to burn limerock in continuous kilns than in open lime kilns. The product will be better, as it will get more uniform heat.—Tonind. Z. No. 85, 1908.

Ceramic School at Bunzlau.—The report of the Royal Ceramic School at Bunzlau has just been published. The school year ran from April 12, 1907, to April 8, 1908. The half-year summer term had forty-three day and forty-seven evening students, while the winter term had forty-four day and fifty-three evening students. The faculty remained the same as last year. Dr. Pukall, as director, has six professors and three assistants. Different trips were made to the potteries and glass works in the vicinity, and also a long trip to Altwasser—Sprechsaal No. 24, 1908.

Clayworking Industry in Italy.—According to an extensive report given out by the Department of Industry at Rome, there are in Italy 4,746 brickyards; they employed 54,225 workmen, of which 5,592 were women and 5,540 children. The total production amounted to 4,770,758 tons, and has a value of 41,629 lire (\$8,326,000.) The importation amounted to 34,103 tons, while they exported 172,279 tons. The brickyards are in a fairly prosperous state. The factories are distributed all over Italy, but the greater part are to be found in north Italy, in the state of Lombardy, which can be taken as the center of the Italian brick industry.—Keramische Rundschau No. 27, 1908.

Fire Clay Material.—At the annual meeting of the English Glass Manufacturers, Mr. Fr. J. Bywater read a paper regarding the fire clay products used in the glass industry. He arrived at the following conclusions: "First, that fire clay products and fire brick do not suffer from exposure of the weather, but when exposed they should be heated up slow after being used for furnace work. Second, Dinabrick and similar products must be protected from the weather. Third, that good English fire clay products stand medium high temperature, while for very high temperatures the German products are better. The causes for this are that the German manufacturer uses more scientific methods in compounding his mixtures, and adopts them to the uses to which the fire clay products are put. In former years the continent of Europe was, for the greater part, supplied with fire clay products from England, but today the reverse is true. German retorts stand twice as long as the English makes. The temperatures used by the glass manufacturers are now higher than they used to be, and indications are that they will employ in the future still higher temperatures; and it would be the proper thing for the English fire clay manufacturers to study the requirements of the glass manufacturers more carefully, in order to produce an article which would compete

with the foreign makes."—Keramische Rundschau No. 31, 1908.

Lead Glazes.—Mr. K. Beck, of Berlin, in a paper read before the annual meeting of the German Chemical Society, pointed out the experiments which he made with lead glazes, and their solubility in acids. He found that a raw lead glaze, with the addition of some borax, would be less soluble than without the same. He also found that the longer the duration of the firing, the less soluble was the glaze. In order to prevent lead poisoning, he advises the manufacturers to warn the public in general and recommend to them the boiling of all pottery enameled ware with vinegar, so that lead poisoning would be materially lessened.—Keramische Rundschau No. 27, 1908.

Clayworking Prospects For Egypt.—The city of Cairo has planned considerable sewer work. The Egyptian Government has published a bulletin which gives the following data: There will be used sixteen million vitrified brick, 66,000 meters of gutter brick, and 76,000 meters of sewer pipe. The Government would like to get in connection with manufacturers who would like to establish a plant for the manufacture of these products in Egypt. Suitable raw materials are found in Assouan. In case American manufacturers should like to have more information, the Secretary du Controleur General, Service d'Assainissement du Cairo and Minister of Public Works, Cairo, Egypt, will be glad to furnish all necessary information.

Swiss Brick Manufacturers.—The regular annual meeting of the Swiss brickmakers was held in July at Aarau. The president, Mr. Ernst Schmidheiny, pointed out that the qualitative and quantitative character of the workmen in the brickmaking line has been considerably reduced in the last few years. The labor agitators came in for the greatest part of the blame in this respect. However, on account of the contract price for nearly all brickmaking, the prices paid for labor have not materially changed. The best workmen are always willing to work in contract, as it gives the good workmen a chance to make more money than the slower ones, while in regular day work the good suffers to the advantage of the slow men. The meeting went on record as favoring piece work and contract prices for all work done on brickyards.—Tonwaren Fabrikant No. 17, 1908.

Porcelain Industry in Germany.—The German porcelain industry has made considerable progress in the last few years. For the greater part, the increase in manufacturing has been made on account of the large exportation business. The total exportations in 1897 did not amount to more than thirty-two million marks, while in 1907 this had increased to seventy-one million marks, which shows the increase for a period of ten years. In this period there were two depressions, one from 1901 to 1903, and the other from the early part of 1907 to the present time. Strange to say, the prices remained the same, and the dividends have been paid regularly by the potteries, so that it is not expected that there will be a material change in this year.—Moniteur de la Ceramique No. 18, 1908.

Cracking of Sewer Pipes.—In reply to a question as to a remedy to overcome the cracking of sewer pipe which appears in the burning, we find the following data: In the burning of the pipe the large pipe will shrink more in proportion than the small pipe. When the firing is so far advanced that the shrinkage stage takes place, the large pipe, with the weight of the other pipes on top, is not able to carry the total weight. The greatest pressure will be on the lower rim of the bottom pipe. Cracks will appear on this rim, and will run higher, according to the pressure that the pipe will have to stand.

In order to overcome this trouble, we have several methods. Quite often a thin layer of coarse grog will prevent this cracking. The grog gives the rim of the pipe a chance to move according to its contraction, and will overcome, therefore, the cracking. Another method is the placing of the pipe on a ring of the same diameter of the pipe a few inches high. The flame will have a better circulation under the pipe, and checking will be less also. It also gives the pipe a chance to move in the period of contraction.—Deut. Topf. & Z. Z. No. 59, 1908.

The Proper Construction of Brick Street Pavements.

By Will P. Blair.*



THE USE OF VITRIFIED brick or block for street and roadways is an American idea which originated about thirty years ago. It was developed from the use of brick made from the ordinary surface clays for such purposes in a few of the smaller cities of Indiana and Illinois. Shortly afterwards, brick made from fire clay in the upper Ohio valley were used for a like purpose. It will probably never be established as to who made the first vitrified brick from shale in this country. One thing is certain, that the first stiff mud brick made from a mixture of shale and common clay were produced in central Illinois. These were used for street paving purposes, and, naturally followed the use of the common brick for street paving, and thus, more by accident than design, such brick were found to resist the wear of travel with greater success than the brick made from the surface clays; and thus the value of vitrified brick for paving purposes was established.

In like manner, it may be truthfully said that for many years following the earlier manufacture and use of paving brick, progress toward betterment was, to a very great extent, merely accidental. The extended use for street paving purposes was slow. Few of the earlier manufacturers, if any, realized the development about to take place, and a very few of the manufacturers had any concern of the relation their uses bore to the importance of the business.

The demands for the product, however, grew continuously, regardless of the fact that so few were giving any attention whatever to their proper use as street paving material. Finally, some few of the manufacturers began to realize that the lack of appreciation of brick streets was due to the fact that they were almost universally built without consideration either as to the physical advantages insuring durability, or in a manner making possible the greatest satisfaction to the user. The few, however, whose eyes were opened to the facts, began a careful study and inquiry into the methods of construction promising to afford the greatest satisfaction possible from every standpoint.

A few engineers in the central west early realized the importance of proper construction, and appreciated more than the manufacturers what the future had in store for vitrified brick. These engineers and these manufacturers, while still maintaining the value of the use of a good quality of vitrified brick for street construction, were convinced of the utter folly of depending upon that alone, and saw that other elements were equally necessary. It is not too much to say that even now the brick are too often required to bear the burden for a satisfactory street. Neither is it putting it too strong to say that the criticism offered against brick streets are due, in nine cases out of ten, to other causes than the quality of the brick.

In the month of July of this year, we had the opportunity of examining the brick streets in more than fifty cities east of the Allegheny Mountains. We were greatly surprised that in but three cities did we find the essential details of brick street construction at all complied with. Many of the details of a properly constructed brick street seem not to have found lodgment with those who are charged with their construction,

as being in the least degree important, they are, nevertheless, absolutely necessary for the construction of high class brick pavements.

It is therefore the purpose of this paper to point out the essentials which are often overlooked, ignored, or in some way or on some account neglected, rather than to follow out all of the directions necessary from foundation to finish.

I wish, however, to emphasize one thing—that, while a compliance with the details of construction that may be here suggested is vital in their importance to the value of the street, nevertheless, not a single suggestion here made is difficult in the least degree. Neither adds greatly to the cost. If neither difficult nor costly, why are they not complied with? Practically all of these requirements are suggested in the Directions for Laying Brick Street Pavements which are promulgated by the National Paving Brick Manufacturers' Association. The directions or specifications have been adopted by practically all of the progressive engineers of this country. We wish, therefore, to give a brief answer to this question later on in this paper.

The preparation of the sub-grade for brick streets does not differ essentially from that necessary in case of streets constructed with other materials. It must be drained, graded, compacted, and established in conformity with the grade of the finished street. This must be accepted as necessary by everyone. A depression here and there in the grade, a spot of loose earth, a lack of thorough compaction, or a wet condition improperly drained, must, without question, be followed by conditions of the street that will bring disaster to the street as a whole.

As to the quantities of the mixture that enters into the concrete foundation, so much depends on the quality of the cement to be used, the quality of the sand, gravel, stone, etc., that we will not undertake to say what proportion of cement, sand, broken stone, or gravel shall be used. Suffice it to say that the quantities must be such as will make absolutely sure the quality. There are, however, some fixed and well-known conditions in the preparation of the mixture of the concrete foundation that, in order to insure the quality of the concrete, must be observed, whether or not the concrete be machine or hand mixed. In order that it shall be its maximum strength, it must be mixed dry in the first instance, and then thoroughly mixed after the water is applied.

Either in the machine or hand mixing an intelligent supervision is worth while at all times. I have observed very often the value of the concrete reduced at least 50 per cent. by carelessness, by ignorance or indifference, by the application of too much water, or by the application of too little water, by the lack of a proper proportion of some one or another of the other ingredients composing the foundation, resulting in a square yard, two square yards, or three square yards of the concrete foundation being of no more value to the street itself than a loose pile of broken stone or gravel. The manner of making the concrete foundation thus absolutely insures its failure; such concrete being so mixed that if it were in a building, the building would fall of its own weight, as has happened in many instances. Such conditions obtaining in a street, while not insuring a fall, does insure a failure.

This concrete as it is put in place must have a uniform surface with the grade of the finished street. Just at this point are found conditions of very great frequency which insure the failure of the street. We have said it must have a grade uniform with the grade of the finished street. The

*This paper was prepared to be read as a part of the program of the Fifteenth Annual Convention of the American Society of Municipal Improvements, October 20-23, 1908, Atlantic City.

surface of it must be smooth. This can not be accomplished by depending upon the eye; the grade stakes should be set at no greater distances apart than 4 or 5 feet. If any stone used in the concrete exceeds in size 2 inches in its largest dimension, it will be next to impossible to accomplish the condition desired. Sufficient water should be used in the mixture, so that one man can smooth the top with an ordinary dirt shovel—never should it be so stiff as to call into use a rammer.

It has been an interesting study from the viewpoint of both the engineers' and contractors' experience in this matter as to what a uniform and smooth surface means when applied to a concrete foundation. With some a range of grade from 2 to 3 inches furnishes a fine job. We wish to emphasize that a greater variation from 1 inch is utterly inexcusable in the matter of a concrete foundation for brick streets.

The sand cushion must be 2 inches in thickness; if less than 2 inches, it will not afford a sufficient relief from the

foundation, the next thing to be considered is the provision for the expansion cushion. This must be provided for by placing next to the curb a board of sufficient width to extend above the height of the brick, which is generally 4 inches. In order that they may be readily drawn, it is advisable that a wedge be dropped at intervals of 3 to 4 feet behind this board, and extending above it from 3 to 4 inches. The wedges should be $\frac{1}{2}$ -inch in thickness at the top. The thickness of this board should vary according to the width of the street, always favoring the safe side by providing sufficient thickness ranging, from 1 inch to $1\frac{1}{2}$ inches.

Need I expressly urge this provision? It will eliminate the longitudinal cracks, preserve the curb, and prevent the pinching from which much chipping and crushing of the brick result, as well as permitting the brick to lie thoroughly impacted into the sand cushion underneath them, so doing away with the excessive noise which brick are reputed to possess, but of which they are innocent when combined with



A Splendid Brick Pavement Little Affected by Traffic Whether Light or Heavy.

vibration created by the impact of travel. If more than 2 inches, it can not be sufficiently compacted to afford a support to the load coming upon the brick street, and prevent cracking and crushing of the joints of the cement filler which is required in finishing the street. Thus this cushion must be of such a thickness that will afford a relief from the impact and weight, slight though it be, yet sufficiently unyielding to furnish the support for the load it must bear. But why do we lay down the hard and fast rule of 2 inches as meeting these physical conditions? The best answer that we can make to such a question is not theoretical, but an absolute fact, thoroughly demonstrated, that under such other conditions here required neither bond or brick has ever broken in place, under any condition of traffic, in this country. The best brick made is easily broken by a blow much less in force than that made by the 1,000-pound horse, if such brick rest directly upon any rigid surface, and no reason exists why such brick will not be broken by the 1,000-pound horse if thus exposed, uncushioned and rigid.

With the sand cushion properly spread upon the concrete

proper elements of construction. In other words, let the brick street lie with its own dead weight upon the sand cushion, and it will neither rise up nor make a noise.

Next in order is the laying of brick in the street. Much money is often wasted to the contractor, and, in some cases to the brick men, by practices that are wholly bad from an economical point of view, as well as lacking in methods assuring the best results. It is necessary that the brick be placed in the street with the best edge up. This is a rule universally required of brick construction in masonry work. In order that this shall be done, the brick should be delivered to the person who drops them into the street with the face placed to suit the hand operation of such person, who may be called the bricklayer. This is best done by the men either bringing them in by board, or by use of a gravity carrier. The edge of the brick that is most subjected to the action of the flame and the chemical influence wrought in the burning, the chipped corner, the warped edge and extreme kiln mark should go down, and not up. Any intelligent person can soon train a whole gang of workmen as to which is the

face edge of a brick. It is determined by several little factors as easily contra-distinguished as the countenance of one man is from another.

The wheeling of brick over those already laid, the dumping of brick, depending on a process of turning over those not faced, ought never be tolerated.

The brick should not be placed in the street in close contact one with another.

A few days since we saw a man with a forty-pound sledge and a short piece of 2x4, driving the brick as close together as was possible to do. The specifications for this work provided for the interstices to be filled with sand. It seems to me that the observations of a child would put such methods upon serious inquiry.

Such practice will necessarily result in the brick being chipped and the street ruined long before it is possible to fill the interstices with the sand sufficiently for the purpose for which sand is ever put between the brick, whatever that purpose be. I have read specifications requiring the same thing to be done where other provisions of the specifications required a cement filler. With the brick driven so close together, it is impracticable, if not to say impossible, to put the cement filler in the interstices.

After the brick are placed in the street, it is necessary that they should be inspected before they are rolled, for the reason that as few brick as possible should be disturbed after the rolling. The roller with which this is to be done must be a light one, weighing from four to five tons; one that is easily handled and can move rapidly upon the surface of the brick.

The rolling should proceed from each side along the curb, working toward the center of the street; then cross rolling at angles of 45 degrees; again rolling longitudinally and cross rolling as before, continuing this process until the brick are thoroughly compacted into the sand, so that the grade of the pavement shall be as intended, and the inequalities of the cushion ironed out by the sand being pushed up in the interstices of the brick, a condition always found in the case of properly rolled streets by an uneven amount pressed upwards in the interstices running from $\frac{1}{2}$ to $\frac{3}{4}$ and possibly as much as 1 inch in depth in some cases.

The rolling is often attempted with either a horse roller or an eight or ten-ton steam roller. With such rollers you can not roll the street at the angle required, and invariably, both with the horse roller and the heavy steam roller, the brick will creep, and as the one edge rises an excess of sand falls in the space. As the roller comes back in such cases, the brick ride the sand, and instead of the pavement becoming smoother and smoother, it becomes rougher the more it is rolled.

In case of an excessive weight coming upon the brick, they will rebound and never can be compacted, and yet both of these bad practices have, in many instances, been insistently resorted to, to the utter spoiling of the street. But after the brick are properly rolled and compacted, of course those that have proved bad under the pressure of the roller should be removed and taken from the street. The street should then be swept clean and the brick wet down. However, this wetting down must be done only in one way, and that is by the use of a nozzle, either upon a sprinkling can, or a hose which will permit but the finest spray of water to come upon the street.

In the application of the cement filler, more incorrect and faulty means and methods are resorted to than in any other portion of the work. However, it is true that the proper method is a simple one, easily followed, and absolutely without any hazard to the street.

In order that we may understand why certain directions are insisted upon in the application of the cement filler, we must keep in view the requirement necessary to the greatest strength of the filler, and that is that it must be put in place in the proportion designated in the specifications; that is, one part cement to one part sand in the first course, and two parts cement and one part sand in the last course.

It is as necessary for the sand to be clean and sharp as it is that the Portland cement shall be a good quality. Too much water in the mixture is as harmful as too little. There is only one method, one practical method, that I know of for

the application of this cement filler, yet many contractors will resort to other means if allowed, and rebel against the only method which is carefully laid down in the National Association's Specifications No. 1, which is as follows:

"The sand should be dry. The mixture, not exceeding one-third bushel of the sand, together with a like amount of cement, shall be placed in the box and mixed dry, until the mass assumes an even and unbroken shade. Then water shall be added, forming a liquid mixture of the consistency of thin cream.

"From the time the water is applied until the last drop is removed and floated into the joints of the brick pavement, the same must be kept in constant motion.

"The mixture shall be removed from the box to the street surface with a scoop shovel, all the while being stirred in the box as the same is being thus emptied. The box for this purpose shall be 3 1-3 to 4 feet long, 27 to 30 inches wide, and 14 inches deep, resting on legs of different lengths, so that the mixtures will readily flow to the lower corner of the box, which should be from 8 to 10 inches above the pavement. This mixture, from the moment it touches the brick, shall be thoroughly swept into the joints.

"Two such boxes shall be provided in case the street is 20 feet or less in width; exceeding 20 feet in width, three boxes should be used.

"The work of filling should thus be carried forward in line until an advance of 15 to 20 yards has been made, when the same force and appliances shall be turned back and cover the same space in like manner, except to make the proportions two-thirds Portland cement, and one-third sand.

"To avoid the possibility of the thickening at any point, there should be a man with a sprinkling can, the head perforated with small holes, sprinkling gently the surface ahead of the sweepers.

"Within one-half to three-quarters of an hour after this last coat is applied, and the grout between the joints has fully subsided and the initial set is taking place, the whole surface must be slightly sprinkled and all surplus mixture left on the tops of the brick swept into the joints, bringing them up flush and full.

"After the joints are thus filled flush with the top of the brick and sufficient time for evaporation has taken place, so that the coating of sand will not absorb any moisture from the cement mixture, one-half inch of sand shall be spread over the whole surface, and in case the work is subjected to a hot summer sun, an occasional sprinkling sufficient to dampen the sand should be followed for two or three days.

"The first application should be thin in order that it may flow to the depth of the joints of the bricks, thereby insuring a substantial bond, and should be kept in constant motion while being applied, otherwise the sand will settle, and you will have water and cement, instead of water, sand and cement. The water and cement wouldn't be objectionable, but the sand by itself is wholly so.

"It must also be mixed in small quantities, as it is next to impossible to keep the sand in suspension when more than a common water pail of each—sand and cement—is used, and unless it is deposited upon the pavement with the sand in combination with the solution, you will get the cement and water in the lower portion of the joints between the bricks, and the sand without the cement in the upper portion. It is preferable, after the sand and cement have been mixed dry, to apply sufficient water and mix slowly; first to a good mortar, then add sufficient water to bring the mortar to the required consistency. By this method a more thorough adhesion of the cement to the sand can be obtained."

The following practices have come under my observation:

I have seen the filler dipped from the mixing box with a bucket and carried many steps. In such case, the sand was on its way to the bottom of the bucket, and the cement was making for the top.

I have seen the mixture placed in a cradle or rocking box and in the time intervening the turning of the box, the sand and cement were undergoing a like separation, and as the box was turned the richer mixture of cement flowed ahead, and the weaker and sandy portion remained near the box.

I have seen the water applied before the mixture in a dry

state reached an even shade, thus preventing the proper adhesion of the particles.

To remedy the thickening of the mixture, I have seen it entirely ruined by throwing upon the street the water from an open nozzle, which served only to float the cement away from the sand.

I have seen the mixture put upon the street much faster than it could be swept in.

I have seen the mixture prepared in a dry state in large quantities at intervals of a few feet upon the brick, and the water applied and the sweeping-in process undertaken simultaneously.

I have seen the mixture made up in such large batches that it required a sweeping of several feet before it could be made to disappear in the interstices. In such cases, the last that went in was but very little better than pure sand.

I have taken a quantity of sand from the supply to be used for filler purposes and found that it contained 33 per cent. of soil. Thus, I might enumerate for hours the manner, method and means of applying the cement filler in the interstices of a brick street, each and every one of which was but to insure a failure, and in none of which is economy to the contractor subserved.

By the proper method here insisted upon, the hoes are drawn by two workmen to the upper portion of the box, and the backward flow agitates the mixture equally with that of the stroke. The lift of the scoop immediately following, the box sufficiently adjacent to the work, so that instead of a motion which pitches, it is rather a quick motion on the part of the workmen that pulls from under the mixture the scoop, allowing the mixture to strike the surface of the brick in proper proportion, thus more nearly insuring it in place in proportion than by any other known method. By the use of three boxes and a systematized force, the greatest economy to the contractor is subserved, and the greatest possibility of the cement filler is attained.

The boards in place providing for the cushion should, after a lapse of twenty-four hours, and sooner than thirty-six hours, be withdrawn and the space filled two-thirds with a pitch filler. Then, finally, a covering of sand sufficient to hold moisture and protect the cement filler from extreme heat while setting, is imperative.

The street having been finished in all respects with great care and skill, is sometimes entirely ruined by using it before the cement filler is sufficiently set. That this is done seems inexcusable, yet it is done sometimes by the very person who is taxed to pay for the street.

We stand for the cement filler because it meets fully all the requirements. It forms a part and parcel of the ideal brick street which no substitute can supply.

If these conclusions are correct, that our manner, method, and practice is the best, and that they do not add greatly to the cost, neither are they difficult, why are they not generally complied with? But in asking this question again, please do not misunderstand or infer it is coming from a pessimist. On the contrary, I am exceedingly optimistic in this whole matter. In many cities and smaller towns of the middle west, the public has long since understood what they can have, and they will only have brick streets at their best. In certain cities of northern Ohio, Michigan, parts of Indiana and Illinois, are found the best examples. To such an extent is this true that at least 80 per cent. of all the pavements laid in the last two years have been brick. Nor do I believe that the municipal engineers of the country are to blame for a noncompliance with these directions in brick street building.

One reason why a compliance with the specifications and directions are not observed is that the performance of each particular step in the construction of a brick street is left to a foreman chosen by the contractor. It is almost universally so that such foreman has his set way of doing this or that particular thing he is charged with, and rebels against an innovation in his practice. We sincerely believe that progress for betterment in this particular may be accomplished by embodying in the contract between the municipality and the contractor, as a part of the requirement, that the contractor be obliged to supply his foreman with particular specifications and directions covering such portions of the work with which such foreman is charged. This suggestion,

however, is only remedial to a degree, and does not, of course, meet the difficulty in full.

Another reason is that, in some localities, the results of a properly constructed brick street are not appreciated, because not believed in. But the question becomes interesting in the face of the fact that these specifications have been adopted in the main by practically all the progressive engineers of the country.

But the principal reason why we can not get a more universal compliance with the approved methods of constructing brick streets is due to the American political practice of awarding minor political service by the dearest compensation possible to lay hands upon. In many cases the man secures an inspectorship because he is fit for nothing else. The miserable practice should cease. More money is expended for streets and roads than for any other public purpose, except only for the education of our children.

The architect who plans, designs and specifies concerning the expenditure of \$50,000 in a building is permitted to hire, train, and direct his superintendent. It is the exception to the rule if the municipal engineer in this country is permitted to do this thing. It should be part of the engineers' business, as much to select his superintendent and inspector as it is to design and specify. This question is one that does not relate alone to the construction of brick streets, but it permeates, relates to all municipal work, and is the one objectionable feature in the prevailing American municipal system, toward accomplishing the elimination of which every broad-minded citizen and taxpayer should lend his influence.

Written for the CLAY-WORKER.

CLEVELAND BRICK NEWS.



HIS CITY HAS NO complaint to make of the present year's building record. While it does not equal the last two years, it is about even with that of 1905. The actual figures of the number of permits taken out, and the value does not represent the actual work under way, for many of the

very largest permits which helped to swell last year's figures are being executed this year. Taking the first nine months of this year as an average, the total will about equal that of three years ago, and excel by far all previous years.

Up to the end of September, this year, 5,390 building permits were issued in Cleveland, having a total valuation of \$7,193,426. Striking an average, this will make the yearly total about \$9,600,000. The total for 1907, which ruthlessly smashed all records, was \$15,888,407; for 1906 it was \$12,972,145; for 1905, \$9,777,145, and for 1904 it dropped to \$6,562,590, which was a record in itself to that time. This makes this year's building record the third largest in the history of the city. When it is remembered that the last two years have been abnormal ones in every line, Cleveland has reason for feeling satisfied with the record. The outlook for next year is excellent, and it must be remembered that the permits for such structures as the new Court House, the West Side Market House, the Technical High School, the Zoo, and several schools and other public structures were taken out last year, but are being finished up now.

The month of September was second this year for the volume of permits taken out, April last leading. In April 883 permits were taken out for buildings valued at \$1,442,667. In September only 630 permits were secured, but their value reached \$1,332,122. At the Building Inspector's office it is said that a building has been erected every twenty-five minutes during the working time since January 1 last, which is going some for hard times.

Plans are being formulated for the erection of the new sixteen-story Albert building on East Ninth street, near Central avenue, for which Benjamin Rose left \$1,000,000 in his will when he passed away a few weeks ago. The building will have a frontage of about 100 feet and a similar depth. It will have a front of ornamental terra cotta and walls of brick. The Citizens Trust Company is administrator of the estate, and will furnish the money to build the struc-

ture when the plans are ready. It is expected that work will begin tearing down the church which at present occupies the property, so that the foundations may be put in early next spring.

One of the best of the new projects announced this month is a ten-story addition 70x125 feet in size for the Society for Savings. The street front will be brown stone to match the present structure, but brick will be used extensively throughout. The addition will cost about \$800,000.

It is understood, also, that Architect Burnham has been directed by the Brotherhood of Locomotive Engineers to prepare the plans for the association's new twelve-story building, to be used as a headquarters, and to be erected on the land adjoining the Society for Savings at a cost of \$800,000. These two projects will be gone on with at once, and building will be under full swing in the spring.

Paving contractors have had excellent weather so far this fall to complete their contracts. As a result, nearly

every street will be finished up before November 1. With their completion the city will have paved twenty-eight miles of streets this year. Last year the record was thirty, and the year before, twenty-nine. Cleveland has now 358 miles of paved roadways. In 1898 the city had 154 miles of pavements, making a record of about 200 miles in ten years, or twenty miles a year.

Despite the lateness of the season, the call for common brick is holding out well, according to Barkwell & Bradley, distributors for the common brick plants of Cleveland. This is due somewhat to the unusually large number of houses which are being built, for which brick is being used for foundation and chimney purposes. Some of the plants are preparing to shut down in November for winter repairs.

R. L. Queisser, general sales manager for the Cleveland branch of the Hydraulic Press Brick Company, has just been elected commander of a new commandery of Knights Templar, which has been formed in connection with Woodward and Euclid Lodge, F. and A. M.

BUCKEYE.

TILE UNDERDRAINAGE.

What it Will Do, and How to Tile Drain.

By J. J. W. Billingsley.



UNDERDRAINAGE IS THE ART of removing from the soil and subsoil any excess water that would likely interfere with the seasonable preparation of the soil for sowing or planting farm crops, or retard or injure their growth and development.

Drainage enables the farmer to work the soil ten days or two weeks earlier in the spring, and cultivate sooner after rainfalls during the season of cultivation. Drainage prevents the souring of the soil by the timely removal of the excess of water.

Drainage, if well done, prevents in a large measure the injury and loss of soil fertility resulting from the surface washing of the land by causing the water to pass down through the soil and subsoil where it falls to the underdrains.

Drainage, while it removes the excess of water, serves to make the soil open and porous, thus putting it in a condition to retain the needed moisture for crop growing. Drainage to the depth of three or more feet, opens the under or subsoil to a like depth, enabling the roots of growing crops to penetrate deeply for food and moisture, and enables crops to make the needed growth, even in dry weather. So general is this that it is most confidently affirmed that "well underdrained lands are drouth resisting." It not only enables the farmer to plow and better prepare his land earlier in the spring for planting, and thus lengthens the season for growth and better maturity of the crops, but it permits a more timely and thorough cultivation of the crops needing tillage. Drainage increases the fertility of the soil by giving a circulation of air through the soil and subsoil as deep as drained. The air causes chemical changes of great importance in the preparation of plant food. Besides, the open porous condition of a well-drained soil makes the applied fertility in the way of barnyard and other farm manures and commercial fertilizers doubly available, for the reason that they are taken down into the soil by each recurring rainfall, and are not washed off into the gullies and streams, causing almost a total loss.

Besides, there is at all times more or less fertility in the air which is washed out by each rainfall and brought down to the soil and enters into it, if the soil be made open and

porous by underdrainage. This source of valuable fertility is often overlooked; indeed, not even thought of by many.

What Soils Need Tile Draining?

A brief answer to this question would be, that all soils suited to cultivation and crop growing not readily freed from an excess of water should be tiledrained.

The above answer is not sufficiently definite, perhaps, for many who would like to know how far they may extend the work of tile draining their land profitably. We further answer, therefore, that the work may be extended on land adapted to profitable farming until water from an ordinary rainfall is passed down into the soil and the excess of water is carried away through the underdrains without injury to the growing crops, or surface washing of the land. To carry out this view of underdrainage practically involves a very considerable enlargement of the work, much more than has been contemplated by many farmers.

The opinion was entertained by some in the beginning of the work of tile drainage that only the low, wet places, sloughs, or ponds, needed this improvement of soil conditions, and a few may be of the same opinion now, but there has been a radical change as to the extent of the need of drainage among intelligent farmers and other land owners.

It is very common now for a good farmer to say: "The more I tile drain, the more I see the need of it." Another says: "When I commenced tile draining my land, I thought that one hundred rods of drain tile, or a very little more, would be all that I needed, but it looks now as though I shall not get through tile draining my land until all that is in cultivation is underdrained." So it is with those who have learned something of the benefits of underdrainage.

It is believed by many that ordinary farm lands which have a surface drainage sufficient to carry off the water of heavy rainfalls in a few hours do not need tile draining, but such lands may need it very much, not only to prevent the waste of fertility from surface washing, but rolling lands are often injuriously affected by an excess of water in the under soil, which, coming out slowly to the surface, evaporates, making the top soil cold and sodden. Water falling on higher land enters into the soil, and, passing into the subsoil, may come in contact with a strata of almost impervious clay, then passes slowly through the soil over the close retentive clay, keeping near the surface soil until a lower level is

reached, or it may come out in what are called seeps of considerable extent. This underflow water is quite general, and it may be so near the surface that the water coming out to the surface may have a chilling effect and greatly retard and injure the growing crop. If we have not familiarized ourselves with these facts, we will often be at a loss to account for the spotted conditions of crops on rolling land; they grow slowly and get yellow and spindling on lands that have a sunny exposure.

The wonderful change wrought by underdraining such land will prove a most gratifying surprise to many land owners. The soil will become open, warm and mellow in its nature, and the crop yield be quite doubled.

Clay soils having no underlying strata of sand or gravel near enough to the surface to afford an outlet for the excess of water, need tile drainage.

Thorough work in drainage involves the construction of underdrains in parallel lines, near enough to each other so that the soil and subsoil will be affected nearly alike, and the water level in the soil be lowered to a point where it will not injuriously affect the growing crops, and give a circulation of air through the soil and subsoil above the water level.

Tile drainage is expensive when well done, and more ex-

Again it is important to know the character of the soil and subsoil. If open, the lateral drains may be laid further apart (from 60 to 100 feet); if the soil, or, more particularly the subsoil, is retentive or close, allowing the water to percolate slowly through it, the drains need to be closer together (from 30 to 50 feet apart), to secure the most efficient drainage.

Another important factor to be considered in the general plan is the amount of water that flows on to the land to be drained from land adjoining. This, if considerable, must be provided for by using larger tile for the drains that will necessarily take this extra or water shed.

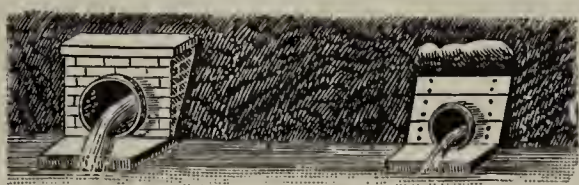
After determining all these factors that have to do with the efficiency of the work when completed, the entire system should be outlined on paper, including the levels, each drain, mains, submains, and lateral drains, and the sizes of tile to be used, including, also, the depth of the drains.

The Outlet.

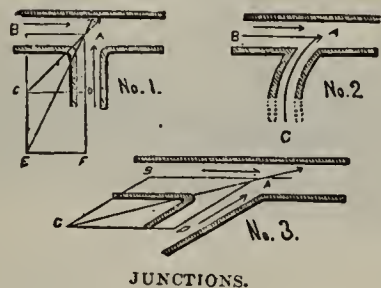
The work of construction properly begins at the outlet, which, if selected carefully, should give the most fall and direct outflow of water to drain the area in the system mapped out, in the mind of the owner or on paper. Beginning at the outlet, the main drain should be as deep as the conditions



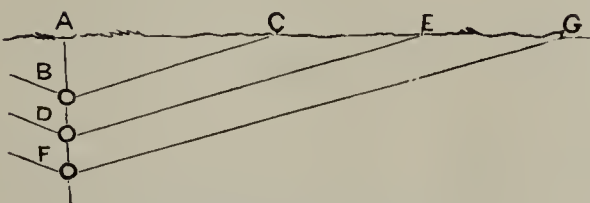
Levelling Instruments.



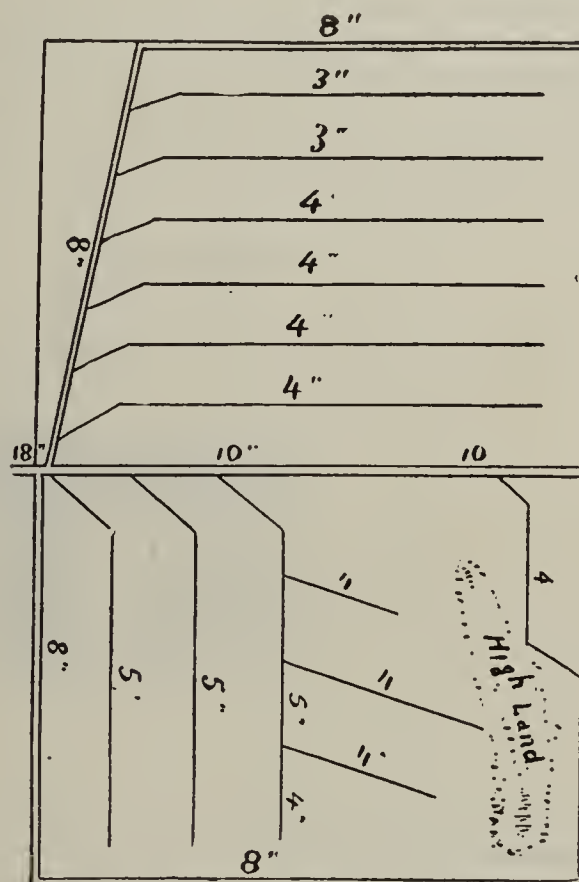
Drainage Outlet.



JUNCTIONS.



Draining a Hillside.



A Plan For Thorough Drainage.

pensive when poorly done. But it is most costly of all when not done at all, when it is badly needed, and it is often needed more than we think.

The Work of Drainage.

A broad, correct view of the extent of the work needed to be done is very essential for a right beginning, otherwise much of the work done at first may prove a hindrance to its progress afterwards; in the failure of not having well-planned the work, in the using of sizes of tile too small, and in digging the drains too shallow.

A General Plan.

In planning to drain a field or any given area of land, the general surface configuration of the land should be carefully studied and levels taken, if the use of an engineering level can be had at a reasonable cost. It is important to know definitely where the best outlet should be located to afford a free flow of the water—where the main and sub-main drains should be placed to secure the most efficient drainage. It is also important to know what fall can be had in the several drains, including the main and lateral drains, for the reason that drains having considerable fall require a less size of tile than those having much less fall.

will allow, or the perfect working of the system requires, not exceeding ordinarily 4 or 5 feet. The tile for the main drain should be large enough to carry all the water that will fall on or run onto the area intended to be drained by the outlet.

Size of Tile.

The size of the tile to be used depends first upon the extent of the area to be drained; second, upon the inclination or fall, and third, upon the depth of the drains and the character of the soil and subsoil.

First, as to the area to be drained. To illustrate more fully: A proposes to drain twenty acres of land through one outlet, and wishes to determine the size of tile for the main drain. He finds that there is an area of as much as twenty acres of land adjoining that sheds its surface water from rainfalls and water percolating through the soil upon and into the land of the twenty acres which he wished to drain. The natural outlet is over or through A's twenty acres under consideration. Therefore, the tile for the main drain and subdrains should be large enough to receive and carry the watershed onto the land.

For a simple rule for those who wish to construct drains through the low places of the farm, a practical drainage contractor gives the following as the result of his experience:

"On an average the fall usually secured is about 6 inches in 100 feet. With ordinary accurate work in securing a regular fall, a 3-inch tile drain will carry the water of six acres; a 4-inch tile will drain eight acres, a 6-inch twenty acres, and an 8-inch eighty acres." The above rule is for casual, not thorough drainage.

In thorough work, the following brief estimate of the number of acres drained by different sizes of drain tile to be used in the construction of drains is taken from a table prepared by Prof. R. C. Carpenter:

Size of Tile—Acres Drained.							
Rate of Inclination.	3-In. Tile.	4-In. Tile.	6-In. Tile.	8-In. Tile.	10-In. Tile.	12-In. Tile.	
1 ft. in 50...	8.4	17.0	47.7	98.0	170.4	269.0	
1 ft. in 100...	5.7	11.9	33.1	69.2	120.6	190.5	
1 ft. in 150...	4.5	9.5	26.6	56.0	97.3	154.4	
1 ft. in 200...	3.9	8.2	22.8	48.0	83.9	132.5	
1 ft. in 250...	3.5	7.5	20.4	42.4	74.4	117.0	
1 ft. in 300...	...	6.9	18.4	38.2	65.5	107.0	
1 ft. in 400...	...	5.9	16.5	34.6	60.3	90.7	
1 ft. in 500...	...	5.2	14.8	30.1	54.0	81.6	
1 ft. in 600...	...	4.8	13.3	28.0	48.6	74.0	
1 ft. in 800...	...	4.1	11.4	24.0	41.9	65.0	
1 ft. in 1,000...	...	...	10.2	21.2	37.2	56.0	

The above table is intended for accurate, thorough drainage, but it is better practice, in our judgment, in ordinary or casual work, to use larger sizes of tile in proportion to the number of acres to be drained. To make sure of sufficient capacity in the drain to carry the water of ten acres, we advise the use of 4-inch tile, instead of 3-inch tile.

20 to 30 feet apart, the tile used are small, 1½-inch and 2 inches being in common used for the lateral drains; with almost perfect construction their drains do good work. But in the experience of some of our most extensive land drainers in this country, a 4-inch tile is as small as they will use for the side drains to carry off the water of heavy rainfalls, besides, it is claimed that by using larger tile, a better aeration of the soil is secured.

Another factor in determining the size of tile to use is the method of constructing the drain, the regularity of the fall, the directness of the flow of water in the drain, and the laying of the tile.

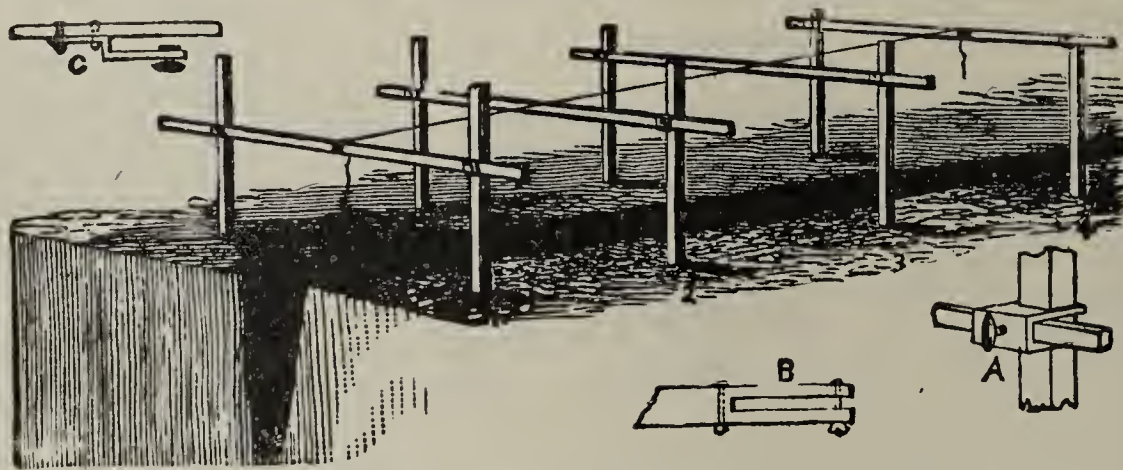
A drain may be dug and leveled correctly, but the laying of the tile may be so imperfect as to greatly diminish the working capacity of the drain. By placing the tile in the drain unevenly jointed, or shouldered, more or less, the water in flowing through the drain strikes against the shoulders and deflects across the current, hindering the flow, reducing the capacity of the drain at every uneven joint.

Connecting Drains.

Lateral or side drains should be made to enter the main drain at an acute angle. Otherwise, the water flowing in from the side drain will interfere with the current of the main drain. If entered into the main at an acute angle, the currents will flow as nearly in the same direction as possible, giving the best results. See illustration herewith.

Depth of Drains.

If our knowledge of the benefits of drainage is broad, embracing not only the removal of the excess of water on or



A Simple Method of Determining Ditch Levels.

Second, the inclination or fall is an important factor in determining the size of tile to be used. The greater the fall the greater will be the rapidity of the water flow, increasing correspondingly the amount of water discharged through the drain. A 4-inch drain may have fall enough to carry as much water as would flow through a 5-inch drain laid with much less fall. A main drain may be laid at almost a level grade and do good work, but the size of the tile should be larger in proportion to the less fall for the reason that the water will flow with less rapidity than would the water in a drain with much more fall.

Third, the depth of the drain is also a factor in determining the size of the tile needed to secure the most efficient drainage. The greater depth requiring a less size, when the fall is the same as that of a drain laid at a less depth, other conditions being equal.

The increased depth gives an increased water pressure in the soil, which increases the water flow in the drain. Another reason why the size of the tile may be less in deep drainage is that the greater the depth of the drained soil and subsoil, the more water there will be required to bring the deeper subsoil to the point of saturation, when the water will fall away and enter the drain. A soil drained to the depth of 4 feet would receive and hold the water of a heavy rainfall almost to the point of saturation before the water would pass into the drain. The deeper drainage will aid in conserving needed moisture for the growing crops.

Drainage in England is usually at a depth of from 4 to 5 feet. In their retentive clay soils, the drains are laid from

in the soil, but also the greater depth of food supply secured for the growth of crops and the circulation of air through the soil and subsoil, we will, if true to our best thought upon the subject, practice deep drainage if the conditions will admit of 3 to 4½ feet and deeper, if necessary to perfect the work.

There are cases, however, where it is hardly possible at any reasonable cost to secure an outlet for deep drainage. Then we advise those interested to do the best that can be done, and drain shallow, rather than not to drain at all where the lands need it.

Width Apart of Drains.

The width between drains to secure the most efficient drainage at a reasonable cost, depends upon the depth of the drains and the character of the soil and subsoil. Deep drains drain a much wider space on each side of the drain than shallow drains would in the same soil. In any case, the width drained depends on the character of the soil and the subsoil. But we should not conclude that because the surface soil midway between the drains is made dry enough for the plow, that the drains may be 80 feet apart if it is intended to drain deeper than we plow midway between the drains. For the reason that the water in passing through the soil and subsoil to the drain must have some fall toward the drain. Drains laid at the depth of 3 feet and 80 feet apart in a close retentive clay soil would afford very little drainage to the soil midway between the drains, but would probably be satisfactory in an open soil. In an open soil and subsoil the water.

in passing through the earth to the drain, meets with less resistance.

If it is intended to do anything like thorough work in drainage, we must take these conditions under consideration to determine how deep and wide apart the drains should be laid to secure the best results.

Digging the Ditch.

It may be thought that to dig a ditch is a very simple undertaking, but there is much importance in doing the work well. In digging, make the ditch only wide enough to work in conveniently, make the side sloping to the bottom, which should be only wide enough to lay the tile, whatever the size of tile may be. In leveling the bottom, use a push scoop the size of the tile to be laid, and grade the bottom so as to give a regular flow of water from head to mouth, if at all practical, or if any change in grade is made it should be gradual.

Laying the Tile.

Begin at the outlet and lay up grade. Lay the tile end to end in a straight line, and avoid shouldering or unevenness at the joints; fit the joints close together, and secure, as far as possible, a regular flow of water on the inside with the least resistance. Settle the tile firmly at both ends, so as to secure a regular fall. After laying a few tile, shovel in clay from the top of the bank and cover the tile so as to secure them in position, then proceed to lay more and so on continue the work. If water is running in the ditch, be careful not to let the loose earth wash into the tile. To prevent this a short board of right width may be used to set at the end of the last tile laid. After laying the tile as directed, the filling of the ditch may be done in the most convenient and speedy way.

In conclusion, we remark that there is no improvement that can be made to bettering the conditions on the farm when it needs to be underdrained, which, if well done, is so enduring and satisfactory every way as a well-planned system of tile drainage. It is an improvement that will last for generations to come, so we can well afford to dig deep and lay the tile with care. It is an investment of labor and money that will pay a large dividend every year as long as we live and our children live and their children and their children's children live. No better investment of labor and money can be made where the land needs this important improvement, as most farm lands do, that have not otherwise natural underdrainage in the way of underlying strata of sand and gravel.

We have known farmers to borrow money to build houses in which to live and lose both house and farm, but we have never known a farmer to borrow money to drain good land and do the work well, who did not afterwards succeed as a farmer along legitimate lines.

We have had a large experience in the practice of drainage, and as an observer of the effects and benefits of underdrainage on land and the owners, and we have never known of a well-drained farm being sold at sheriff's sale. On the contrary, we have known many who were in debt, to borrow money and tile drain their land and pay off their indebtedness and afterward enjoy a full tide of prosperity.

With lands well underdrained, we can lay our plans and carry on the business of farming without being dependent on luck, the moon, or the weather.

A BUSY PAVING BRICK FIRM.

The Deckman-Duty Company, Cleveland, Ohio, looks for a general resumption of business next spring. Anticipating a rush of orders, the concern is busy overhauling and enlarging its various plants, so that every order may be turned out promptly. At the Collinwood plant the various buildings are being rebuilt. A new 85-foot stack has just been completed, and the capacity of the kilns has been increased. Considerable new machinery will be added next spring. At the Carrollton (Ohio) plant, three new kilns are to be built next spring. To facilitate matters, foundations are being built this fall. At the Malvern plant two new kilns and some additional machinery is to be added. The firm reports a good business with the outlook very bright for 1909.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



SEPTEMBER WAS A RECORD breaker in the matter of building permits in Kansas City. There is no apparent reason for this, except that there is a feeling among investors that they should invest in property where there was no great slump in business when the rest of the country had a slump, and investors are putting up buildings. This will, of course, mean additions

to the Kansas City prosperity, for plenty of work for the mechanic means good times for all classes of people. Building operations here last fall were only hampered a few weeks by the money stringency, then everything went ahead again, and big buildings and little buildings; in fact, buildings of all kinds have been building ever since that time. It really seemed to some like people were glad to get their money out of securities, and put it in something they could see the value of.

The total estimated cost of buildings for which permits were issued in September was \$1,356,910, and this is over \$75,000 more than the biggest month of last year, which was May. The estimated cost of buildings for which permits were issued in September of last year was \$922,497, showing an increase this year of \$434,413. The number of permits issued last month were 474, or seventy more than the highest number ever issued here in any one month.

Over in Kansas City, Kans., there were permits issued for eighty-one buildings in September, the total value of which was \$133,240.

The good feature of the present building operations is the belief that they will continue right along through the winter. Of late years the winters have been so light in this section that the contractors are not figuring on slacking up in their work, but plan to work regular time.

The Roll Brick Company reports that it is having no trouble about getting orders, but much trouble in filling them. Orders for common brick have been turned down every day because they were unable to make delivery of them and take proper care of regular customers. They could get plenty of brick to fill these orders, but their trouble has been in getting teams. Teams have been so busy that it was out of the question to get nearly as many as was needed. Mr. Roll said the same trouble was being experienced by all who require the services of many teams, and the trouble has been so persistent this year that he has about decided to next year put on teams enough of his own to handle his brick. He would not make this move with the expectation of making money out of the delivery, as he figures that it costs as much to own delivery teams and handle the delivery as to hire it done, but there is a difference when the teams can not be hired.

There will probably not be a great deal of paving done in this city for a while, except on streets where the grading has already been done, as the new charter which has but recently been adopted seems to have created a very undesirable condition while trying to make conditions better. In the past the city council had the handling of these matters, and after the court proceedings, assessing damages and benefits, had been disposed of the council would approve the letting of the contract. The new charter provides relief for the council for the routine work in these matters, but says that the board of public works shall adopt the resolution to change the grade of a street, give a hearing to the property owners, award the contract to grade, and send it to the council for confirmation. Then, the charter says, an ordinance may be passed for the court proceedings to fix the damages and benefits. If this method is carried out, it is feared that no contractors will bid on the work, for the simple reason that after the contract has been let the court proceedings might hold up the work for two or three years, and in that length of time there might be an increase in the cost of labor, and everything that has to do with the completion of the job. Before contractors will take hold of this work,

there will have to either be a change in the charter or a ruling of the courts to the effect that the damages and assessments be first awarded, so there will be nothing in the way of work as soon as contracts are let.

September was the banner month of the Eadie Building Supply Company., their deliveries amounting to three and one-fourth million brick, and Mr. Eadie says that the outlook for a big business was never better, throughout the entire southwest, and in the southwest he includes all of Kansas, Oklahoma, Arkansas, Texas, New Mexico, etc. He reports that both building and paving operations in this entire section are only limited by the ability to get the brick, and that Oklahoma was making a big record as a brick user this year, and would probably make a greater one next year, as many brick buildings for which bonds have already been voted will not be constructed this year.

There has been no change in the price of brick, the raise on common brick not having made its appearance. There were too many plants in the Kansas gas belt willing to sell their output of common brick at practical cost to make an advance possible, so they will have the fun of doing a very

at the right temperature right along, as he had been hampered the previous week by having the pressure cut down just at the wrong time, and thus damaging a kiln of brick which was being burned. He was looking for information about oil burning, and was seriously figuring on making the change to oil, so he could have fuel he could rely upon at every minute of the day.

K. A. W.

BRICK PORCHES AND WALKS.

ONE of the best experiments we worked out in building our new home was our brick porch, laid "herring-bone" fashion in cement. We got the idea from Mount Vernon, the home of The Father of His Country. Visitors to that famous Virginia house (the home of a gentleman, as every line in the house indicates) will remember that the house was set on a hill, and rested comfortably on this eminence, so that one stepped easily off upon the greensward, which was practically level with the porch.

There is a comfort about a brick piazza in its very solidity



A Cozy Brick Porch—Courtesy of Country Life in America.

heavy business this year at a very light profit, and will probably be sorry by the time the year closes that all their business has not made them a decent profit.

Local brick plants are absolutely unable to supply the demands made upon them for common brick; in fact, they say they can not half supply it.

Flanagan Bros. have already turned out a couple of kilns of brick with their new plant, and after this will have both plants in steady operation.

Of late there is an occasional Kansas gas belt brickmaker who floats into this city with the news that the gas in his section is getting weaker, and that he may have to turn to some other fuel. Some of the big gas districts of the State are now getting gas from new wells, which are far away from the central points where gas was abundant a few years ago. If this keeps up, and it is the history of all gas fields that the end must come at some time, there will be every reason for some brick plants to shut down. One man was in a few days ago and said that he could not continue unless he could get a supply of gas which would allow him to burn

and character that makes it worth while. A floor laid in the large tiles is even more effective as well as more expensive than brick, but the material which answered so well for George Washington will do for the average builder.

The cost of a brick piazza depends of course on the price of brick (which this year is high) and the mason labor. It can be done economically in some parts of the country, and is expensive in others. The chief necessity is to get a solid foundation of concrete, which ensures a lasting and level piece of work. In a general way such a porch should be laid in brick at about twenty cents a square foot, which after all is not so great a matter for a feature which will last a life-time. The bricks may be laid herring-bone fashion, as in our porch, or squarely, as in the accompanying illustration.

Incidentally, attention should be called to the attractive veranda furniture here shown.—C. T. W., in Country Life in America.

If you are looking for cheap machinery, scan THE CLAY-WORKER "For Sale" ads.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



SUMMER OF 1908 is surely destined to go down in the annals of building in Chicago as a record breaker for Presidential years. Normally in such seasons and especially during so hot a campaign as has been conducted the building figures would have fallen away below average.

This year, on the contrary, month after month has shown up well, in some cases the figures exceeding even those of last year, which were considered exceedingly good. August ran 25 per cent. ahead of August, 1907, in cost of buildings for which permits were taken out, and the number of structures planned for erection ran even higher than that in point of gain. September saw a considerable gain in number of permits granted by the Building Department, although there was a slight loss (6 per cent) in the total investment represented this year as compared to last.

Thus far in October a slight let up is noticeable, each week showing some decrease from the figures of the week before for proposed new buildings. This is only to be expected, especially with the national election only a comparatively few days away from us. A change in the administration of the nation would undoubtedly slow up things a bit, and granting that the election of Mr. Bryan would produce no actual panic or hard times, it would be well on toward spring before public confidence would be at such a pitch as would warrant large investments in the building line. It is, therefore, not at all surprising that builders and investors are waiting a bit before going ahead, to see what the outcome of the national election will be.

At that many structures have been planned and will be put through as soon as possible, so that there is little likelihood of an absolutely dead winter or spring, and there is enough work already up to the letting of contracts or in process of construction to keep men busy for months to come.

Work is shortly to be started on the construction of a new office building and freight terminals for the Chicago and Alton railroad at 2 West Van Buren street, just west of the river. This project has been under contemplation for some time, and President Theodore P. Shonts has now definitely announced that the building is to be erected this year. The plans contemplate the reconstruction and improvement of the present freight facilities and an ideal freight terminal as well as the new office building. The new building is designed to take care of the present general offices of the Alton which now occupy the ninth floor of the Railway Exchange building, although the executive office may be kept in the latter building.

The new building is to be located on the south side of Van Buren street, just east of the tracks leading into the Union Station, and will have a frontage on Van Buren street of 174 feet and a depth of 60 feet, with two "Ls" each 40 by 65 feet.

All the buildings will be of brick construction, and will be up-to-date and adequate for the uses for which they are designed. It is estimated that the first cost of these structures will run over \$200,000, and that when the plans are ultimately carried out it will be at a cost of over half a million.

By far the biggest project on the boards at the present time is the proposed new building for the People's Gas, Light and Coke Company, which will give the magnificent Railway Exchange building a rival in lower Michigan avenue. This building, which is to be erected at the northwest corner of Adams street and the boulevard, one block north of the Railway Exchange building, on the site now occupied by the present offices of the gas company, is to be one of the most pretentious of the great modern office buildings in the downtown district.

The proposed cost is estimated in the neighborhood of \$3,000,000. It will be twenty stories in height and have a frontage of 171 feet on Adams street, and 196 feet in Michigan avenue. All told it will contain 8,700,000 cubic feet of space, which is to be devoted chiefly to offices.

The building is to be of granite in the lower stories, but of terra cotta for most of the exterior. An immense amount of fireproofing is to be used. All the latest ideas in modern architecture are to be embodied in this building, for which D. H. Burnham & Co. are the architects, and it is planned to make it one of the beauty spots of the town. There will be a great central lobby on the ground floor, which is to be made attractive with finishings in marble and terra cotta, and which will be roofed over with an art glass canopy. The offices on the floors above will be grouped about a great central court above this canopy, and white enameled brick will be used to make this vast interior light, wholesome and attractive.

So successful has been the wholesale and retail market opened on the West Side, that the Shank Company, which is building and promoting these ventures, plans to provide four more of them in different parts of the city. This will entail an investment close to \$2,000,000. A considerable amount of brick, tile and fire-proofing was used in the first of these markets to be constructed.

The Chicago Association of Commerce is seriously contemplating the erection of a temple of commerce, which will make one more big downtown structure, and this project will probably go through within the next few months in almost any political event. The new West Side postoffice, and the new City Hall, to say nothing of the various projects of the county authorities and the park commissions, will help to keep the manufacturers and dealers in materials busy during the coming months.

Construction is already under way for a \$1,000,000 wire mill which the Wisconsin Steel Company, a subsidiary corporation to the International Harvester Company, is erecting in Terrence avenue between One Hundred and Sixth and One Hundred and Eighth streets, South Chicago.

One of the encouraging events of the month is the announcement that Armour & Co. will replace the wool building in the stock yards, which was burned recently, with a brick building of fireproof construction. It is to be six stories high with a tower, and will cost about \$500,000. Although the stockyards is technically considered to be beyond the fire-limits of the city, the packers are realizing the value of putting up buildings of brick and of fireproof construction. Nowhere is a fire more dreaded than in this industrial center because of the hundreds of frame buildings there. At the same time the use of clay products is conducive not only to safety and permanency, but to cleanliness and sanitation, and the packers have had quite enough of the "muckrake" and are now more than ready to keep as clean as they can.

Another half million dollar enterprise is to take the form of a seven story brick building for stores and lofts to be put up at 246-249 Michigan avenue by the James Heyworth Company.

As has been noted the bulk of the building in Chicago this year has been of the apartment house type. It will be surprising if the record in this line will be achieved again very soon. In fact it will be surprising if there is not a decided falling off in this line of building next year, especially on the South Side. The home building is pushing out farther and farther toward the outskirts all the time, the improvement in traction service having much to do with the change, and the building of stores is following along the trunk lines and the busiest of the East and West streets.

The National City Bank of Chicago, itself not long ago established, is pushing a branch out into Englewood, and is erecting a brick bank and office building at 6233-35 Halsted street at a cost of \$120,000. While business is running lighter these weeks, there is nothing abnormal nor unhealthy about the general tone.

SCRIPT.

Written for THE CLAY-WORKER.

PITTSBURG AND WESTERN PENNSYLVANIA BUILDING NOTES.



THE EXCELLENT conditions that were reported last month have continued during the month of September and early in October, and some of the leading manufacturers report that there is a still more marked improvement in most branches of the clayworking industry. And this is not the most encouraging part of the outlook, either, for it is generally claimed that there will be a still further improvement during the next couple of months at least, while it may continue through the entire winter.

Building throughout the entire Pittsburgh district has taken on a sudden boom, and is now equal to the figures of the same period last year, a remarkable fact when it is taken into consideration that general business conditions are still considerably below those of the fall of 1907. There is not a great deal of new construction in large buildings, although there are at least a score under way in Pittsburgh at the present time, several of which will cost upwards of a million dollars. But residence and apartment building is far ahead of last fall's figures.

Fire brick manufacturers are steadily firing additional kilns owing to the increased demand from the many steel and iron manufacturers throughout this great iron and steel center. Idle blast furnaces have been relined during the lull in business during the summer, and orders are now being placed for new linings, which are always kept in stock. Other refractory materials are also in greater demand, including bottom blocks, etc.

The demand for vitrified paving and wire cut paving brick is now at its height. Contractors who have brick paving contracts on hand have progressed to such a stage that they are all endeavoring to finish the grading during the dry weather, and still have ample time to lay the brick before the cold weather arrives and practically puts a stop to this class of work.

The sewer pipe manufacturers report that business has also increased somewhat, as is usually the case in the fall of the year, and stocks are now pretty well depleted, which affords an excellent opportunity for the operation of their plants during the cold weather in order to have a large supply of all sizes and styles on hand for the early spring trade.

All of the local fireproofing companies are very busy now, and some large orders have recently been booked, both in this vicinity and in all parts of the country. Several of them have sufficient business on hand to insure the steady operation of the plants to capacity for the winter.

The Harbison-Walker Refractories Company, Farmers Bank Building, Pittsburgh, has increased the capacity of the Star Works at Twenty-second street by placing an additional force of men at work. For some time this plant has been running on short time, owing to the falling off in the demand for silica brick. The same company has also placed additional men at work at the plants at Hays Station, Pa., and at the plants located in various parts of Clearfield and Clinton counties. The demand for silica and clay refractory brick has warranted this greater capacity.

The G. W. Nichol Brick Company, Keenan Building, Pittsburgh, reports that the plant at New Cumberland, W. Va. has been placed in full operation, and is now being operated practically to its capacity. The company has recently booked some large orders, the shipments on which will extend far into the coming winter. The plant of the same company located at Wellsville, Ohio, was placed in operation the latter part of last month after having been practically idle for some months, and will fill several orders for fire brick to be used in blast furnaces and stoves throughout several parts of Ohio.

The Harbison-Walker Refractories Company of this city has plans completed for the erection of the fine new fire brick plant that will be built within the next year at Wylam, Ala., in which vicinity an excellent grade of silica clay has been found. The company will build a plant that will cost upwards

of \$250,000, and which will be a model in every particular. In fact it is designed to be the most complete and most modern fire brick plant in the entire South. Work on the new plant will probably be started during the coming winter, and it will be rushed to completion as rapidly as possible. Local officers and the company's engineers will have charge of the construction and equipment of the entire plant, and all purchasing will be done from the general offices.

E. S. McLain & Son, Fulton Building, Pittsburgh, manufacturers of furnace and refractory brick, report that they have been awarded several excellent contracts for this class of brick, and that the plants are now being operated on a larger scale than they have been since last fall. There are also a greater number of inquiries from the consumers, and the outlook for the coming winter is considered excellent.

The Arthur Koppel Company, Machesney Building, Pittsburgh, is operating the big plant at Koppel, Beaver County, Pa., practically to its capacity, and is shipping several large orders for industrial cars and additional trackage to some of the large clay mines in the Pittsburgh district. The company has created quite a demand for these systems in clay mines, as they are so easily moved from one part of the mine to another that the clay can be mined cheaper and sent to the crusher in greater quantities than by the old tramway system. Several large plants in the Clearfield and Clinton County districts are using the portable railway and locomotives instead of the old fixed haulage system.

The Stuart Fire Brick Company, 249 Water Street, Pittsburgh, is very busy at the present time with a number of good contracts for fire brick that are being manufactured for local foundries. The company is also making up a large number of special shapes that will be shipped to steel plants in this and other cities, this class of business having become a feature with the concern.

The Stowe-Fuller Company, Pittsburgh, Pa., and Cleveland, Ohio, has recently received the award of several large contracts for refractory brick to be shipped to various plants of the United States Steel Corporation. These include several large orders for chrome and magnesite brick. The plants are being worked nearer to capacity than at any other time this year.

The Pennsylvania Railroad Company has completed a fine new siding at Howard Station, West Homestead, Pa., which will be of especial value to the Homestead Brick Company, which operates a large plant along the railroad in that vicinity. The Homestead Brick Company has completed the construction of a large steel lined elevated chute with a graded roadway for dump wagons, so that the bottom discharge dump wagons coming to the plant with their loads from the yards nearby, at West Run, can deposit their loads through this chute under the railroad directly into the gondola cars on the new railroad siding below. The company has been awarded a contract for 1,800,000 brick that will be used in the construction of the new open hearth furnaces at Duquesne, Pa., for the United States Steel Corporation. The company is now operating all of the six kilns at the plant, each of which has a total capacity of 270,000 brick. It also has a number of good orders on hand, all of which will be executed during the coming winter, when the plant will be in continuous operation to its capacity. J. B. Cohen is the manager of the plant.

The American Sewer Pipe Company, of this city, is operating its various plants to about seventy per cent. of their capacity. The immense plant at East Liverpool, Ohio, is in full operation, and is shipping all sewer pipe that can be manufactured, while there is sufficient business ahead on the books to insure its steady operation for some months to come. The company reports a very fair demand for sewer pipe, although the conduit business is rather quiet at the present time. The fall business in sewer pipe, however, is equal to that of last year and the year previous.

The National Fireproofing Company has been awarded several very fine contracts for fireproofing material to be used in large office and mercantile buildings that are at present under construction in Pittsburgh. One of the largest of these contracts calls for furnishing about 20,000 tons of fireproofing for the new twenty story Oliver Building that is being built, and another fine contract calls for the fireproofing for the new \$1,000,000 bank building that is being built at the corner of Fifth avenue and Wood street for the First National Bank. The plants are running in excellent shape, and will be operated to their capacity for the remainder of the year at least as there is a large amount of business booked for shipment to various parts of the East and West.

A. SMOKER.

Written for THE CLAY-WORKER.

A MODEL MISSISSIPPI BRICK PLANT.

The

WEST POINT BRICK and Manufacturing Company, located at West Point, Miss., believe the best way to advertise their business is to put out the highest grade of material.

With this idea firmly fixed in their minds they have steadily overcome the difficulties one by one, and are now turning out a brick second to none. While the whole State of Mississippi is packed from one end to the other with clay that will easily work through a stiff mud machine, at the same time it is a clay that will turn one's hair gray taking care of it after it is made into a brick. The dryer people have to be very careful when they undertake to guarantee results in this state.

This West Point company have spent a good deal of time and money getting this drying question under control. They are now using the open and closed sheds and the lift car system, running exhaust steam in pipes through the closed sheds. In this way they have practically eliminated the loss in drying.

Another feature is the use of a steam shovel in the clay pit. This gives a uniform mixture of the clay that can not



West Point Brick Company's Plant.

be secured in any other manner. The clay is loaded into cars and drawn by a friction hoist to a point where it is dumped into a granulator and passes by gravity through the disintegrator, pug mill, and into the machine.

The entire outfit of machinery was furnished by Chambers Brothers Company, of Philadelphia, and erected according to plans drawn by this company.

The kilns are the plain Dutch coal-burning kilns, and give very good satisfaction. They will add another kiln to the plant this winter, as the demand for their brick is increasing so rapidly it is impossible to supply same with the present kiln capacity. This new kiln will be built according to plans furnished by R. B. Morrison & Co., of Rome, Ga.

The last, if not the most important item to be considered in every brick proposition, is the market for the manufactured product. This company is to be congratulated on having a good local demand and railways passing out in six different directions, reaching into some of the best sections of the rapidly growing Southland. And right here it would do no harm to note how well the south has stood up under the late financial troubles. It has shown a strength not realized by its own people. While they sorely needed the money from New York to handle the cotton and other crops, if they could not get it they were able to wait and did wait without going into a panic and making runs on their banks.

For the first time in many years the farmers refused to offer their cotton on a declining market, and are now selling for close to 12 cents per pound.

The West Point Brick and Manufacturing Company are successors to the Robertson Brick Company, founded by the late S. Robertson, who came to West Point from Birmingham, where he was a pioneer in the brickmaking craft, and took an active part in the early development of that Magic City.

Mr. Isham Evans is president of the company, and also president of the Bank of West Point; F. Wolfenden is secretary; E. S. Carothers, general manager, and C. T. Corwin, superintendent.

Written for THE CLAY-WORKER.

NORTHWESTERN NOTES.



THE DISASTROUS FOREST FIRES which swept through northern Minnesota and Wisconsin in September destroyed a vast number of buildings, and the building trades in that section will be kept busy for some time in replacing them. While a large portion of the structures destroyed were unsubstantial frame buildings, many of them will be replaced with more permanent ones, and the disaster may, in a way, prove a blessing. The city of Chisholm, Minn., with a population of 6,000, was almost entirely wiped off the map, and work has already been started towards rebuilding. It is a noticeable fact that of the few buildings there which escaped, the solid brick schoolhouse was the most important, and the value of this construction as a protection against fire has been so demonstrated that many of the business houses to be erected will now be made of the same material.

Brick and tile manufacturers of the northwest have been considerably amused this season by the claims set forth by the makers of concrete blocks and tile. The blocks are so made, so it is proclaimed, as to render them waterproof, while one of the advantages claimed for the tile, made by the same process, is that they are extremely porous.

J. L. Griswold and others are talking of establishing a tile factory near Dodge Center, Minn.

Duncanson & Fox have already begun work on a new tile factory at Winnebago City, Minn., where it is reported there is an excellent bed of clay suitable for that purpose.

Packard & McLyman have completed their new tile factory at Sherburn, Minn.

W. E. Turner will hereafter be manager of the Estherville (Iowa) Brick and Tile Company, having bought out P. H. Paulson's interest.

A new tile factory at Hampton, Iowa, is a possibility.

Deposits of clay suitable for pottery are reported to have been discovered at Crookston and St. Louis Park, Minn., and new factories at those places are proposed.

The Hormel Packing Company will erect a six-story pressed brick warehouse at Duluth, Minn., which will be 50x150 feet, and will cost \$75,000. Harry W. Jones, architect, of Minneapolis, has completed plans.

Sixty thousand dollars' worth of hollow tiling work will be done on the courthouse at Duluth, Minn. This will be furnished by the National Fireproofing Company, through its northwestern representative, Harold Johnson, of Minneapolis. Langquist & Illsby, of Chicago, are erecting the building.

N. WEST.

The Riggs & Sherman Co., of Toledo, O., has been retained by the Council of the village of Hartwell, a suburb of Cincinnati, to superintend the construction of a new system of sanitary sewage and sewage disposal.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

New Buckeye Clay Company Starts Plant.

Editor THE CLAY-WORKER:

Will you kindly make mention of the fact in the next issue of THE CLAY-WORKER that the Columbus and Hocking Coal and Iron Company has opened its new plant and is now making brick? Thanking you for your kindness, I am,

Very truly yours,

J. A. TOPPING, Sales Manager.

Columbus, Ohio, October 17, 1908.

The "Eye of the Continent" Appeals to Ex-President Pearson.

My Dear Mr. Secretary:

Your welcome letter to hand and contents carefully noted. Every year as I grow older in years, but not in looks and vigor, am less inclined to be anxious to make money. The brick business being the last and only business that I am engaged in, does not interest me as much as it used to, and, as you say, last year was not a very cheerful or profitable one for us. We managed to pay all our bills and keep out of the hands of the law, which some, I am sorry to say, have not done.

I have passed the sixty-eighth anniversary of the "greatest event," save one, of my life, and that took place forty-five years ago the 6th of this month—my marriage. Have had a happy and prosperous life, and am still living happily with the same lady who took so many chances in saying "yes" to my question. We are both well and have spent two months' vacation pleasantly visiting Boston, Portland, East Port, St. Johns, Digby and Halifax, and returned without a hair harmed.

I am pleased to vote for Rochester for our next N. B. M. A. convention.

Yours very truly,

Washington, D. C., Oct. 12, 1908. C. B. PEARSON.

New Jersey Clay School Prosperous.

Dear Mr. Randall:

The new college year at Rutgers, the New Jersey State College, has begun with every indication of being one of the most successful of the 143 years of its usefulness. In all departments of college activity we find expansion and development. Notwithstanding the more rigorous requirements for entrance, the incoming class is 30 per cent. larger than any preceding. The faculty has also been increased considerably, notably by the coming of Professor Heck, who is to have charge of the recently created Department of Mechanical Engineering. Professor Heck was formerly in charge of the Department of Experimental Engineering at Lehigh University, and is the author of a standard book on the steam engine. The equipment of the college is constantly being increased, and the Engineering building will be ready for use by the first of January. The State Legislature has appropriated \$20,000 for the mechanical equipment of the building. This will be supplemented by the college and private donors.

The Department of Ceramics is sharing in the general prosperity. The number of students taking the course is larger than in any previous year. The department has also been fortunate during the past year in securing the services

of Mr. Herbert W. Moore as assistant. Mr. Moore is a graduate of the department, and after leaving college he had practical experience with a company manufacturing chemical ware.

The equipment of the department has been increased during the summer by the addition of a standard brick testing rattler, made by the P. Hayden Company, of Columbus, Ohio.

Yours truly,

C. W. PARMELEE,

Director Department of Ceramics.

New Brunswick, N. J.

A New Sewer Pipe Company in Indiana.

Editor THE CLAY-WORKER:

I am pleased to state that the Cannelton Sewer Pipe Company was yesterday incorporated with a capital stock of \$50,000. It is the purpose of this company to erect at once a first-class sewer pipe plant in this city, and to manufacture drain tile in addition to sewer pipe. The capital stock is divided into 500 shares, at \$100 a share, and the directors of the company are John Myer, of New Albany, Ind., who was elected president; Henry Bosquet, of Louisville, Ky., vice-president; H. M. Clemens, of Cannelton, Ind., secretary, and A. P. Clemens, of Cannelton, Ind., treasurer, and M. F. Casper, of Cannelton, Ind. These five parties compose the directory. Additional stockholders are: Joseph M. Hirsch and George W. Hufnagel. A site 400x600 has been purchased, on which will begin within sixty days the erection of a plant costing at least \$40,000. This is all the information that we are in a position to give out at the present time, but will give you more information in the near future.

Yours very truly,

CANNELTON SEWER PIPE COMPANY,

Per H. M. Clemens, Secretary.

Cannelton, Ind., October 8, 1908.

Freight Rates.

Editor THE CLAY-WORKER:

A document of supreme importance to manufacturers and dealers in building and face brick of all kinds was filed on October 5th with the Interstate Commerce Commission in the form of an intervening petition from the Ohio Face Brick Manufacturers' Association, in the case of the Metropolitan Paving Brick Company et al, vs. the Ann Arbor Railroad Company, an action to compel the restoration of the former freight rate on paving brick from 22½ to 20 cents on a Chicago-New York basis.

The latter action represents the fight of the paving brick manufacturers to restore their old freight rate, which was upset by the Interstate Commerce Commission's notable declaration that "a brick is a brick." Some two years ago the Stowe Fuller Company, of Cleveland, manufacturers of fire brick, protested against the rate of 25 cents per 100 pounds it had to pay between Chicago and New York. The commission, after lengthy conferences and the hearing of much evidence, lowered the rate to 22½ cents, declaring at the time that "bricks were bricks."

The railroads took their cue, and promptly raised the freight on all brick to 22½ cents, Chicago to New York basis. That brought another storm of protest. The paving brick makers launched their fight in the case of the Metropolitan Company against the Ann Arbor Railroad. About the same time, the face brick manufacturers, seeing their interests menaced, formed an association. The intervening petition filed early this month represents their feelings in the matter. The petition, prepared by Henry & Couse, attorneys for the association, is a remarkably logical and concise presentation of their case. It is in part as follows:

"While complainant's amended bill of complaint discloses clearly their dissatisfaction with the present rate of 22½ cents per hundred pounds from Chicago to New York on brick, and proportionate rates from other points in Central Freight Association territory east bound, it is also quite clear that their idea of a remedy is not a horizontal reduction in the rate on all brick, but a reduction on paving brick alone; or as they prefer to term it, a restoration of the old rate that obtained until January last, when the defendants raised the rate on paving and face-building brick from 20 to 22½ cents. In short, complainants now demand a separate

classification and a lower rate for so-called 'paving brick' than for face-building or fire brick.

"To such discrimination the manufacturers of face-building brick are opposed, because, from a transportation standpoint, there is no difference between paving brick and face-building brick that would warrant any discrimination whatsoever, and because any discrimination, if made, would work a grave injustice to the manufacturers of face-building brick.

"Before proceeding it is deemed best to explain the meaning of the terms, 'building brick' and 'facing brick.' All brick that enter into the construction of buildings are properly called building brick, but not all are facing brick. By far the larger portion are the common brick of commerce made from common clay all over the country in close proximity to the seat of building operations, and are almost invariably transported from the factory to the building site by teams. Probably 99 per cent. of these common brick are so delivered, in no way affect the question of railroad transportation and are not involved in this inquiry.

"Facing brick are also building brick, but are made and used solely for the exterior walls of buildings. In some buildings the side and rear walls are made of the common brick above described, while the front walls are faced with facing brick. That is, the front or outside course only is of facing brick, the filling or inside courses are always of common brick.

"Facing brick are made from fire clay or shale almost exclusively, and the area of their manufacture is limited by the natural deposits of those materials. It is these facing brick then, made from fire clay and shale, that are involved in this inquiry.

"From a transportation standpoint, paving brick and face-building brick are identical.

"These three principal factors entering into the classification of commodities for freight transportation are density, liability to injury in transit, and value per cubic foot, and the order in which they are stated marks their relative importance. The only just rule for fixing freight rates is to award a fair compensation to the carrier for the service rendered. The principal factors to be considered in determining that fair compensation are density and liability to injury. The carrier is not concerned with the question of value, except as it affects the other factor of liability to injury or loss in transit. If by reason of the high value of an article it is more liable to be injured or to be lost, and to avoid this the carrier is required to exercise a higher degree of care in handling it, then, and only then, ought value to receive important consideration.

"There is absolutely no difference between the density of paving brick and building brick. They are both of so high specific gravity that cars can be easily loaded to the breaking point with either.

"Are building brick more liable to be injured in transit than paving brick? The evidence shows clearly that neither are liable to such injury. That claims for damages presented to the railroad companies because of loss or injury in either case, are so few and so small as to be almost a negligible quantity.

"The only factor remaining to be considered is the question of value. Bearing in mind that the commission has held that value is important chiefly on the question of the danger of loss and the amount of the insurance risk, and bearing in mind also that the danger of loss and the amount of the insurance risk is identical with all classes of brick, it would seem that the question of value shrinks in this case to infinitesimal proportions. Why is the question urged? Are paving brick so much less valuable than building brick as to entitle them to a lower rate because of this fact?

"It is beyond controversy that after eliminating special shapes and sizes, which, all told, represent but a fraction of 1 per cent. of the total production, and the use of which is diminishing from year to year, the average price of face-building brick is as low or lower than the average price of paving brick. Even after making allowance for the increased size and weight of paving bricks over the ordinary face-building bricks, there is no such wide discrepancy in value as would warrant a difference in rates, when we take into consideration the fact that a large proportion of paving bricks are of the ordinary size, and are sold at a very low price. By this we mean the so-called 'mill brick' or by-product. From a transportation standpoint, then, there can be no difference whatsoever.

"A lower rate on paving brick would work an injustice to the manufacturers of face-building brick. If the finding of the commission in the Stowe-Fuller case, namely, that 'a brick is a brick' needed any confirmation, then this case has vindicated that finding most completely. It has been shown here that paving brick of all kinds and face-building brick of all kinds are made from the same identical substances, using substantially the same process and appliances. Some paving brick are made from shale and some from fire clay; some face-building brick are made from shale and some from fire clay. Some manufacturers make in the same factory both face-building brick and paving brick from the same bed of fire clay, and others make both from the same deposit of shale. The name 'paving brick' or 'facing brick' is a designation derived solely from the principal use to which the brick is put. The same qualities that are regarded as essential in a good paving brick, are now demanded in a good facing brick. A good paving brick must be fully vitrified, must be hard, must be non-absorbent, and must be tough. All these qualities have come to be just as important in good facing brick, excepting, perhaps, the quality of toughness, which is desirable though not so essential as in a paving brick.

"The evidence also shows beyond question that not all paving brick are used for paving purposes. It appears from the evidence that the entire output of 'mill' brick, the so-called by-product of the paving brick plants, is used for structural purposes.

"It also appears beyond question that the so-called paving blocks, the large size, ten-pound brick intended for paving purposes,

is rapidly coming into use for face building purposes. The evidence shows that many of the better class of buildings, warehouses, churches, factories, office buildings, etc., are being constructed of paving blocks. The Pennsylvania Depot at Allegheny, Pa., is built of paving blocks. A skyscraper office building on Broadway, New York City, at the corner of Chambers street, is built of paving brick. The exterior walls of the great Sears-Roebuck buildings and the Montgomery Ward buildings at Chicago, constructed within the past three or four years, together employed from five to six millions of brick made by the paving brick plants of Illinois. This number of brick is about the annual output of the average face brick plant.

"The so-called 'mill' brick and paving blocks are therefore both in active competition with the regular facing brick. If the entire product of the paving brick plants is in active and direct competition with the regular facing brick, would it not be a gross injustice to the facing brick industry to award paving brick a lower freight rate than is given to facing brick? The commission had ample grounds for the decision in the Stowe-Fuller case. If not, then the testimony in this case, when regarded as supplementary thereto, leaves no room for doubt. Any different ruling would, it seems to us, be impossible of justification.

"Counsel for complainants argue at length that the increase from 20 to 22½ cents per 100 pounds was unreasonable and illegal. With this statement we are in perfect accord because said advance affected face-building brick as well as paving brick. In fact, as witnessed by our complaint in the case of the Ohio Face Brick Manufacturers' Association against the Ann Arbor Railroad Company et al., it is our contention that the former rate of 20 cents per 100 pounds on brick Chicago to New York is unjust and unreasonable, as compared with the rates on other commodities.

"It will, however, be noted that complainant's entire argument is devoted to the support of their contention that paving brick are entitled to a lower rate than other brick because of the claimed difference in general character, manner of shipment, special use, etc., etc. It is this contention that we challenge.

"Counsel say that paving brick furnish the carrier with an immense amount of desirable traffic, etc. The volume of traffic furnished by the face-building and fire brick industries is, beyond doubt, far in excess of that furnished by the paving brick industry. While paving brick may be shipped to a fewer number of consignees, we believe it will be seen that the advantage on this score is with building and fire brick manufacturers, rather than with paving brick manufacturers. In this is involved the 'train loads' argument. A locomotive always draws a full load anyway, and it can be of no advantage to the carrier to have the cars all loaded with the same kind of freight. The carrier can transport a mixed train just as cheaply as one loaded entirely with paving brick. On the other hand, it must certainly be a disadvantage to the carrier to have a full train of empty gondolas bunched at a single point, where it is more than likely there is no immediate use for most or all of them.

"A great many Ohio and other face-building brick manufacturers ship constantly from coast to coast and from Canada to the Gulf, and, therefore, the distribution of the cars is more even, furnishes the points of destination with empty box cars, which are always in demand for return hauls, and, consequently, such diverse loading is of much greater benefit and advantage than the so-called 'train loads' movement.

"Another reason is given, namely, that paving brick are loaded and unloaded quickly and move principally during the summer months. It is not shown that it takes longer to unload face-building or fire brick, and certainly building operations being conducted chiefly in the summer months, face-building brick must also move principally during this time; face-building brick are rarely ever ordered until needed in the building, therefore making prompt unloading a necessity.

"Again it is claimed that because paving brick are sold to municipalities, they should have a lower rate, as any increase is a tax on the public. Where is the justice in according a lower rate to municipalities than to private individuals? Besides, the shipments of paving brick are almost invariably to a private contractor rather than a municipality.

"It was suggested at the hearing that paving brick for paving purposes should be given a lower rate than the same class of brick when used for face building purposes. This was offered as a solution of the question, but it is wide open to the objection that it is a discrimination that wholly fails of justification when viewed from a transportation standpoint alone. The commission held in the Stowe-Fuller case that classification must be based upon a real distinction from a transportation standpoint, and that a classification is not scientific nor is the difference in rates well based, which is altogether founded upon a distinction that has no transportation significance. The commission was referring to a difference in rates based solely upon the use to which the brick were to be devoted. While the commission in that case was dealing only with brick made of fire clay, and while it may perhaps be true, that paving brick had received but slight attention at the hearing, still there is no reason why in the light of the evidence now presented in this case, the same ruling should not apply in the consideration of paving brick or so-called paving block when made of shale instead of fire clay. The building brick made of shale would be at precisely the same disadvantage under the reduction asked for as was the fire brick or face-building brick made of fire clay under the old classification.

"Besides being indefensible from a transportation standpoint, a separate rate on brick for paving purposes would be impossible of enforcement. It would necessitate the establishment of a detective service by the carrier to follow every carload of paving brick from the time of its delivery to the consignee until it found its place in a pavement, or elsewhere. That the temptation to

false billing would be great under different rates, needs no argument to show. The commission has recognized this fact in the Stowe-Fuller case.

"The commission will, of course, disregard the fact that most facing and fire brick are packed in straw, while paving brick are shipped unpacked. This packing is done by the shipper at his own expense, and does not enter into the question of rate-making or the service of transporting at all.

"The industries to be affected by the decision in this case are of great magnitude, and of vast importance to the maintenance and development of the country. The clay product industry is second only in importance to the steel and iron industry, and the question of freight is to it of vital importance. It is very essential to their welfare that rates be settled once and for all upon a basis that shall be fair and equitable to carriers and shippers alike. Still, we submit the matter can not be so adjusted by a discrimination like that proposed by complainant. No adjustment can be equitable or stable that rests upon a discrimination as between different kinds of brick."

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICKMAKERS.



NEW PLANT of the Sayre-Ford Brick Manufacturing Co., just across the New Jersey line, is nearing completion. This company was organized in July, 1907, but for good and sufficient reasons the building of this plant was suspended until recently. Now they expect to be all ready for the manufacture of brick the latter part of the month. The company, of which J. D. Sayre is president; J. W. Ford, treasurer, and Wm. P. Abdill secretary, is capitalized at \$100,000. The plant is located just within the mouth of Woodbury Creek, opposite the Navy Yard, within the boundary of National Park, N. J. The company owns one hundred and fifteen acres of ground, practically all clay and 20 feet deep, known by experts as Raritan clay. It is dark blue in color, somewhat of the nature of putty, dries white and burns a deep red. It is adapted to the manufacture of terra cotta as well as brick.

The plant, which has a capacity of 40,000 per day, is equipped with machinery from the shops of E. M. Freese & Co., Galion, Ohio, and a Martin improved dryer, with a cable system from machine to dryer, and dryer to kilns. Later on when they are in full operation, the cable will be extended from kiln directly to wharf, as all the brick will be transported by water. The brick will be burned in four Dutch kilns of 240,000 capacity each.

Mr. Sayre was particularly enthusiastic over the prospect and possibilities of the plant, which will run the year round. They expect to use native workmen, giving men of that vicinity a chance, rather than foreigners or negroes. This is certainly the right spirit and we certainly wish them all success. At present they will devote themselves to the manufacture of common red building bricks; later, with an enlargement of the plant, they will manufacture three other varieties of building brick.

Philadelphia Brickyards.

T. B. McAvoy & Son, following their usual good business methods, are busy just now supplying paving bricks for a contract at Morristown, which contract calls for 1,500,000.

Their subway contract was more than they could handle at the time, so they turned it over to McAvoy & Morris.

This latter firm, it is authentically reported, are the only busy men among downtown manufacturers. They deserve their good fortune, for it has followed their business energy of the slack season. "In time of peace, prepare for war," so when times are dull prepare for the busy season.

They are supplying bricks for an operation at 56th and Baltimore avenue, 54th and Yocum, 54th and Kingsession avenue, and 58th and Cedar avenue, all two-story houses. They have 5,000,000 bricks to deliver between this and Christmas and while the prices are lower, averaging fifty cents per thousand, yet they are very content. As stated the subway contract, which they took off the hands of T. B. McAvoy Vitrified Brick Company, calls for 1,500,000. Two other contracts for sewers call for 750,000 each. Surely all

this is enough to make them smile and they do so with a good will.

William Conway's yard is fairly busy. They have been running all the year and sending out brick, but hope for busier days soon.

We regret to state that Mr. Conway has been confined to the house for some time with illness. His condition is improving, and we trust he will soon be enjoying his normal health once more.

Webster & Keyser have been running with one-half and one-third their usual force, but Mr. Keyser is sanguine of better times soon.

Chambers Brothers report that business just now is not as brisk as it has been, but no doubt ere long we shall hear good news from them.

M. E. LOCKINGTON.

C. M. CROOK AND ASSOCIATES ENTERTAIN NOTABLES AT THE BESSEMER LIMESTONE COMPANY'S BRICK PLANT.

ON FRIDAY, OCTOBER 9, the officials of the Bessemer Limestone Company, of Youngstown, Ohio, chartered a special train and brought the Youngstown city officials, the members of the Youngstown Builders' Exchange, and others interested in the brick industry and manufacture, to Pittsburg on a special train. Upon arriving in this city, the train was shifted over to the Pennsylvania Railroad Lines East, and a quick run made to Bessemer, Pa., where the immense brick plant of the company is located. Here the party left the train and was conducted through all departments of the plant, which has a daily capacity of about 100,000 standard brick. The plant is one of the most complete and modern in the vicinity of Pittsburg, and the process of the manufacture of brick was seen in all stages from the mining of the clay to the burning in the kilns. It had been planned by the company that kilns should be fired and opened while the party was at the plant, a part of the operation that few of them had ever before witnessed, and which excited a great deal of interest. After the plant had been thoroughly looked over, the train was again boarded, and the party started on the return trip, arriving in Youngstown early in the evening, all proclaiming that they had had one of the most interesting and at the same time one of the most enjoyable days, as the guests of the company, that they had ever spent. The general manager of the plant, Mr. C. M. Crook, was complimented over and over on the splendid showing made.

RECOMMENDS SCHURS OIL BURNERS.

Oil has many advantages over other fuels, so where it can be obtained at a reasonable price it always proves to be one of the finest materials with which to burn clay products. Oil has long been known as a fuel easy to control, one which eliminates the cleaning of fire boxes, reduces the repair bills, and especially economical in the fact that the period of burning is considerably shortened. In the burning with oil it is absolutely necessary to have good burners. The Schurs oil burners have proven quite successful on several plants, one of which is the Johnson Glass Company, of Hartford City, Ind. We are pleased to publish below a letter recently received from them by the Illinois Supply and Construction Company, of St. Louis, who manufacture the Schurs burners:

HARTFORD CITY, IND., OCTOBER 13, 1908.

Illinois Supply and Construction Company, St. Louis, Mo.:

Dear Sirs—We are pleased to state that the Schurs oil burners purchased from you are operating very satisfactorily, and we consider same an excellent device for oil burning.

Yours very truly,

J. A. SWEET, Manager.

This factory has been most successful in the utilization of oil as a fuel.

Written for THE CLAY-WORKER.

REINFORCED CONCRETE.

Reasons Why it is Not a Dependable Building Material.

Architects and owners of buildings contemplating the use of reinforced concrete must, if they read at all, feel a bit of trepidation in deciding to "take a chance." Particularly when they read such editorials as this from the "American Contractor," that, incidentally, carries a great deal of concrete and cement advertising, and must, therefore really feel serious alarm or it would not jeopardize its advertising columns by such comment:

"That there is consolation, at least, a certain compensation in the misfortunes or miscarriages of others is doubtless true. On this principle we may congratulate ourselves that construction failures of concrete work are not confined to this country, but are as widely distributed as is that mode of construction. From all European countries come accounts of failures of this kind. . . . Germany, Austria, Spain, Switzerland, Russia and Poland. . . . These take a wide range, extending from mere floor failures to the utter collapse of heavy roof girder construction. . . . And are attributed to quite a wide range of causes, poor cement, poor design and defective execution being the chief reasons given. . . .

WHEREVER REINFORCED CONCRETE CONSTRUCTION WORK IS DONE, FAILURES OCCUR. . . . Meantime there is something of consolation in the knowledge that failure in this line is not peculiar to the United States, WHERE IT IS BEING REPORTED WITH ALMOST ALARMING FREQUENCY. . . ."

A Committee of the Philadelphia School Board recently reported against the use of concrete for that city's school buildings, saying:

". . . Correspondence with the leading architects shows very conclusively that this type of construction is too much of an experiment at the present time to warrant the risk of using reinforced concrete only as a building material. . . . Almost without exception the leading architects of this city consulted advised against this form of construction. . . . No money can be saved by using it. . . . While at the same time the chances would be that an unsatisfactory and unsafe building might result. . . ."

Captain Sewell, of the United States Engineer Corps, is probably the highest reinforced concrete authority that that system's advocates can point to, and always with pride. As we have before mentioned, this gentleman, being studious and capable of seeing things as they are, has been influenced by years and has become more conservative. For instance, in 1903, he stated:

". . . As for cinder concrete, it contains much partly burned coal; it is not only not fireproof, but actually combustible. But if it is made of cinders and ashes and good Portland cement and properly applied, it will not only develop reasonable mechanical strength, but will outlast under fire and water tests the best class of commercial hollow tile work. . . . Concrete will ultimately gain the victory. . . . Because it will furnish the same strength and fire protection as steel frame and hollow tile. . . ."

But later, in 1906, this authority modifies this opinion and says:

". . . It would not be surprising, however, if the future tendency in the more important buildings would be to treat reinforced concrete as a structural material, pure and simple, and protected much as steelwork is now protected. . . . It seems more than probable that the better appearance of the concrete floors (after the San Francisco fire) will cause a great many people to ascribe a fictitious value to the fire-resisting qualities of reinforced concrete. . . ."

And later still:

". . . I would like to suggest, in the matter of fireproof construction, that reinforced concrete should be treated as

a structural material, superior in many respects to steel, but one demanding protection from fire. It seems to me that the logical line of development is reinforced concrete covered with terra cotta. . . . A relatively small thickness of terra cotta would prevent concrete on the inside from becoming heated enough to damage it. . . ."

New York's celebrated architect, Mr. Geo. B. Post, gave us his opinion of concrete at one of the conventions of the Institute of Architects, at Washington:

". . . Now it is possible with regard to stones and other materials as with long-leaf yellow pine—certainly with regard to reinforced concrete—that the formulae published by the representatives of patented forms of construction are equally defective. If so, the result will be quite disastrous. . . . At the World's Congress of Architects I told those gentlemen (who had listened to papers by representatives of certain forms of construction that gave the inference that the special forms they advocated were accepted as the best, and only practised in the United States), that while as an economic form of construction we were forced to use it, we looked upon it with a certain amount of suspicion, and were using it in an amateurish way. I further stated that our predilections were strongly in favor of materials that had attained their strength before being brought into the building, and of which we could definitely calculate the strength, rather than materials which we had to test after we had constructed with them. . . ."

At the same meeting, Mr. Norman S. Patton, of Chicago, stated that he viewed with suspicion all forms of reinforced concrete and their agents. He cited cases where those latter had put in work much heavier than had been required by their formulae, and yet actual tests then showed that the information was absolutely false and that the floors would not stand the load, and he expressed the opinion that:

". . . There are many (concrete) buildings erected which have not fallen down only because they have not been subjected to the loads which they are theoretically supposed to be capable of bearing. . . ."

T. SQUARE.

GOVERNMENT TESTS ON RAYMOND MACHINERY.

The United States Geological Survey is now occupying the Arsenal buildings at Pittsburg, Pa., and to further the ceramic work of the technical branch they have purchased a testing outfit from the C. W. Raymond Company, of Dayton, Ohio, which consists mainly of a Raymond No. 3 brick machine, hand brick cutting table, hand tile cutting table, and a No. 1 Perfection hand brick repress, with numerous dies to make all the regular clay products, including brick, hollow ware, tile, etc., as well as special dies for clots for various material tests. This is the second Government contract awarded the C. W. Raymond Company within the last sixty days.

CERAMIC SUPPLY AND CONSTRUCTION COMPANY.

Under the above title, a new candidate for trade favors is introduced on page 423 of this issue. The company succeeds to the machinery and supply business of the Richardson & Lovejoy Engineering Co., Columbus, Ohio. The latter firm will hereafter confine its efforts wholly to engineering work, for which it is most admirably equipped. Both members of the firm are practical manufacturers, as well as thoroughly skilled engineers, and any ceramic problem entrusted to them for solution will be handled in a most thorough manner, whether it be the testing of clays, the rebuilding of old plants, or the designing and equipment of new ones.

The Stevenson Company, Wellsville, Ohio, made shipment the first of this month of two carloads of machinery to the Washington Brick, Lime and Manufacturing Company, of Spokane, Wash. The shipment embraced its latest improved 9-foot iron frame dry pan, a set of rolls, parts of a clay elevator, seven bearing stands, line shafting, screen, bearings, pulleys, a dozen and a half of brick barrows, and sundry other pieces of machinery.

Written for THE CLAY-WORKER.

AMONG THE POTTERS.



MANUFACTURING POTTERS are passing through the busiest season they have experienced this year. When the panic set in a year ago, sales of the general ware potteries started to fall off, and the low ebb of sales was reached during the past summer. Indeed, some of the plants are working to their capacity, but these can be counted on ten fingers. Others are working only about half of capacity, so that when an average for the district west of the Allegheny mountains is struck, it is found that the trade is working only at about from 70 to 90 per cent.

Within a month the United States Potteries Association will announce plans for the 1908 meeting, which is to be held at Washington, D. C. The gathering gives promise of being one of the most interesting in recent years, for certain features of the trade are to be discussed at length with a view of making betterments.

The wage agreement between the Sanitary Pottery Manufacturers Association and the National Brotherhood of Operative Potters expires November 1. During the past few weeks meetings have been held at Trenton, N. J., between committees representing both sides, with a view of reaching an agreement for the new year, but so far without result.

The National Pottery Co., of Evansville, Ind., has been increasing its capacity during the summer season, by the erection of two new kilns, giving the plant a capacity of six kilns. Only sanitary ware is manufactured here, and the firm has been successful since its organization.

An effort to reorganize the business of the Akron China Co., of Akron, O., has been started. It is proposed to form a company with a capital stock of \$100,000. The plant has been appraised at \$40,000 and the stock on hand at \$60,000. The firm is one of the oldest in the West, and the plan to form a reorganization will very likely be put through successfully.

The mammoth Homer Laughlin potteries at Newell, W. Va., is running more fully now than any time since the plant was put in operation. In fact, the company has had so much business on hand that it was compelled to place its three potteries at East Liverpool, O., in operation—to take care of an increased number of orders. As this is the height of the fall buying season, there is a reason why the firm should be so rushed.

It is asserted beyond all question the reorganization of the Wheeling Potteries Co. will be an accomplished fact within the next three months. President Charles W. Franzheim, of this company, has about succeeded in unloading all the old stock, and within a short time the plants will be in condition to be put on the manufacture of a new and higher grade of ware. Two plants of this concern are busy in the manufacture of sanitary goods, and ample business has been booked ahead to keep the factories in constant operation.

At Derry, Pa., a scheme is on foot to purchase the property of the Derry China Co. and convert the plant into an enamel ware factory. This property is controlled by the Severs China Co., of East Liverpool, O., and has not been confined to the manufacture of pottery for almost a year.

The revision of the pottery schedules of the tariff—upward—as suggested by William Howard Taft, the Republican candidate for president, meets with the hearty approval of the American pottery manufacturers. For many years the American producer has maintained that the import schedule was an easy matter to get around, but inasmuch as nothing could be done with the tariff for six years, the American pottery manufacturers were up against it. It has been impossible for the American manufacturer to compete with the foreign pottery manufacturer. In America, the pottery workman re-

ceives from four to ten times more wages than the European workman. The importer of foreign made pottery has become alarmed at the prospect of the schedules being advanced. There is less English ware being imported into the United States than ever, but the importations of the German lines are increasing at an alarming rate.

Another brushing machine that will be of value in the cleaning of flat bisque pottery has been created by John Scott, of East Liverpool, O. It has been tested to the satisfaction of the inventor in the factory, but it has not been put into actual use in any pottery as yet. This is the second machine to be made for this purpose. In some potteries where a brushing machine has been installed, it is maintained it is "hard on the fingers," as the nails would not have to be manicured after one has been employed on the brushing machine for a few weeks.

Henry P. Knoblock, for four years at the Colonial Pottery, has taken the management of the United States at Wellsville, O. The Wellsville plant is working full, making more ware than in years.

TOM POTTER.

OBITUARY.

Death of G. Godchaux, Abbeville, La.

After suffering for more than a year and making an extensive tour of the West in hopes of benefiting his health, Gus Godchaux, president of the Godchaux Brick Company, died at his home in Abbeville, La., October 11th. Mr. Godchaux had lived in Abbeville since 1875, and had an active interest in a number of other enterprises aside from the brick business. He was a member of the National Brick Manufacturers' Association, and an officer of the Louisiana State Association. One son, Frank A., survives, who will carry on his father's business.

Cleveland's Oldest Brickmaker Dies.

William Harrison, Cleveland's oldest brickmaker, is dead, at the age of seventy-eight. He died of heart disease at his home, 5132 Broadway, on October 6. Mr. Harrison came to this country away back in 1852, and at once began the manufacture of brick near Cleveland. His kilns for many years have been located on East Forty-ninth street, opposite Guy avenue. He made the brick for many of the early buildings of size in Cleveland, and for the Garfield monument. He was born in County Antrim, Ireland. He has been a prominent Cleveland Mason for thirty-three years, and was a member of the Cleveland City Council during the time Garfield was President of the United States. A widow and six children survive. Mr. Harrison retired from active business about six years ago.

Accident Proves Fatal to E. W. Drake, Milwaukee.

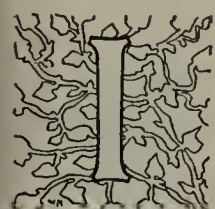
Eden W. Drake, for many years a resident of Milwaukee, and one of the prominent brick manufacturers of the State of Wisconsin, died at Kenmare, N. D., Wednesday morning, September 30, as a result of injuries received in the explosion of a brick kiln at Kenmare a week previous. At the time of the explosion, reports were sent to Milwaukee that Mr. Drake had been instantaneously killed, but later reports were to the effect that he had been injured, but not seriously, and the announcement of his death was received with surprise by his many friends in Milwaukee. The body was sent to his former home for burial.

Mr. Drake was fifty-one years of age at the time of his death, and had lived in Milwaukee for thirty years prior to taking up his home in Dakota in 1906. He was president of the Cream City Brick Company, and had always been actively identified with anything relating to the welfare of the brick making industry in his home city, serving for several years as president of the Milwaukee Brickmakers' Association. He

was one of the active spirits in the organization of the Wisconsin Clayworkers' Association, and at its first convention, held in Madison in 1901, he was elected its president, and presided at that convention and at the following convention, held in Milwaukee a year later. In politics Mr. Drake was a Prohibitionist, and in 1904 was the Wisconsin candidate for governor on that ticket. He was a man of somewhat quiet and retiring disposition, but one who made and held warm friends. He is survived by an aged mother, whose home is in Oshkosh, Wis., and by his wife and six children.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



IMPROVEMENT IN the building trade and operations in and about New York during the month past have been marked, and the outlook is considerably more satisfactory than it was. While cold weather will come shortly and stop all building work, excepting such as is roofed in, there is still time to

do a good deal to further some of the operations before freezing temperature puts a stop to it all.

The comparatively low prices prevailing for building material of various kinds has exerted some influence upon the situation and has led to the development of the industry to some extent even though it is rather late in the year. High prices held on so long that builders failed to make their contracts earlier and now it is too late to work long, but the operations begun will be ready for work next spring and there is every evidence that things will be much better in all departments when the warm weather comes.

According to statistics recently given out about 80 per cent of the tilelayers and 80 per cent. of the terra cotta workers are busy, with substantially 70 per cent. of the bricklayers in and about New York. This isn't such a bad showing considering the more or less unsatisfactory conditions which have prevailed a larger portion of the season.

The stimulus to building arises from the general reduction of about 20 per cent. which has been made on all building material. The reduction has induced capitalists and others to take advantage of the conditions to erect structures of greater or less importance either for use or for investment and the stimulus afforded has caused a corresponding increase in demand for material, including brick of different grades.

In brick prices range from \$1.00 to \$1.50 per 1,000 lower than last year, the wider reduction being upon the poorer qualities. It doesn't look now as though this reduction would be made good immediately, though possibly some improvement may result. But the yards have ample supplies for the requirements, at least at the opening of the season and to last for sometime afterward. It will, therefore, cause prices to remain at a relatively low level for a time at least. Perhaps important developments not now reckoned as possible will furnish enough consumption to overcome the surplus problem and put the industry upon a more active basis immediately upon the opening of the season.

The reduction in the price of terra cotta has been about 5 per cent., according to prominent dealers. This reduction has been made gradually during the past two years and has been due to a variety of causes, no one of which would have been sufficient to have caused it. Increase in the supply has been the principal factor in the decline of prices and one might almost go back ten years and point out where the decline began. It is scarcely fair to ascribe all the reduction to the past year or two even, though perhaps it has been most marked during that time. If however, the ten year period is taken into account it will be found that the reduction in prices reaches from 35 to 40 per cent, and perhaps manufacturers are making more money now than they did when prices were higher, owing to the increased output due to improved machinery. The price now is quoted as \$42.00 to \$45.00 per ton

for architectural terra cotta, compared with \$75.00 per ton ten years ago.

Some brick are still coming down the river, but the output of the plants has been restricted and the surplus left over last spring has lingered so much longer than usual that not much interest has been taken in the situation beyond the necessity of disposing of as many brick as possible. The increase in building operations, which has developed an increased demand for brick has stimulated holders to maintain a shade firmer position. Yet it is understood that the market is about what buyers choose to make it and this probably holds good with reference to large orders.

So far as public or semi-public work for next season is concerned it is impossible to make accurate statements regarding it. There is some probability that the work which will be projected will compare favorably with the boom years, but even this is uncertain. The situation in the city is not as good as it was a few years ago, nor is there any likelihood that it will improve materially in the near future. Indeed, it is thought by some experts that the city will have to cut down its expenditures for public work in some directions, though it is hoped that the subways which are badly needed can be provided for.

Nevertheless the situation is better and brick men are justified in thinking that they are going to share in the general prosperity which seems coming to the country as a whole. And it is undoubtedly true that the market for brick will be better than it has been this year and brick makers will feel the impetus of the change long enough in advance to prepare for it and take full advantage of their good fortune.

BURTON.

NO BRICK IN HONOLULU.

We sent a request to Mr. H. S. Hopkins, vice-president of the Chicago Brick Machinery Company, who is at present in Honolulu, to write us a story for THE CLAY-WORKER on the brickmaking industry in the Hawaiian Islands, and, if possible, send photographs of a brick yard with the picturesque natives at work on it. To this he replies as follows:

"I seem to have a vague recollection as to the possibility of making brick without straw, but history is silent concerning the making of brick without clay. The trouble is that there is no clay in the Islands suitable for making brick, and very little clay of any kind. About seven years ago, a modern brick plant was started on the Island of Oahu, at the foot of Nuuanu street, about a mile outside of the city of Honolulu, on what was supposed to be a good surface clay, and a brick-maker was brought from the States to run it. After sinking a large amount of money, and making about five million brick, the plant was abandoned at a big loss, as the clay proved entirely unsuitable, and would not produce a merchantable brick. This discouraged the brickmaking industry, and the building materials used are timber, stone and concrete. No brick building has been erected in Honolulu for the past three years. A few brick are imported from California for chimneys, boiler settings, etc., and sell for about \$14.00 per thousand.

"The stone used is almost entirely the lava rock, from which the Islands are formed. There is very little dirt of any kind, and what there is is used for raising sugar cane, which pays about 40 per cent. on the investment, and, therefore, is too valuable to be used for brick, even at \$14.00 per thousand."

Mr. Hopkins is said to be having the time of his life in Honolulu, and to be rapidly regaining his health and vigor. He is greatly impressed with the beauty of the Islands, and especially with his night visit to the volcano of Kilauea, which has recently been in operation, and which, he says, is one of the most beautiful sights he has ever seen. Mr. Hopkins has been absent since June, but will be back in the harness again about the 1st of November.

The machine which does not answer your purpose may be just what some one else needs. Tell the "needee" about it in a card in the "For Sale" columns of THE CLAY-WORKER.



OFFICIAL ANNOUNCEMENT.

TWENTY-THIRD NATIONAL CONVENTION TO BE HELD
AT ROCHESTER, N. Y., FEBRUARY 1-6, 1909.

The Eye of the Continent for the N. B. M. A.

AFTER A VERY careful survey of the entire field, and considering fully the points of vantage offered by the different cities to which the N. B. M. A. has been invited, it has been deemed best to select Rochester, N. Y., for our next place of meeting, so our Twenty-third Annual Convention will be held there February 1 to 6, 1909. In reaching this decision, we have been mindful of the fact that 1908 is an "off year," and on that account a city centrally located and



THE EYE OF THE CONTINENT.

Issued by the Rochester Chamber of Commerce 1908.

easily accessible from all quarters is particularly desirable as a convention point. The geographical position of Rochester fills the bill. Nearly midway between New York and Chicago, it is the center of the best train service on the continent. Indeed, it is coming to be known as the "Eye of the Continent." It may be reached by a large majority of our members in a few hours, and with ease and comfort, too, regardless of winter weather.

The Seneca Hotel Headquarters.

Solid comfort awaits the visitor after arrival, for Rochester now boasts of the best hotel accommodations of any city of its size in the world. Two large hotels, elegantly furnished, have been built there within the past year. The city of Rochester is now the proud possessor of a great convention hall, which it offers free for convention purposes, and which affords unsurpassed facilities for the exhibition of machinery, etc. If manu-

facturers desire to make elaborate exhibits, the opportunity is offered here. Otherwise, samples of clay ware alone will be displayed, and the convention sessions will be held in the Hotel Seneca, which will be headquarters.

The Seneca is Rochester's largest, newest and best hotel; it is a fireproof structure, splendid in every appointment, and will afford ample and cozy quarters for all sessions. Its beautiful banquet hall will accommodate our entire membership and enable us to have an associational dinner or banquet if that function is desired. Suitable assembly halls will be at the disposal of each and all of the auxiliary associations. The Seneca is exclusively European, and the rate will be from \$1.50 per day up, according to character and location of rooms.

Reduced Railroad Rates.

It is anticipated that reduced railroad rates will be granted as in former years, and in due time full particulars in regard to same will be announced, together with complete programme, and the arrangements for the entertainment of visitors. The latter will be under the auspices of the clayworkers of Rochester and vicinity. The clayworkers of Western New York propose to form an association for the purpose of welcoming and entertaining those who attend the convention.

The American Ceramic Society will meet Monday, Tuesday and Wednesday forenoon, as in former years.

The National Paving Brick Manufacturers' Association will meet Monday and Tuesday, the 1st and 2nd, as will also the National Clay Machinery Association. The N. B. M. A. sessions will begin Wednesday afternoon at 2:00 o'clock.

Those desiring to make any suggestions in regard to the programme, or who may wish further information on any feature of the convention, requisite of membership, etc., are requested to communicate with the Secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,

M. E. GREGORY, President.

THEO. A. RANDALL, Secretary.

THE A. B. C. SYSTEM PROVES POPULAR.

Business may be dull in a good many lines, but there are exceptions. For example, the American Blower Company, of Detroit, Mich., reports a very satisfactory volume of business. They recently favored us with a list of thirty odd important contracts and orders received by them since September 1st. Among them we notice a dryer installation for the Berlin (Ohio) Brick and Tile Company. As may be judged from their ad on page 346 of this issue, which, by the way, because of its novelty should attract the eye of every reader, they offer something new in the way of conveying, drying and burning brick. As they guarantee results, our readers will do well to investigate their system.

HOPLEY A PRIZE WINNER.

From far-away Tacoma, Wash., comes the information that Frank Hopley, advertising manager of the American Clay Machinery Company, Bucyrus, Ohio, has been awarded a prize in an ad writing contest inaugurated by the Bowes-Irwin Company, Tacoma, Wash. We have always known that Frank would sooner or later achieve greatness, and we are glad to know that it has come to him through his chosen calling and not through a mishap to his chug-wagon. We have feared that he might sometime engage in a tree climbing contest in his attempts at lowering the record between Bucyrus and Marion, or other neighboring towns, which constitutes his chief midsummer pastime.

THE ANARCHISTIC SPIRIT.

"What do you call the man that drives an automobile?"
"Well, it depends largely upon one's religious scruples and command of language."—Exchange.

THE CLAY-WORKER

Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. L. OCTOBER, 1908. No. 4

CURRENT COMMENT.

When a prominent figure in politics gets anything that looks like an oil can attached to him, his name is Mudd—and not mud that will make good brick to stand the fire, either.

* * *

Now that "The frost is on the pumpkin," etc., the man with the good old-fashioned brick fire place begins to realize and appreciate the difference between home and just a place to stop.

* * *

In some sections of the country the corn and late potato crops have been cut short by the drought. It is not the farmers that will suffer the most therefrom, however, because what is lost in quantity is being made up for in price.

* * *

The deplorable forest fires we have been having this fall should add strength and impressiveness to the arguments put forth for fireproof buildings. Fire, which is the greatest friend of mankind when under control, can and does frequently become man's worst enemy when it runs wild.

* * *

Let us not let up any on the insistency of good brick paved streets, but let us add thereto also some words about the benefits of brick paved alleys. A whole lot might be said about alleys and always the answer and cure for alley ailments is brick.

* * *

Mr. Village Brickmaker, have you noticed that the September and October CLAY-WORKER are most excellent numbers to lay before your School Board and County Commissioners? Good fireproof brick schoolhouses are the only sort that should be considered in future work.

* * *

It comes hard, but it seems to take failure to bring home thoroughly lessons that we ought to get anyway. For

example, when a man has a lot of brick condemned for improper burning he realizes as nothing else could make him see it, the economy in having a good kiln equipment and taking a little more pains with the burning even though it costs more primarily.

* * *

Rochester is IT, as will be seen by the official announcement on a preceding page. The "Eye of the Continent" is certainly a desirable point for a N. B. M. A. convention. Its get-at-ability, and the fact that visitors from the West and South will have an opportunity of viewing Niagara Falls, which is most beautiful and grand in midwinter, together with the luxurious accommodations afforded by the Seneca Hotel, should insure another record-breaking attendance February 1 to 6, 1909.

* * *

Are we to have some reforms and new ideas in regard to the laying of brick? The question has been recently brought up of reinforcing brick walls by the use of wire netting between the courses and this year we have seen a more decided tendency than ever before to use a single course of brick as an outer facing for the frame building. There has been enough of this matter to suggest that it is not merely a freakish departure here and there, but probably a more or less general tendency that is to have quite a run. Maybe there are to be developed new ideas in the laying and use of brick that will help out just as new and improved ideas help out the process of manufacture.

IS THE COUNTRY PROSPEROUS?

"One would think so if one could believe the published reports compiled by the Portland Oregonian," says the Pacific Builder-Engineer.

The Portland daily has given out an estimate of the grain crop for this year, in which it gives the increased grain yield as 342,000,000 bushels more than in 1907.

The estimated value of this year's crop is put at \$3,000,000,000, which represents an increase of \$600,000,000, and this means that the grain crops will this year increase the average purchasing power of every person in the United States to \$7.

The real wealth of the country is represented in the soil, and if that is producing more, then there is more to do with. Pessimists might just as well join the happy throng and help in building up the country as to be left by the procession.

THE CLAYWORKERS AND THE FAIRS.

Aside from the big fairs and expositions of national character there is, every fall, more or less county and State fair business in every State; and among some of them there are pretentious exhibits of building materials, and especially of concrete, which seems to be making itself known everywhere.

A visitor to one of the State fairs called attention to the fact that there were several pretentious displays of concrete building blocks, and concrete for various farm uses, displays of roofing, eave troughs, and almost everything else except brick. Even the grandstand and the pavilion were made of concrete, and brick didn't even have a showing in the construction of buildings. A persistent search about the grounds for some display of brick finally resulted in finding about half a dozen paving brick laying loose on the ground as an incidental item with some other material being featured for road culverts.

Now the question raised by this visit, and the discussion following it is, to what extent are clayworkers neglecting their opportunities at fairs, and also, is it practical or worth while to attempt making anything like elaborate exhibits in clay products at such places? It seems that there is room

to do considerably more of it than is done. The country fair, with its pie-baking contests and prize pumpkins as leading features, may not be a great place for exhibiting clay products, but even there some of the local brick men may find a chance to show their products to advantage. The main chance seems to be with the State fairs, which have permanent sites. Whenever the State arranges for a permanent site and erects buildings in which fairs are held year after year, usually in October, there are opportunities for clay product men to do some good work. They could display building brick and structural terra cotta in erecting a clay products building, and inside of such a building could be displayed every line of clay products used, including fire brick, sewer pipe, drain tile, roofing tile, etc., and they might keep a man on the ground to talk about the various products. Surely, too, it could be made worth while. If no individual brick or terra cotta manufacturers cared to take it up, it might be taken up by the State associations and the details worked out, so that wherever a State has a permanent fair site an annual display of State products in the way of clayworking could be made, representing in all its different branches the clayworking industry, and thus encourage a more extensive use of the various clay products among the people who come from all over the State to see the fair.

These fair displays, if properly followed out, are good educational features. There are many people who come to the fair just to have a good time, but the more progressive of the country people come to get themselves informed on the newest and best things in their line, and not only buy fine live stock but look into farm machinery; and if they contemplate building they will take a very lively interest in any displays of building material. Also, in every State there is some interest, and in certain States special interest, in the subject of farm drainage, and by the use of displays along this line there is a chance to do a little good educational work on the subject of tile drainage, and thus encourage the use of tile. Some of this is undoubtedly being done, but the fact that this fall one permanent State fair, with a permanent site and permanent site and permanent buildings, was found void of brick and clayworking displays, while at the same time there were several brick and other clayworking industries in the city where the fair was held, is evidence that the idea is not being followed up persistently, and clayworkers may thereby be letting some good opportunities go by.

ARE SKYSCRAPERS DANGEROUS?

Commenting upon a recent alarming prophecy by George W. Babb, president of the New York Board of Fire Underwriters, that it was only a matter of time when the skyscraper district of New York would be destroyed by fire, Architect Fitzpatrick, the executive officer of the International Building Inspectors' Society, and probably the highest authority on fireproof construction in the country, says that while such a thing is not beyond the realm of possibility, it is highly improbable under present conditions, and could, at slight expense, be made an utter impossibility.

The skyscraper district of New York can not be compared to anything there was at Baltimore or in San Francisco.

In both conflagrations the tall buildings suffered by reason of the vast amount of poor building there was all about them.

Fire found but comparatively little to burn within them, and in a great many cases, though damaged themselves, they served as a bulwark, a protection to adjacent and more combustible buildings.

In Baltimore, as a matter of fact, as soon as the fire reached the skyscraper district, small as it was, it burnt itself out in them, and they actually saved the city beyond them, stopping the fire much as a dyke does the inrush of floodtide.

In New York, the downtown district is immeasurably better

built generally than is that of any other city. There are more tall buildings, and these, serving almost exclusively as offices, contain the minimum of combustible material.

Their tall steel frames, protected and enclosed with imperishable brick and hollow tile fireproofing, give a fire in the contents of the buildings nothing of a structural nature to feed upon and destroy.

No. the skyscraper of New York is about the safest place from fire in the entire country, and if the owners of the buildings would but go to work and put wired glass in metal sash in the windows where they have not already done so, thus making it absolutely impossible for fire to find ingress into the tall buildings from without, that district would be so safe that little or no insurance would need be carried upon the buildings about which Mr. Babb is so much perturbed.

THE SMALL BUILDER.

Brick manufacturers, like other dealers in building material, and in other commodities, for that matter, now and then forget or overlook the importance of the smaller consumers, who, while they do not amount to much individually, in the aggregate amount to an enormous lot. Moreover, there is evidence this year that in the building world it has been the modest home builder who has saved the situation, and prevented building trades from being almost entirely demoralized. An examination of the permits among the leading cities shows that there has been a falling off in the permits for larger undertakings, but a decided increase in the number of modest homes. In short, it is these builders of homes that have done more to keep the building situation on its feet and doing than anything else. The larger investors, who build big structures, have been very backward this year, notwithstanding that conditions have been favorable for building, and it is the men of smaller means who want to build homes who have responded more readily and heartily to the spirit of the times, and have gotten busy and built themselves homes while both material and help is plentiful and comparatively cheap. This fact, which is so strongly brought out in the building statistics of the past eight months, should serve to impress us with the everyday importance of the more modest consumers, as well as their being important and a sort of mainstay when a crisis comes. It is really better in many respects to cultivate the smaller trade than the larger users of material. They are not so exacting and the competition on prices is never so severe, and when you get enough of these small ones to make up your aggregate to the right proportions it is a better trade, for it gives more chance for profit than to have a few large consumers. The thing for the brick manufacturers to get out of this is inspiration to cultivate more assiduously the trade of the modest home builder. There is no need to neglect the heavier channels of the trade, but instead of concentrating all efforts on them and letting the others come along when they will, special efforts at cultivating the smaller trade should be put forth, so that the modest home builder may be induced not merely to build, but to build better by using brick, instead of lumber or some other inferior material when it is a matter of building a permanent home.

BACK IN INDIANA AND GLAD OF IT.

Robert Elliott, president of the Standard Dry Kiln Company, Indianapolis, Ind., recently returned home from an extended tour through Europe. For nearly three months he and his family toured the Continent, and his rugged appearance indicates that the time was well spent. Much of his time was spent in and about Berlin, and, while he enjoyed the trip immensely, he saw nothing there that would tempt him to leave his happy home in Hoosierdom to become a permanent resident of the Kaiser's domain. Mr. Elliott is back at his desk apparently as good as new, and prepared to supply ample reasons why brickmakers will profit by installing and using Standard dryers.

TRADE LITERATURE.

HARRIS SMOKELESS FURNACE COMPANY, of Nashville, Tenn., has just issued to the trade a neat green-covered fifty-two-page pamphlet. It contains numerous drawings of the smokeless furnace and boiler, by means of which the reader can see all the many advantages of this system. This illustrated descriptive section is followed by six pages of cuts and reading matter, showing the many factories employing the Harris furnace. For complete information, write the Harris Smokeless Furnace Company, Nashville, Tenn. Mention **THE CLAY-WORKER**.

THE ABBE ENGINEERING CO., of New York, are mailing to the trade a catalog on their pulverizers and an eight page leaflet on modern mixers. The catalog contains sixty-two pages of illustrated matter setting forth the merits of the Abbe Engineering Co.'s specialties for fine grinding and thorough mixing. This firm's machinery is pronounced excellent. They manufacture a most complete line of tube, ball and pebble mills, beside cage disintegrators, crushing rolls, pressure blowers, vacuum pumps, etc. Anyone wishing complete information, prices, etc., should write the Abbe Engineering Company, of 220 Broadway, New York City.

THE CLAYS OF TEXAS is the title of Bulletin No. 102, just issued by the University of Texas. It contains the results of an exhaustive study of the economic value of the various clays of the State by Dr. Heinrich Ries, Professor of Economic Geology in Cornell University, and author of "Clays, Their Occurrence, Properties and Uses." The report consists of two parts. Part I, pages 1-64, deals with the "Origin and Occurrence of Clays," and Part II, pages 65-316, deals with the "Economic Geology of the Texas Clays." There are 316 pages, including ten full-page plates. Samples collected from many clay deposits in the State of Texas have been subjected to numerous physical tests and chemical analyses in order to bring out their values. These tests have demonstrated the existence of a large number of deposits adapted to various economic uses. An important belt of fire clay is shown to extend from Bexar County to Bowie County, while in the bituminous coal region of northern Texas, there are shale clays well adapted to the making of paving brick. A copy of the bulletin has been sent to each well-established public and institutional library in Texas, and to such libraries and institutions in other States and countries as exchange publications with the University of Texas Library. A copy will be sent to anyone on receipt of the price, \$2.00. Address the University of Texas Bulletin, Austin, Texas.

THE BOYD BRICK PRESS—The Chisholm, Boyd & White Co., of Chicago, manufacturers of the well known Boyd brick press, is mailing to the trade the handsomest and best printed catalog that has ever been produced in the brick machinery line. The catalog, known as "Number Twenty," is 9x12, bound in a dark green cover made of Old English folding bristol. The title, "The Boyd Brick Press," is stamped in solid gold leaf letters, which, against the pleasing dark green background, makes the cover most attractive. The catalog contains twenty-four pages of halftone illustrations and descriptive matter printed on a high grade of the heaviest superfine enameled paper. The descriptive matter shows great thought and careful attention in detailing the principal facts relative to the many merits of this firm's products. In addition to the complete description of their machinery, it contains an instructive article and several suggestions concerning the equipment of complete brick plants besides blue prints of plans showing the general arrangement of a modern brick factory: Chisholm, Boyd & White Co. do not employ traveling representatives, nor do they do any business through agents. The catalog is the only salesman they send out, and for that reason they believe in showing in their advertising literature the machinery which they build, describing it in detail and telling just how it is manufactured in the best and clearest possible manner. Those interested in the manufacture of clay products, especially high grade press brick, should possess one of these catalogs. Write Chisholm, Boyd & White Co. for a copy—it contains useful information concerning the manufacture of pressed brick and is indeed a valuable addition to the trade literature.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 434.]

FOR SALE, WANTED, ETC.

FOR SALE.

Matthews gravity 12-inch brick carrier, nineteen 8-foot sections, one 6-foot, five 4-foot, three 7-foot, curves, seventeen adjustable jacks, two aprons, eighteen extra rollers. Good reason for selling cheap.
THE HEIDECKER BRICK CO.,
Sharonville, Ohio.

7 6 c

WANTED.

Position by first class man as head burner or assistant superintendent on a dry clay, press brick, down-draft kiln plant. Can guarantee results if proposition is not fundamentally wrong. Address

7 tf d

RESULTS,
Care Clay-Worker.

FOR SALE.

A brickyard, with machinery, fifty acres of land. Finest of clay, near a large saw mill on the N. O. G. N. Railroad. Sixty-three miles from New Orleans; price, \$6,000. Address

9 tf d

ST. TAMMANY BRICK YARD,
Ramsey, La.

For Sale, Wanted, Etc., Ads Continued on
Pages 425, 426 and 427.

Written for THE CLAY-WORKER.

THE ST. LOUIS BRICK SITUATION.



USINESS IN general is fairly satisfactory with the brick manufacturers. The majority of them are working as usual and are preparing for a later demand. Prices are about the same that they have been for several months. The amount of building for which permits were issued in September was \$1,483,016. against \$1,966,956 for the same month of 1907, showing a decrease of nearly \$500,000.

These figures as compiled by the Building Commissioner indicate an unhealthy condition in the building line. Such, however, is not the case. This assertion is corroborated by the Building Commissioner. It simply is that there were not so many expensive structures under course of construction last month as there were the same month last year. The number of permits issued was only six less than September, 1907.

The cost of building at the present time, according to contractors and architects, is fully 25 per cent. less than it was last year. Adding this amount to the aggregate cost of construction for September permits, the total would be increased more than \$300,000 and the Building Commissioner's record would have shown differently.

Then, too, there has been more than \$100,000 in contracts let for municipal buildings for which the President of the Board of Public Improvements has refused to take out permits, thus cutting down the records of the Building Department. The Building Commissioner has tried to get the President of the Board of Public Improvements to take out permits, contending not to do so gives to the outside cities the idea that the building market here is dull, when it is otherwise.

"The apparent falling off in building operations," the Building Commissioner says, "in reality is not a slump. The number of permits issued shows this. It simply is that the class of structures being erected is not up to what it was this time last year, and the cost of construction is so much less now that it pulls down the aggregate building record of the month. This decrease of the cost of building material, which at the most conservative estimate is more than 20 per cent. less than it was last year, has caused hundreds of persons who have hitherto held off to construct small homes and buildings to rent and sell. The flat and small detached house building is enormous and I look for a steady increase. I believe material will remain at about the same figure now quoted for a long time."

The number of permits issued for new brick buildings last month was 240, with an aggregate cost of construction of \$1,291,622, against 213 and an estimated cost of \$1,720,622. Brick additions last month call for \$82,198, against \$141,009 last September. New frame structures \$97,075 last month, against \$88,810 in 1907.

According to the Geological report lately issued from Washington, Missouri has changed places with Indiana and thus became sixth instead of seventh in rank among the states as a producer of clay products in 1907. The output of clay products in Missouri in 1907 was valued at \$6,898,871 and at \$6,696,275 in 1906. The value of Indiana products was \$6,858,124 in 1907 and \$7,158,234 in 1906.

George A. Jones, secretary of the Evens & Howard Fire Brick Co. says business is not as good as it should be but probably as satisfactory as could be expected under the circumstances.

The Laclede-Christy Fire Clay Company have had several large orders recently. One of the largest orders was from a big lumber plant in Arkansas, where they installed their system of hollow tile roofing.

Mr. Camp of the Ross-Keller Triple Pressure Brick Ma-

chine Company reports a great many inquiries for their machines, but as yet the orders have not come in quite as satisfactory as they should. Nearly all the inquiries indicate that it is but a question of a short time before orders will be placed.

W. F. Scott, president of the Scott Manufacturing Co, says they have been receiving a number of inquiries asking about brick machinery. These inquiries state that the writers contemplate installing plants in a short time. While orders have in many instances not been received yet, quite a number have, and the prospect for future business is most encouraging.

A SAINT.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.

Reports from Boston say that some good sized sales of brick have been made recently, but for what purpose it does not appear in the statement. Possibly the stock will be used for the rebuilding of Chelsea. Possibly it will be used for something else, but whatever they will be used for, they have been sold, and that is an improvement as compared with previous months. Perhaps it wouldn't be wise to say much about the price. It is understood that these were low and that sales have been made in a general way which would not show very much profit on cost of manufacture and delivery. It is impossible to buy any more brick at the price mentioned and the holders of other stock are confident that the sales of the future will be at higher values than those which have just passed.

Around Berlin, Conn., the few yards which have been in operation there this summer are preparing to close for the season. The Donnelly yard is practically finished and the Merwin plant is all but ready to close. Richard Murray, the Standard Brick Company, John W. Holmes, Towers Brothers and W. L. Davis did not start at all the past summer and most of them still have a large supply on hand. The previous season was not what these manufacturers expected and the sale quantity available was too large for the market. It is pointed out that it will require some work to dispose of the holdings already available and that business will be governed largely by these conditions.

From Maine comes more encouraging reports. A good degree of activity has been noted in building throughout the state and the material market has been better in consequence. Because of this the outlook is thought to be better for the coming season. While it is impossible to obtain definite information it is nevertheless true that trade in Maine has been better than in any other single New England state throughout the past season and the close finds a fair number of orders ahead which will assist measurably in reducing the holdings with which manufacturers close the winter.

In Vermont and New Hampshire the situation has not changed any since last month. New Hampshire finds its largest market in Boston and when Boston fails, as it has the past season, then the New Hampshire yards suffer. The outlook for next season is uncertain, but is expected to improve.

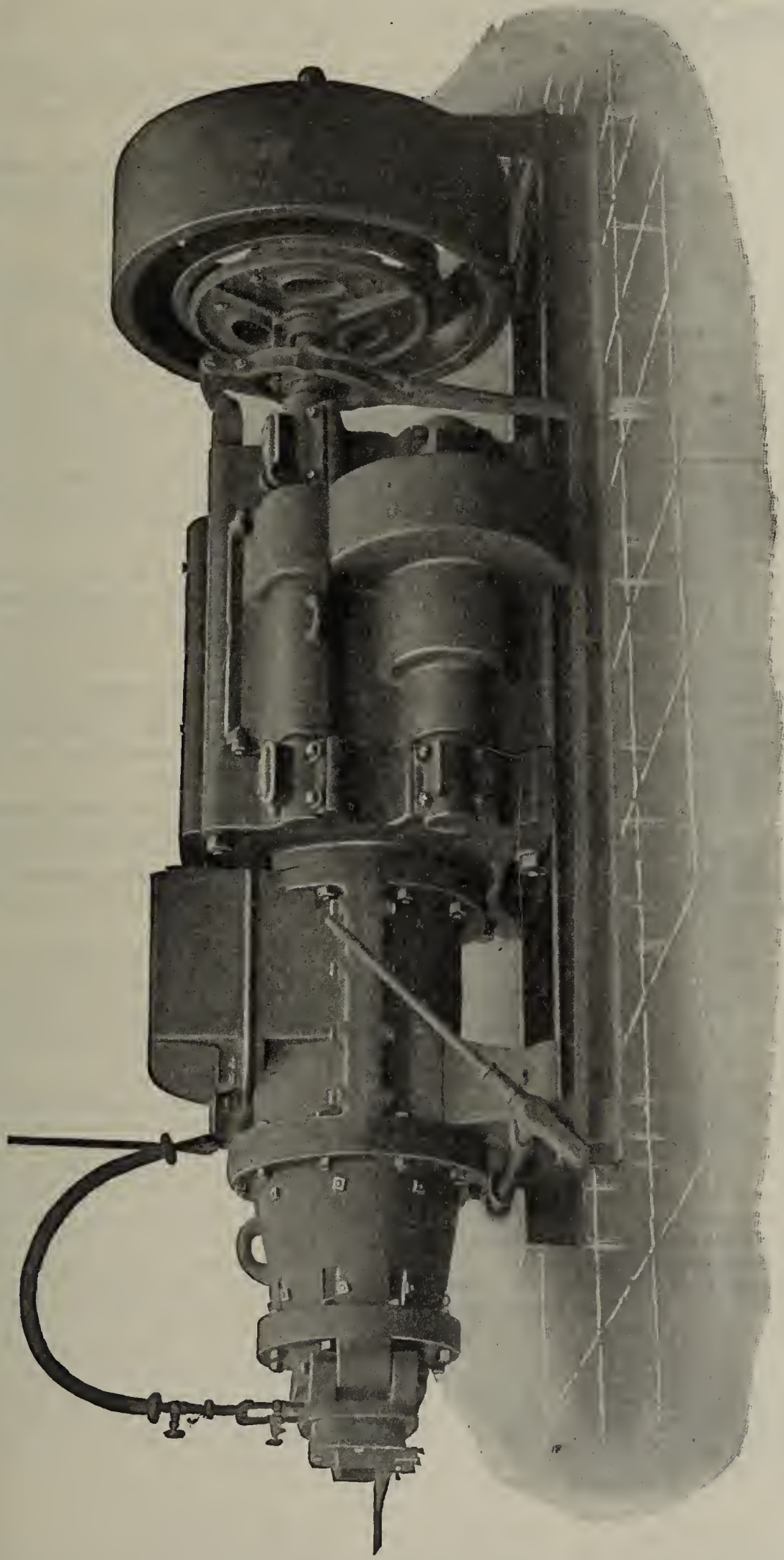
HIRAM.

BUSY TIMES AT STREATOR, ILL.

The plant of the National Drain Tile Company, south of Streator, Ill., will be enlarged to almost double its present capacity. J. F. Morris, the manager of the plant, says that with their present capacity they are only able to fill about half of the orders for tile. They are now shipping six carloads of tile per day, and by the first of January they expect to be turning out twelve carloads per day.

The Streator Clay Manufacturing Company, of Streator, Ill., is making extensive improvements to its plant, and, after a recent siesta with a bunch of representatives from half a dozen clay machinery plants, sent the representative of the Stevenson Co., Wellsville, Ohio, proudly home with its order for one large press for making 36-inch pipe, to be erected on a steel frame, one set of deep socket dies up to 36-inch, two 9-foot dry pans, two dry clay elevators, two piano wire screens, one clay carrier and feeder, and necessary material for converting the company's old dry pan into a wet pan.

Modern Stiff Mud Brick Machinery.



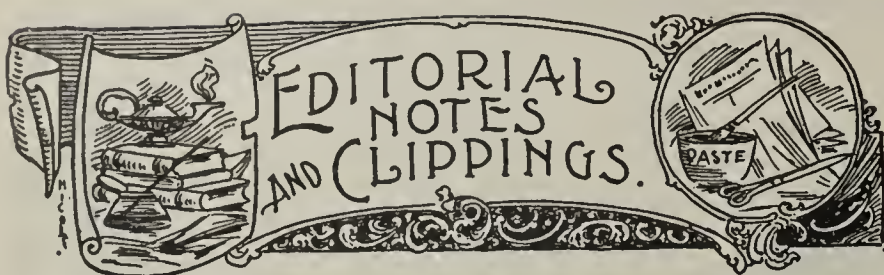
We've been building Brick Machinery a good many years and have naturally been brought into contact with a variety of clays and conditions and have been able to produce machinery more and more nearly adapted to the requirements of our customers. Our motto in this work has been "Prove all things and hold fast to that which is good." Consequently the features in our products which have not been found good have been discarded and improvements from time to time have been substituted.

Let us get acquainted with your troubles or your wants, and if we cannot do you good we will tell you so. We build Brick Machines in many sizes and patterns.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

(See ads on pages 450 and 451.)



C. H. McKeever contemplates starting a brickmaking plant at Norwood, Col.

The Smith Brothers Brick Company has been organized to manufacture brick at Greybull, Wyo.

George Foreman has purchased the brick and tile plant of George A. Gillet at Corning, Iowa.

The plant of Wm. Lahey at Newburg, N. Y., was slightly damaged by fire October 12th, which started in one of the kiln sheds from an overheated kiln.

The Metropolitan Paving Brick Company, Canton, Ohio, has recently ordered two large Canton Special brick machines of the Bonnot Company, Canton, Ohio.

The Mack Manufacturing Company, of New Cumberland, W. Va., has recently installed another of the Stevenson Company's 12-foot double-g geared iron pug mills.

The Barr Clay Company, Streator, Ill., is preparing to enlarge and improve its plant. Nine more kilns will be built, and an immense Rodgers waste heat dryer is being installed.

The Fort Worth Brick Company, Fort Worth, Texas, with a plant at Kennedale, Texas, has been incorporated for \$30,000. John R. Darnell, L. H. Sargent and A. L. Davidson are interested.

The plant of the Utica Press Brick Company, Canastota, N. Y., was destroyed by fire recently, which is supposed to have been of incendiary origin. The plant had been idle for two years. The loss is fully covered by insurance.

The Standard Brick Manufacturing Company will build an addition to their First Avenue plant at Evansville, Ind., in the form of an immense dryer. The improvement is made necessary by the constantly increasing trade of the company.

It has been definitely decided to move the Chanute (Kans.) plant of the Coffeyville Brick Company to Collinsville, Okla., at which place forty acres of land was secured and 20,000,000 feet of gas daily has been contracted for. Paving brick only will be manufactured.

The machinery and engine room in the brick plant of M. Lantz & Sons, South Thirty-fourth and Jane streets, Pittsburg, Pa., were damaged recently to the extent of \$5,000 by fire. The machinery and engines were practically ruined, while thousands of brick were broken and destroyed.

The Mason City Brick and Tile Company and the American Brick and Tile Company, both of Mason City, Iowa, made extensive and interesting exhibits of their products at the recent Minnesota State Fair at the twin cities. Among others who had displays were the Twin City Brick Company and the Belt Line Brick Company, of Minneapolis.

The Trumbull Brick Company, of Warren, Ohio, has been sued by Mrs. Elizabeth Hoyle for \$10,000, for damages sustained in the loss of her husband, whose death occurred last February, and was due, Mrs. Hoyle claims, to negligence in sending Mr. Hoyle on top of a kiln roof which was known to be weak, and which collapsed under his weight.

O. N. Townsend, vice-president and general manager of the T. B. Townsend Brick and Contracting Company, Zanesville, Ohio, writes that business has been very good with his firm; in fact it is one of the best seasons, he says, that it has ever had. The company's product is chiefly paving block, and there has been a good healthy demand for the Townsend block all summer, and the prospects are now that the demand will continue indefinitely.

Mr. Herbert Somers, of the Somers Brick Company, Atlantic City, N. J., is anticipating a busy building season this fall. He thinks that many people with unimproved property will take advantage of the present low cost of building and improve their property. To provide for this the management has been operating the brick plant to its full capacity, in order to accumulate a stock and be prepared for future orders.

The company has on hand a stock of 6,000,000, and is making brick at the rate of 70,000 a day.

Klein Brothers have sold their brick plant at Chaska Minn., to Greiner & Corning. The purchase price was \$40,000.

The Gold Brothers Brick Company, of Big Stone, N. D., will increase the capacity of their plant by building some additional kilns and remodeling the dryer.

After making a number of tests of clays in that vicinity, all of which have proven successful, Matthews & Morrison, of Hooker, Okla., will at once begin the erection of a modern brickmaking plant.

The Bonnot Company, Canton, Ohio, recently sold an outfit to the Indiana Fireproofing Company, Brazil, Ind., consisting of a No. 6 combined machine with dies, 9-foot dry pan, piano wire screen, elevator, and cutter.

James W. Wagner has disposed of his interest in the Marengo Brick and Tile Works, Marengo, Iowa, to E. O. Lovett, of Garden Grove. Mr. Lovett will not take possession of the plant until the first of next month.

C. H. Cleveland, a brick manufacturer, of Humboldt, Kans., contemplates engaging in the brick business at Ardmore, Okla., either buying an interest in the plant now owned by Mr. C. C. Frampton, or going into business for himself.

John W. Parker, president of the Bonita Brick Company, Meridian, Miss., was recently elected mayor of his town. Besides being successful politically, Mr. Parker has been successful in a business way, as his plant has had a very successful season.

Frank L. Stiles, of North Haven, Conn., well known to the older members of the National Brick Manufacturers' Association, is a candidate for Senator in his district on the Republican ticket. Mr. Stiles has served one term. Here's wishing him success.

At a stockholders' meeting of the Baldwin County Brick and Pottery Company, Milledgeville, Ga., the following officers were elected for the ensuing year: E. L. Barnes, president; J. E. Pottle, vice-president; A. A. Vaughn, secretary and general manager, and L. C. Hall, treasurer.

The Stevenson Company, Wellsville, Ohio, recently built and shipped to the Standard Reduction and Chemical Company, of St. Louis, Mo., a complete outfit of machinery for a big garbage plant, consisting of an 8-foot garbage pan complete, and a large 30-inch stroke, belt-driven garbage press with three cylinders.

I. G. Poston has changed his plans, and instead of locating a paving brick plant at Newport, Ind., as announced recently, has purchased a tract of land at Martinsville, Ind., where he will erect an immense paving brick plant. It goes without saying that with Mr. Poston in charge, the plant will be first class, and a model in every respect.

Operations have been resumed at the Fort Scott Brick Company's plant at Fort Scott, Kans., after a couple of weeks' shutdown, during which new machinery has been installed, and the capacity of the plant increased from 20,000 to 60,000 brick per day. The company has recently booked a number of orders for paving brick to be shipped to Nevada towns.

Harold Copping, of Chase City, Va., has severed his connection with the combined firms of G. W. Fleming Company and the Leader Specialty Company, of Bradford, Pa., and to the many clayworkers whom he has had the pleasure of visiting during recent months, will say that he hopes to see them all again personally at the next convention of the N. B. M. A.

The Chicago Retort and Fire Brick Company, Chicago, Ill., has sent out specifications for a new addition to their Brickton plant that will cost, when completed, about \$15,000. The new building will be 152 feet long by 118 feet wide, and will be constructed of concrete and brick. It will practically double the dry room capacity of the plant, and will completely cover the present dryer, boiler house and blower room.

Inquiry at the office of the Stevenson Company, Wellsville, Ohio, whose sewer pipe and brick machinery is so widely and favorably known, elicits the information that their plant has been running steadily the year through, with but slight reduction in force and time. Had not a number of plants for which they had signed contracts fallen through, because of inability to finance the enterprises or other good and sufficient but

(Continued on page 422.)

NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to *The Clay-Worker* who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With *The Clay-Worker*, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.

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unfortunate causes, full force and full time would have been necesary for the output.

The Universal Brick Company, of Ottawa, Ill., has been incorporated by N. J. Cary, C. A. Cary and A. E. Preuss, with \$200,000 capital stock.

The new Youngren kiln at the plant of the Hankinson Brick Company, Augusta, Ga., is nearly completed. This will enable the company to greatly increase their capacity.

John B. Rose, the well-known and popular Hudson River brick manufacturer at Roseton, N. Y., is the Republican nominee for Senator in the Twenty-fifth Senatorial District of the Empire State.

Burglars blew open the safe and wrecked the office furniture of the Jova Brick Company at Roseton, N. Y., causing several hundred dollars' worth of damage, and secured only \$3.50 for all their trouble.

F. O. Corbin, who has been general manager of the Carbon Cliff Argillo Brick and Tile Company for some years, has resigned to become president of a new company which has been organized at Sheffield, Ill.

The Deckman-Duty Brick Company, Cleveland, Ohio, has recently placed an order for additional machinery, consisting of a dry pan, repress and screens. This business went to the Bonnot Company, Canton, Ohio.

The Jonesburg Clay Company has been incorporated by Wm. P. Trefny, Edward G. Bech and John M. Dickson, of St. Louis, Mo. The main office of the company will be 426 Pierce building, and the plant will be located at Jonesburg, Mo.

The John Doyle Brick Company, Utica, N. Y., recently booked an order for 4,000,000 brick for public buildings at Wampsville, N. Y. There were fourteen other bidders for the contract. This order will keep the company running full-handed during the winter months.

Mr. Roy G. Smith, 305 New York Life building, Kansas City, western representative of the Bonnot Company, Canton, Ohio, has recently sold represses to the Southwestern Brick Company, Cherryvale, Kans., and the Coffeyville Vitriified Brick and Tile Company, of Coffeyville, Kans.

The Lane Brickyard at Zanesville, Ohio, has been sold to W. H. Shoemaker, of Roseville, Ohio. It is the intention of the new owner to increase the capacity of the plant, and a large number of men will be given employment. New machinery will be installed and additional kilns and buildings erected.

The large brick and tile works owned by S. K. Leacox at Keota, Iowa, were almost completely ruined by fire. The big machinery room, which also included the office, was completely destroyed, together with all the machinery and office fixtures. The loss is estimated at over \$15,000, with insurance to cover only part of the loss.

Cottonwood, Okla., is to have a new brick plant, as a company of local business men has been organized to build and operate a yard. P. E. Schultz, the Rev. Father Bartholdt, Dr. G. W. Turner and Charles Mader hold a majority of the stock. A plant will be built two miles west of Cottonwood, where excellent clay beds are located.

Edwin T. Mayo, manager of the Hampden Brick Works, Springfield, Mass., died suddenly at his home in that city, September 28th, of a complication of heart and kidney troubles. Mr. Mayo had been in poor health for a year, but had never given up his work. He leaves a widow and one daughter.

Joseph Loeb, manager and secretary of the Buckeye Fire Clay Company, of New Philadelphia, Ohio, died in a hospital at Cincinnati, Ohio, September 23, following an operation for cancer of the tongue. Mr. Loeb was born in Germany fifty-seven years ago, and came to America when quite a young man and settled in Ohio.

The plant of the sand-lime brick plant of the Diamond Brick Company, Fort Wayne, Ind., was completely destroyed by fire last month. The plant had been idle for some time, and a movement was on foot to sell the same, so fire had been started under the boilers, in order that the prospective purchasers might see the plant in operation, and, in some unaccountable way, while the watchman was absent from the plant for a few hours, the fire started and gained such head-

way that it could not be controlled. The loss is partly covered by insurance.

D. H. Lord, M. E. Secerance and A. Carr, all of Minot, S. D., have incorporated the Denbigh Pressed Brick Company, with \$50,000 capital stock.

The Brooks Brick Company, of Brewer, Me., has added a department for the manufacture of drain tile to their plant. There is a good demand for tile in that vicinity.

Horace M. Siner, of the firm of Siner Brothers, brick manufacturers, of Philadelphia, Pa., has purchased a tract of land at that place comprising fifteen acres, on which he will erect a brick plant.

F. A. White, superintendent of the Versailles Fire Brick and Clay Company, Versailles, Mo., is quite jubilant over an order to furnish the United States Government with 100,000 fire brick for the Panama Canal.

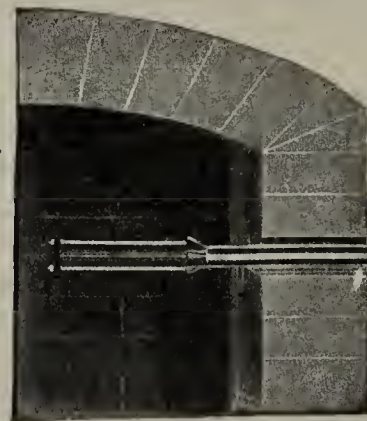
Bagley & McDonald is the name of a new firm recently formed at Meriden, Conn., where they are making preparations to build a large brickmaking plant which will be ready for operation in the early spring. The plant will have a daily capacity of 40,000 brick.

The Wise Coal Company, of Bridgeport, Texas, is installing an outfit of machinery for the manufacture of brick from the shale which is found on its property. This business was placed with the Bonnot Company, at Canton, Ohio, through its agents, the Chicago Brick Machinery Company.

George Courtney and J. L. Skeene, of Victoria, B. C., will erect a large plant for the manufacture of pressed brick at Sydney Island, near Sydney, B. C. The plant will be equipped with modern machinery, and, as the opportunities for shipment are excellent, the success of the venture is assured.

The Girard Brick and Tile Company, of Girard, Kans., has been chartered, and the construction of the plant will begin at once. They hope to have the plant ready for operation by the first of the year. The officers are: J. R. Carpenter, president; W. J. Vane, secretary, and H. R. Hadley, treasurer. H. C. Hermann, a brickmaker of many years' experience, is superintendent.

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

EDWARD
BROWN
& SON,
311
Walnut St.,
Philadelphia,
Pa.

Hampton's Patent Down-Draft Kilns

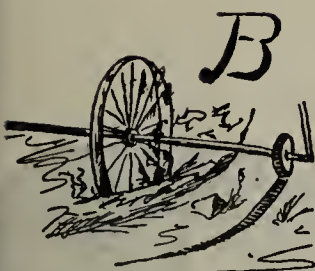
BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

Pittsburgh Kiln Construction Co.,
1251 Morse St., N. E., Washington, D. C.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



BUSINESS ALONG the Hackensack has been going on rather more actively during the past month and shipments have been heavier all the month through. Several schooners have been loaded at the different wharves and the market has been better in all directions. Several of the yards are getting out their last burnings and shipping them to New York or elsewhere. Of course the conditions which govern in New York control the situation along the Hackensack. The market is only thirteen miles away and the outlook there will determine what will be done here before next spring.

Building permits issued in Paterson have been heavier during the past month than through all the rest of the year together. The total for 1908 will not be far from the average for the usual run. These permits include all classes of buildings, excepting public structures. Important flat buildings and other structures which will be used for either residence or business purposes make a respectable total and supply a demand for considerable quantities of brick.

In Newark the building permits so far have gone ahead of September and October of last year, and there are likely to be a good many more before the month is over. The quantity of brick used will depend upon the character of the buildings, but it is certain that within the city limits brick will be the principal source of construction.

Jersey City has seen an increase in building permits, and this holds equally good of the suburban district of Jersey City, which includes some important towns; towns which closely approach cities themselves. All through this section of the state, that portion which is contiguous to New York and receives the greatest benefit from the opening of the tunnels, the building operations have been provided for upon a greatly enlarged scale.

The great public work which is shortly to be undertaken is the construction of the long deferred trunk sewer to connect the Passaic Valley with the waters of the Atlantic ocean. Paterson, the last obstacle in the way, has at last decided to go in and it only remains to complete the details before work begins. It will be the biggest trunk sewer in this country and will be approximately twenty-five miles long and will take the sewage from a population running into the hundreds of thousands. It will, therefore, be of vast importance in various ways and the quantity of brick required for it will be something enormous.

Gov. Fort doesn't seem disposed to permit the project for building an immense boulevard along the ocean from New York to Cape May, a distance of one hundred and twenty-five miles, drop. He is advocating it everywhere he goes and there is plenty of support from property owners all along the line. Some owners have offered the right of way without charge, provided the roadway is constructed. The material of which it is to be built has not been considered in the estimates, but there is an excellent opportunity for brick men to do some missionary work which might redound to their personal benefit later.

Bergen county is talking about the construction of a bridge across the Hudson to land upon the west side within the limits of the county and then construct the roadway from that to connect with the one proposed by the Governor. Of course it is impossible to even approximately determine what will be done, but that something will come out of all this discussion seems quite certain. It remains for time to determine what. Meanwhile brick men can do no better than to urge this construction, never forgetting to add the suggestion that brick be used in the work.

The brick plant at Kingsland, now owned by the New York and New Jersey Brick Company, has resumed operations under the new management with one hundred hands at work. Mrs. William F. Kenney, wife of the president of the company, opened the throttle early in October and business has proceeded rapidly ever since. The firm intends to build a number of brick houses in the vicinity for the accommodation of their employees.

A. L. B.

The Ceramic Supply & Construction Company

CONTRACTING ENGINEERS AND MACHINISTS

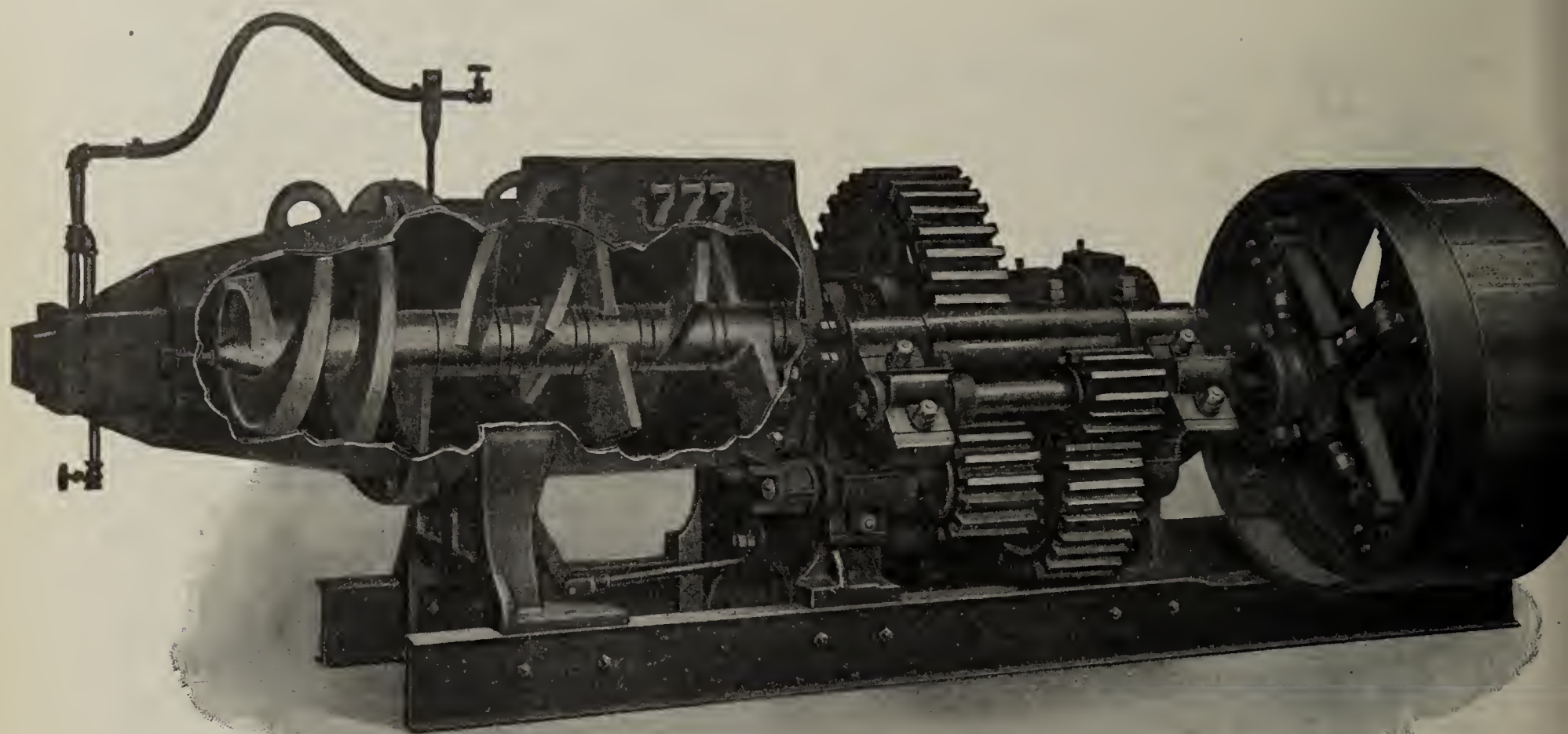
MANUFACTURERS OF

Special Clayworking Machinery, Labor-Saving Devices and Controlling Apparatus for Power Plants, Factories, Dryers and Kilns. Molds and Dies and Machinery Repairs. Dealers in Materials and Supplies for the Clay Industries. Builders of Dryers, Kilns and Complete Plants for the Manufacture of Clay Products.

Write us in regard to your proposed improvements and any new equipment wanted. We are mechanical experts and specialists in these lines, and our services are at the command of our customers. Watch this space for new apparatus and machinery.

SEND FOR CATALOG

280 North Front Street :: Columbus, Ohio.



RAYMOND "777" BRICK MACHINE.

Over six million brick made every day on the famous Raymond "777" Brick Machine.

It is the embodiment of strength, durability and performance—so with all of our manufacture.

We issue the following publications which may be obtained upon application to our Publicity Department:

GENERAL CATALOG

CATALOG OF DRAWINGS AND SPECIFICATIONS

"Smiles."

Exhibits

- 2040. Nine-foot Heavy Duty Dry Pan.
- 2042. No. 2 Rotary Automatic Cutting Table.
- 2044. "999" Brick Machine.
- 2045. Perfection Hand Represses.
- 2046. Clay Conveyors.
- 2047. Four Roll Crushers.
- 2049. Niagara Hollow Ware Machine.
- 2052. Victor Repress.
- 2053. Granulators and Bevel Geared Pug Mills.
- 2055. Clay Elevating Machinery.
- 2056. Portable Track.
- 2060. Roofing Tile Designs.
- 2061. Dry Presses and Dry Press Machinery.
- 2062. Automatic Tile Cutter.
- 2063. System of Open Air Drying.
- 2069. Peerless Smooth Roll Crusher.
- 2070. No. 3 Brick and Tile Machine.

Exhibits

- 2071. Standard Pug Mills.
- 2072. Single Geared Pug Mills.
- 2075. Semi-Automatic Cutter.
- 2077. Radiated Heat Dryer.
- 2078. Soft Mud Machinery.
- 2079. Belt Apron Type Clay Elevator.
- 2080. "555" Brick Machine.
- 2081. Automatic Wet Pan Emptier.
- 2082. Piano Wire Screens.
- 2083. No. 1 Automatic Cutter.
- 2084. Dryer Cars.
- 2085. No. 3 Hand Dry Press.
- 2086. Automatic End Cutter.
- 2087. "777" Brick Machine.
- 2088. Hoisting Apparatus.
- 2089. No. 2 Combination Brick Machine.

THE C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

The Largest Exclusive Builders of Clay Working Machinery in the World.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—Experienced superintendent for a building brick plant. Give references. Address C. W. R., 10 3 L Care Clay-Worker.

WANTED—Dryer cars; double-deckers for brick and tile. Also 16 or 20-pound rails. Address TWIN, 10 1 d Care Clay-Worker.

WANTED—We want to purchase a 9-foot iron frame dry pan. Also two 50 h. p. boilers and one 75 h. p. boiler. Address CANTON, 10 1 d Care Clay-Worker.

WANTED—Position in central west or southwest as superintendent or head burner. Experienced in making and burning dry press and stiff mud brick with coal, gas or oil. Address R. F., 10 1 cm Care Clay-Worker.

BRICK MACHINE FOR SALE. A Penfield end-cut; capacity about 30,000 per day. Good condition. Apply to WINFIELD FREEMAN, 650 Minnesota ave., Kansas City, Kans. 10 2 c

AN OPPORTUNITY. Five thousand dollars bonus and free site for stoneware and sewer pipe factory. Clay makes fine stoneware. Three railroads, cheap fuel. No such plant in Oklahoma. Address W. H. EBEY, 10 1 cm Care Clay-Worker.

TO BRICK MANUFACTURERS—I have a very simple means of preventing face brick from becoming coated or discolored on exposure to the weather or dampness. The substance is added to the clay during the mixing. Has been thoroughly proven. For particulars, address A. M. L., 10 1 1 pm Care Clay-Worker.

FOR SALE. Dry pressed brick plant in first-class condition, running right along. Capacity, 20,000 per day. Market for output by wagon. Has been paying 6 per cent. Must be seen to be appreciated. Ground when graded will be worth \$100,000. Nothing like it in the country. Good reasons for selling. For full particulars, address B. W. W., 10 1 dm Care Clay-Worker.

WANTED. A practical man to join local capital in putting in a first-class vitrified brick plant at Pittsburg, Kans., the place where the best brick in the United States are made. Unlimited shale and fuel, best shipping facilities and market. Established reputation. If you have no money to put in it, don't answer. This is a business deal; no promoter's scheme. Address SMITH & MILLER, Pittsburg, Kans. 10 1 cm

FOR SALE. Brickyard in a town of 2,000 inhabitants in the State of Maryland. About four acres of land, two open top kilns, boiler, engine, Old Reliable soft mud brick machine, and about 45,000 pallets. Brick sheds, molds, barrows, trucks, etc. About 100 yards from railroad station, and one-fourth of a mile from navigable salt water river. About 200,000 brick sold at kilns from \$7.00 to \$10.00 per thousand. Plenty of demand for surplus stock. Price, \$1,700; one-half cash or all cash. The ground alone ought to retail for more than this amount for building lots after clay has been taken off. Address C. H., 10 1 cm Care Clay-Worker.

WANTED—An experienced and competent manager or superintendent for a paving brick plant. Address OHIO, 10 3 L Care Clay-Worker.

FOR SALE—A well-equipped soft mud brick plant at Princeton, Ind. Daily capacity, 25,000. A bargain. Present owner recently stricken with paralysis. Address CHAS. READ, Oakland City, Ind. 10 3 cm

FOR SALE—One four-mold Boyd dry press, in first-class condition, and three trucks. Reason for selling: Clay makes better stiff mud brick. Address DILLONVALE BRICK AND TILE CO., 10 1 c Dillonvale, Ohio.

WANTED—Position as foreman or head burner by a brick and tilemaker of fourteen years' experience. Am familiar with every system and all machinery. Can burn successfully with either gas, coal or wood. Address W. W., 10 1 d Care Clay-Worker.

FOR SALE. One two-mold Simpson dry press machine. One E. M. Freese & Co. board delivery cutting table. Address DUNLAP MFG. CO., Bloomington, Ill. 10 1 f d

FOR SALE—One hundred and twenty-one steel nine-slat single-deck dryer cars in excellent condition; one Chambers auger machine, 40,000 daily capacity, used only about four months, and a Bensing side-cut brick cutter. Changing yard from stiff mud to soft mud. Address "K," 10 1 L Care Clay-Worker.

WANTED—Position with a building brick plant. Am thoroughly experienced in the work from burning to management. Have also had experience in installing brick machinery, and building to plans and specifications. Can burn with wood, coal or gas. Address PITTS, 10 1 d Care Clay-Worker.

FOR SALE—Modernly equipped brick and tile plant. Northern part of Indiana, on two railroads. Capacity, 50,000 brick per day; steam drying, 150 h. p. boiler, 100 h. p. engine and 31½ acres of land. Over 80 feet of clay. Building 43x156 feet, with three drying floors. Great demand for brick and tile. Reason for selling, inexperienced. Address O. E. D., 10 1 cm Care Clay-Worker.

FOR SALE. One American Blower Company 200-inch, three-quarter housed, left-hand, bottom discharged, steel plate fan, with overhung wheel. Two American Blower Company 54-inch flanged ventilating fans. CHAMBERS BROS. COMPANY, Fifty-second and Media sts., Philadelphia, Pa. 9 1 L

FOR SALE. I am interested in a very valuable mine of Fuller's earth and kaolin, recently discovered in one of the southern States, and would like to sell a controlling interest to some party who would develop it and place the product on the market, which can be done very cheaply. Samples of material will be sent on application. Address T. E. FLOURNOY, Monroe, La. 9 3 cm

RECEIVER'S SALE. The plant of the Perth Amboy Ceramic Company will be offered at public sale October 17, 1908. Ceramic ware, principally wash trays and sinks, have been made here for years. Fully equipped with molds and machinery, and raw material on hand to work with. Three muffled kilns could be used for terra cotta. Fine shipping facilities. See product in Sweet's Index. For particular, address CHAS. K. SEAMAN, Receiver, Perth Amboy, N. J. 10 1 d

WANTED—Competent man to superintend a drain tile plant. State experience. Address DAY, 10 3 L Care Clay-Worker.

FOR SALE. About 125 single deck iron cars for drying brick. Used very slightly; good as new. Will sell part or all of them. For particulars, address 8 3 d Box 304, Liberty, Mo.

FOR SALE—In No. 1 condition, Adrain No. 2 machine; tile dies complete, 3 to 12 inches; at one-third of factory cost. Address ILLINOIS, 10 1 cm Care Clay-Worker.

FOR SALE—Two hundred and twenty cast iron flat cars for brick dryer. Cars are roller-bearing, and have been used but a short time. Address SOUTHERN BRICK AND TILE CO., Louisville, Ky. 9 3 c

WANTED. To interest a practical man in our brick and tile plant. Well-established business. Correspondence solicited. Address "BELL," 9 4 dm Care Clay-Worker.

FOR SALE—Hercules Senior brick machine, Horton mold sander, pulleys, shafting, etc. Also 24,000 wooden pallets, 10 by 32 by 5-8. Address JNO. B. FOX BRICK CO., Toledo, Ohio. 8 3 c

FOR SALE. Three-quarter yard traction type Vulcan Little Giant steam shovel in thorough repair. Price reasonable, terms easy. Address H. D. COOPER & SONS, First National Bank bldg., Nashville, Tenn. 9 3 dm

FOR SALE. One 9-foot dry pan, iron frame. One revolving screen. T. B. TOWNSEND BRICK AND CONTRACTING CO., Zanesville, Ohio. 8 1 f d

WANTED. A competent man for machinery salesman, one who has some knowledge of the clay business. Must be sober, ambitious, and of good address. State experience. Address "RAY," 9 3 L Care Clay-Worker.

WANTED. Clayworkers who are having troubles of any sort in the operating features of their plant, whether in the making, drying or burning, to know that my experience of twenty-five years enables me to give valuable practical advice that will prevent further loss and trouble, if skill and knowledge as a practical worker and chemist can accomplish that purpose. Terms reasonable and contracts made contingent upon success. Address J. J. KOCH, 5 1 f L 3325 Caroline st., St. Louis, Mo.

FOR SALE—ENGINES AND BOILERS. —Engines—

Corliss and Automatic—20x42 Allis, 18x42 Hamilton, 18x36 Wright, 16x32 Buckeye, 14x24 Atlas; also 12x30, 10x30, 13x16, 13½x15, 12x18, 12x14, 12½x12, 10x10, etc., etc. Throttling—18x26 H. S. & G., 18x24 Erle City, 16x20 Chandler & Taylor, 14x24 Atlas, 14x14 Vertical, 12x18, 11x16, 10x16, 10x12, 10x10 Vertical, 9x12, 8x16, 8x12, etc., etc.

—Boilers—Horizontal Tubular—84x18, 78x16, 72x18, 72x16, 66x16, 60x16, 60x14, 54x16, 54x15, 48x14, etc., etc. Fire Box—60, 50, 40, 35, 30, 25, 20, 16, 14, 12 and 10 horse power, etc., etc. Vertical—55, 35, 30, 20, and 15 horse power, etc., etc. Pumps, heaters, tanks, saw mill and general machinery. THE RANDLE MACHINERY CO., 1735 Powers st., Cincinnati, Ohio. 10 1 f d

Continued on page 426.

FOR SALE—About 3,000 brick pallets as good as new and a lot of racks cheap.
KELLY BROS. LUMBER CO.,
101 dm Cairo, Ill.

FOR SALE.

I have fifty acres of fine clay suitable for the manufacture of red face brick. The property is located within thirty miles of New York, near tidewater. Write for full particulars and price. Address
C. A. B.,
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FOR SALE.

6 "Little Giant" Traction Shovels.
Dredges for clay swamp, 1/2 yd. to 2 1/2 yd.
Locomotives, cars and rails for up-to-date clayworkers.
We buy and sell.

THE MALES CO.,
26 Cortland Street, New York, N. Y.,
1508 First Nat'l Bank Bldg., Cincinnati, O.



SWITCHES FOR SALE.

Right and left-hand one, two and three way switches of various gauges, radius and weight rails at special prices.
THE ATLAS CAR AND MFG. CO.,
Cleveland, Ohio.

DO YOU WANT TO SELL OUT?
DO YOU WANT A PARTNER OR MORE CAPITAL?
DO YOU WANT TO EXCHANGE PROPERTIES?
DO YOU WANT TO BUY A BUSINESS OR A FARM?
I BRING BUYER AND SELLER TOGETHER.
ESTABLISHED 1881.
If you want to buy, sell or exchange any kind of business or real estate, anywhere at any price, address
FRANK P. CLEVELAND,
965 Adams Express Building,
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I Make Dividends.

A competent and experienced superintendent wants to correspond with owners operating brick factory where satisfactory results are not being obtained. Party has successful record of having put a number of concerns on a good dividend paying basis by reason of proper experience and management of plant, and can give the very best of references to this effect. Correspondence solicited and same will be strictly confidential. Best of references exchanged. Address
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Shale-Fire Clay-Coal

FOR SALE—22 miles from St. Louis.

18 to 42 ft. Shale=15% Alumina, 64% Silica.
9 to 11 ft. Fire Clay=30% Alumina, 50% "
2 to 4 ft. Coal—Guarantee 600,000 Tons.
Fire Clay—Shale adapted for cement, and plenty of Limestone on the Land.
Analysis shows Shale will make

PAVING BRICK.

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FOR SALE—Two hundred and seventy dryer car pallets, 35 inches long, 37 inches wide. Eight 2 1/2-inch channels to the pallet, riveted to four 1/4-inch cross pieces. Cheap. Address
THE BARR CLAY CO.,
93 d Streator, Ill.

FOR SALE—Seventy-five tripple deck drain tile wooden dryer cars, roller bearings, 31-inch track gauge, all in good running order and now in daily use. Will hold 200 4 inch and thirty 12 inch.
KANKAKEE TILE & BRICK CO.,
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SPLENDID LOCATION FOR BRICK PLANT.

Inexhaustible supply of clay suitable for high grade paving, red and buff pressed building brick and tiling. Our city located in middle west, on two transcontinental railroads, with excellent shipping facilities. Will offer substantial inducement for erection of brick plant. Another city in North Carolina also will offer interesting proposition. For full particulars, address
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FOR SALE.

My stock in Charleston tile and brick plant. The greater part of the stock is owned by home people as an investment. I wish to sell my interest and retire from the management. This is a grand opportunity for one with a small amount of money and a good amount of experience and ability to manage the works. Address
S. H. RECORD, Pres. and Mgr.,
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FOR SALE.

One three-mold Boyd dry press.
One three-mold Andrus dry press.
One two-mold United States dry press.
One Freese stiff mud machine, A Special.
One Standard board delivery cutting table.
One Freese 8-foot pug mill.
One "Centennial" stiff mud brick machine.
One Fernholtz 42-inch pulverizer.
One 6-foot iron frame mixer.
One pair crusher rolls. (Corrugated).
One Chandler-Taylor 10x12 steam engine.
Good as new. Has developed 40 h. p.
One 8x12 steam engine. Good condition.
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Third National Bank bldg.,
8 tf dL St. Louis, Mo.

An Opportunity of a Life Time.

Will Sell at a Low Figure and on Easy Terms.

An up-to-date brick plant located on the James River, Va., and in easy touch by water with eight rapidly growing cities.

Brick bring \$7.00 at kiln and future outlook is excellent.

The outfit consists of Henry Martin soft mud machine, 50,000 per day capacity, with latest patent steam drier. Also J. D. Fate Co.'s stiff mud outfit 25,000 per day capacity, with Scott's patent cars. All practically new.

New and commodious dwellings for manager and laborers. Not a better equipped yard in the state. Twenty or more acres of finest plastic clay, average depth fifteen feet and burns cherry red in five days. Cheap fuel and labor, with low freight rates and a mild climate offer a combination seldom met with. The improvements have cost \$16,000. Reason for selling, am not myself a brickmaker; bought to protect my own interest. Write for full particulars. Address
BOX 5, Care Clay-Worker.

NOTICE AND WARNING.

We observe that one A. O. Jones of St. Louis, Mo., is advertising that he has invented and is on the market with a brick setting machine. We have notified him that his whole scheme is a copy and infringement of our patents, inventions, and machines, and that he must not use his alleged patent or permit any one else to do so without authority from the undersigned.

This will be direct notice to the public that the use of his machine is an infringement upon our patents, and we will legally protect our rights by prosecuting any users of his machine.

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CHAS. FRANCIS,
Coffeyville, Kansas.

Uniform Wires

Loops Double Twisted
Wires Straight—Ready for Use



Cutting Wires For Brick Machines



Chambers Bros. Co., Philadelphia, Pa.

ANY GAUGE, ANY LENGTH OF WIRE MADE TO ORDER
Send us your specifications for our quotations

DOVER FIRE BRICK CO.,

509 Cuyahoga Building, Cleveland, Ohio.

Operating plants at North Bend, Clinton County, Pa., and Strasburgh, Ohio.

"NORTH BEND." "DOVER." "BUCKEYE."

We have been furnishing fire brick for kilns for over forty years.

WRITE US FOR PRICES.

THE SOUTH DEMANDS!

The Best

FIRE BRICK

FOR KILN CROWN AND LININGS.

WE MAKE THEM!

SOUTHERN CLAY PRODUCTS CO.,

Chattanooga, Tennessee.

The Improved Flue System.

The most profitable kiln on the market for burning any clay product.

Absolute Draft Control. Economy of Fuel and Time.
All Hard Brick.

Kiln and Yard Rights, with Plans, Specifications, etc., sold at very reasonable rates. Booklet, estimates and full information cheerfully furnished.

GEO. E. SNOWDEN & CO.,

[Formerly J. P. Bradley & Co.]

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DO YOU NEED MODELS or MOULDS?

We can furnish you with them for any line of clay products, ornamental or plain. Plaster-blocks and cases made to order. First class work guaranteed.

IRONTON CLAY SPECIALTY CO.,
Ironton, Ohio.

See additional ads under Table of Contents.



They Never Fade

Twenty Long Years

of time and weather have tried out Ricketson's famous Red Brick brand

COLOR

For Mortar, Brick, Cement, Stone, etc. Proved to be absolutely permanent. Red, Brown, Buff, Purple and Black.

Ricketson's Mineral Paint Works,
MILWAUKEE, WIS.



Elevator Buckets

All sizes, shapes and weights for handling any material. We are Sole Agents for

Genuine Salem Buckets

made only by W. J. Clark Co., Salem, Ohio. Fill readily, carry maximum load, empty clean.

Belts, Chains, Pulleys, Sprocket Wheels, Shafting, Bearings, Other Kinds of Buckets, Etc.

H. W. Caldwell & Son Co.

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CHICAGO

NEW YORK: Fulton Bldg.,
Hudson Terminal, No. 50 Church St.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick, and gives valuable recipes. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. "Vitrified Paving Brick," \$1.00; tells all about the best materials for and methods of manufacturing paving brick. All or any of these books mailed postage prepaid, on receipt of price. Write for list of other valuable books for clayworkers. Address, T. A. RANDALL & CO., Indianapolis, Ind.

Terms First-class
reasonable. references.

If you have trouble with Clay, Machinery
or Kilns, then consult

THE BRICKMAKERS' ADVISOR,

Julius J. Koch,

(25 years practical experience)

3325 Caroline Street, St. Louis, Mo.

Special attention paid to dry clay press
processes and down-draft kilns.

Contracts made contingent upon suc-
cess.



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All patents taken out by me are advertised FREE in the leading mechanical, electrical and scientific magazines in the country.

Write for my special offer for obtaining Patents, Trade-Marks, Designs, Copyrights, etc. 20 years experience. Best references.

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LACLEDE=CHRISTY FIRE BRICK

"CHRISTY" PLANT
formerly
Christy Fire Clay Co.

Are the Best for

"LACLEDE" PLANT
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BUILDING KILNS.

Laclede=Christy Clay Products Co., St. Louis, Mo.

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**Fire Brick for
Building Kilns.**

Factories:
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ST. LOUIS, U. S. A.

Sewer and Culvert Pipe. Locomotive Tile.
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Flue Lining and Chimney Pipe.
Sanitary Earthenware. All kinds of Fire Clay Products.

"Mitchell St. Louis No. 1"

Brand of

FIRE BRICK

Awarded Gold Medal at St. Louis for
Kiln Construction.

— Made by —

MITCHELL CLAY MFG. CO.,

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ST. LOUIS, MO.

\$2.00 THE CLAY-WORKER \$2.00
ONE YEAR, (IN ADVANCE)

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MANUFACTURERS OF
MUSIC WIRE NEEDLE WIRE

NEW BRUNSWICK, N. J.

We manufacture BRICK AND TILE CUTTING WIRE, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.



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H. L. JACOBS, Gen. Mgr.

SUFFOLK CLAY COMPANY,

MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

Marion Machine, Foundry & Supply Co., Marion, Indiana:
Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

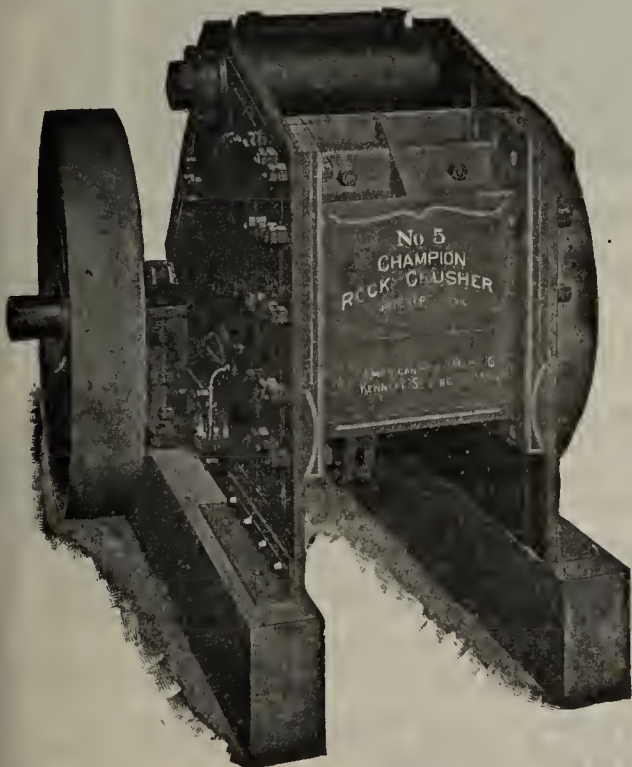
Very truly yours,

SUFFOLK CLAY CO.,

For further information address

H. L. Jacobs, Gen. Mgr.

MARION MACHINE, FOUNDRY AND SUPPLY CO., MARION, IND.



NO. 5, 11x26 CHAMPION CRUSHER.

It Looks Good

on paper.

It Looks Better

crushing shale, fire clay, rock and other hard material.

THE CHAMPION CRUSHER

is expensive, to do without, because it saves you money.

Catalogue is free on application. Address

AMERICAN ROAD MACHINE CO.

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Established by the Legislature in 1902 at the

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NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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This department, located in a large new building, is entering upon its 15th year. Substantial additions to its equipment are now in process. Its laboratories and equipment are the most complete in the country. It offers regular courses in the technology of clayworking, glass and cement manufacture, and an opportunity for a limited amount of special study in these and similar fields.

Tuition is free. Laboratory fees are low. Living expenses moderate. The corps of instructors is composed of specialists who have had good practical experience.

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PROFESSOR EDWARD ORTON, JR.,

Director of Department of Ceramic Engineering. Columbus, Ohio.

Brick Expert.

Thirteen years' practical experience. Graduate of German technical school of brick manufacture.

Will test clays and other materials and superintend the readjustment of old or installation of new machinery, etc.

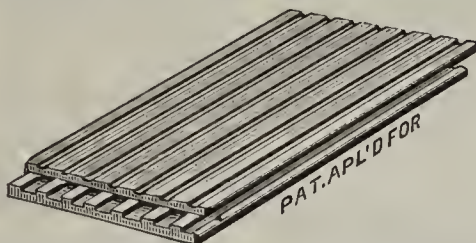
Specialty: Removal of difficulties or obstacles of operation.

Builder and operator of continuous kilns.

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Roofing Tile Machinery.



Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

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Largest Manufacturers in
United States of

Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
on application.

Chattanooga Paint Co.,
Chattanooga, Tenn.

Manufacturers of

**Red Oxides for Brick-
makers' Use.**

**Eclipse
Mortar Colors,
Red, Brown, Buff, Black.**

COLORING

All Mineralogists Know
Clinton Hematite Red
is the highest grade
Oxide of Iron.

Be sure you get the genuine, with the "Little
Yellow Side Label" on each package.

MADE ONLY BY
Clinton Metallic Paint Co.,
CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712.

205 Pearl Street.

NEW YORK.

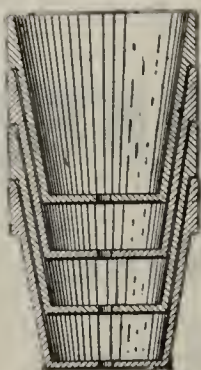
Sole Importers in the United States of the



The only preventative for scum and discolor-
ation on Facing Brick and Terra Cotta, neu-
tralizing the Sulphate of Lime in the Clay and
Water.

Circulars and Particulars on Application.

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When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

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Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

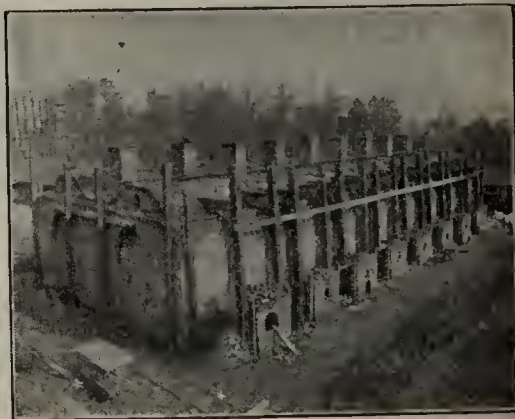
Some Claims Made for the Dennis Double Cham-
ber Down Draft Brick Kilns.

Some New Features About This Kiln.

No buck stays, rods, or braces of any kind are used,
the only metal used being furnace doors, grate bars,
and sheet iron for chimney dampers, and as outside
walls are battered, furnaces are built "within the
walls," avoiding expense of outside furnaces and the
loss of heat by radiation when in use, while the battered
side walls and double arches form a perfect brace, each
holding the other in position. In proportion to capac-
ity, these kilns can be built for less money, burned
with less fuel, and water-smoked and burned in less
time than any other kiln upon the market, except the
very costly and complicated continuous kilns, and by
chimney dampering, the heat throughout burning, is
under perfect control, and these kilns will burn with
perfectly satisfactory results, soft mud, stiff mud, dry
pressed, or paving brick, burning practically all hard.
I have kilns built under this patent, of capacities rang-
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to furnish names of users to prospective buyers.

I can surely improve the quality of your brick.
Write me for information.

Wood burning up draft kilns changed to down draft
coal burners. Brick plants installed and put into op-
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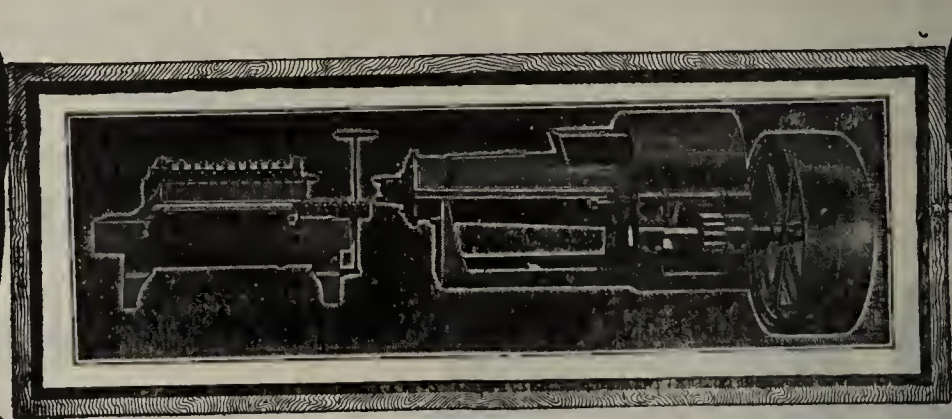


Double Up and Down Draft Kiln.

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has been the synonym of excellence in the Brick and Clay-
working industry for the past thirty years.

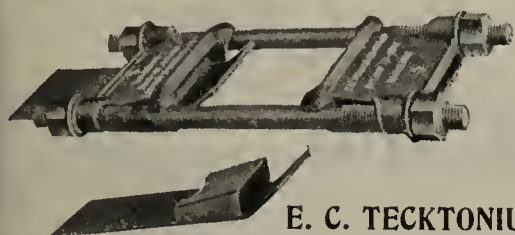
It has had few rivals and no superiors. Improved from
year to year to gain increased

Strength, Simplicity, Durability, Efficiency and Quality

of finished product, until it has reached the highest state of
the Mechanical Arts in Brickmaking.

Our new handbook will give you the detailed informa-
tion desired.

The Kells Foundry and Machine Co.
ADRIAN, MICH.



The Best and Cheapest
BAND LUG
on the market.
Write us for price.



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MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

White Pine Pallets

For Brick, Roofing Tile,
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The Best Are the Cheapest.

Send Specifications and Get Prices.

Mershon, Schuette, Parker & Co.,
Saginaw, Mich.

TRIPLE PRESSURE BRICK PRESS

The strongest and most efficient Brick Machine made, and the only Press that gives three distinct pressures to the brick.

We build and equip complete
SAND-LIME BRICK PLANTS,
SHALE AND CLAY BRICK PLANTS.

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\$2.00 THE CLAY-WORKER **\$2.00**
ONE YEAR (IN ADVANCE)

MANGANESE
FOR ALL USES.

LUMP, GRAIN AND GROUND

60-70% 70-80% 80-90% OXIDE.

CLAY WORKERS GOODS A SPECIALTY.

SAMPLES AND PRICES ON INQUIRY.

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99 JOHN ST NEW YORK, N.Y.

SUCCESSORS TO KENDALL & FLICK.

TAPLIN, RICE & CO.,
AKRON, OHIO.

Sewer Pipe and Clay-
Working Machinery.

ESTABLISHED 1862.

The Anton Vogt
Down Draft Kiln

and the

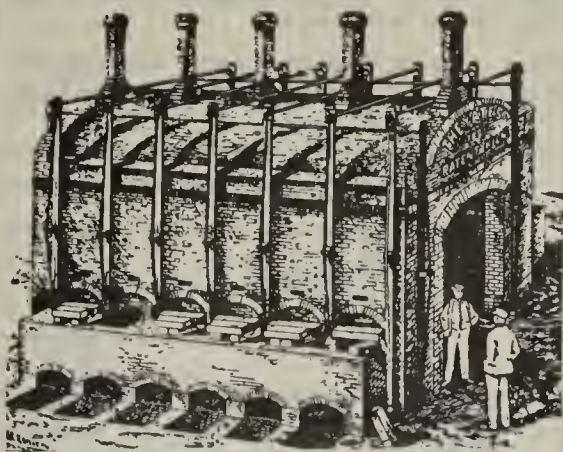
QUESTION OF THE HOUR.

Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,

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For Economy of Fuel and Percentage of Hard Burned Brick,

This kiln will give satisfaction. Constructed to burn without smoke and give an even distribution of heat, producing uniform burns.

Hot air dryer. Continuous and muffle kiln.

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SHAWMUT, PA.

Or Eastern Terra Cotta, Brick and Tile Co.,
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**You Want
to Sell
or Buy...**

**Second-hand Claywork-
ing Machinery, Tile Mills,
or anything pertaining
thereto.**

**If...
You Want
a Man**

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Trades use the**

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**The...
Clay=Worker.**

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**For all transient advertisements, such
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**The Best, Quickest, Cheapest
Method of Securing Results.**

MADDEN & CO., Rushville, Ind.

Full Line of

CLAYWORKING MACHINERY.

See two-page ad in April No. Clay-Worker.

**New Specially Designed Machine for Large
Drain Tile and Hollow Ware now ready.**

**New automatic attachment for any hand cut-
ting table.**

Send for circulars and catalogues.

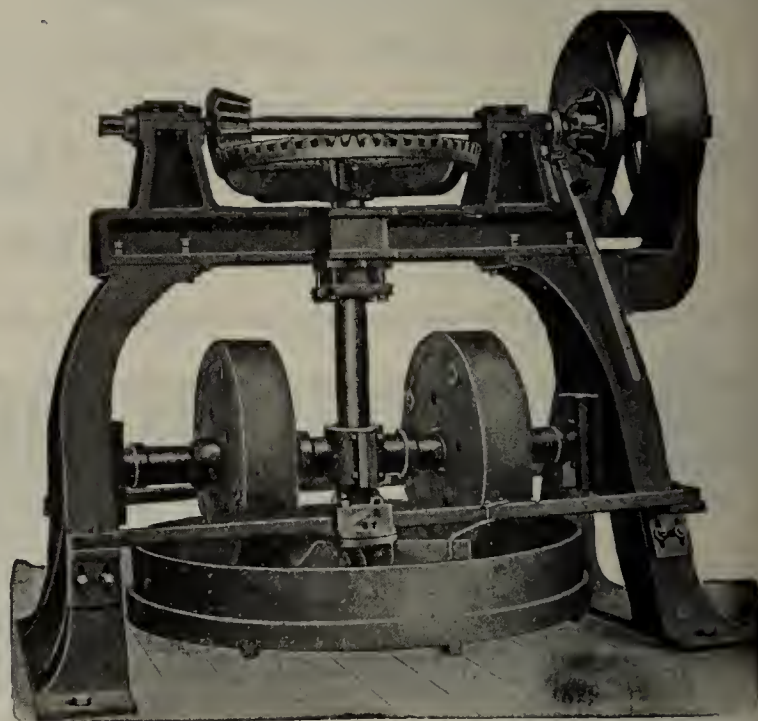
PHILLIPS & McLAREN CO. PITTSBURG, PA.

**Builders of
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Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.**

**Also
Rock and Ore Crushers.**

**When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.**

**Eastern Office,
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== To the Man Who Don't Know It All ==

THE MAN WHO KNOWS IT ALL can hardly be interested in what we have to offer. We are brick plant consultants, planning and building complete brick plants, and remodeling old ones, with but one object in view—and that is: **THE BEST POSSIBLE RESULTS FOR THE LEAST AMOUNT OF MONEY.**

¶ We inspect and appraise properties, issue complete prospectuses on clay propositions, and advise as to the feasibility of any proposed undertaking which may involve the investment of money in new plants or old ones.

¶ We are not salesmen or sales agents, have nothing to sell in the way of patent dryers, kilns, testing instruments or equipment, and we can therefore advise with absolute impartiality.

¶ Our engineers are just plain, practical brick plant consultants, who want your patronage.

LUCE ENGINEERING COMPANY

1815 THIRD NATIONAL
BANK BUILDING

St. Louis, Mo.

The

ROESSLER-HASSLACHER
CHEMICAL COMPANY,

100 William Street,
NEW YORK.

As a Preventative of Scums Use

CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese and
all Chemicals used by the Clay Trades.

ANDRUS BRICK PRESS MAKES REAL MONEY

Send for proof; also details about our Hand Presses, Dry Pans, Pulverizers, Mixers, Crushers, Elevators, Screens, Clay Plows, Clay Gatherers, Shafting, Hangers, Pulleys, Belting, Trucks, Barrows, Kiln Irons, Dryer Cars, etc. SCOTT MANUFACTURING CO., 3rd National Bank Building, ST. LOUIS, MO.

YOU CAN'T BEAT IT



RED GEM INK WRITING PENCIL.

The only satisfactory fountain pencil that writes like a lead pencil and may be carried in the vest pocket, being leak proof.

A perfect writing, ever ready Ink Pencil, dwarf size, beautiful terra cotta finish, that always writes at first touch at any angle, and retails at	\$2.50
The best of all trade papers, The Clay-Worker, for the following twelve months	\$2.00
This total value of	\$4.50

WE NOW OFFER FOR THIRTY DAYS BOTH
THIS RED, DWARF SIZE, INK WRITING
PENCIL AND THE CLAY-WORKER FOR **\$3.00**

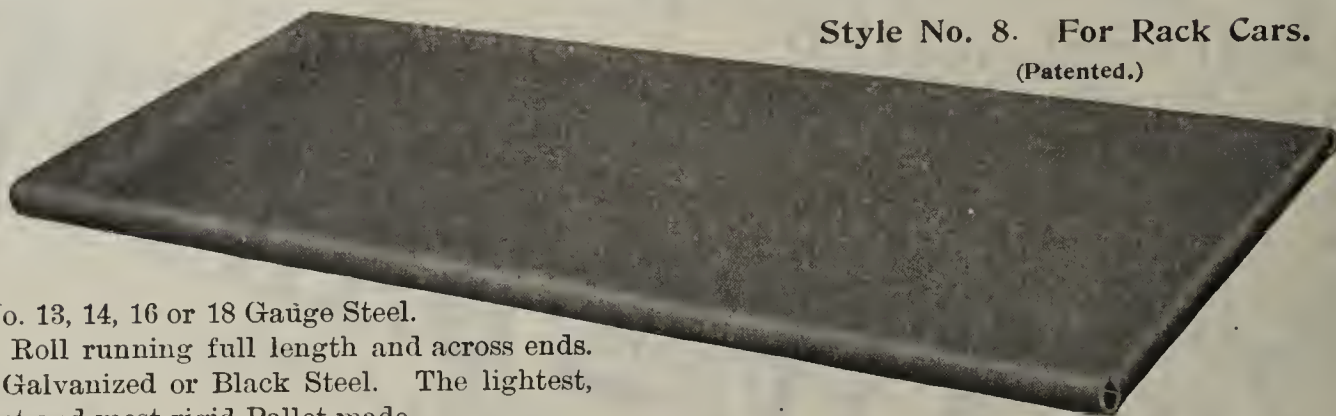
DON'T DELAY BUT SEND CHECK TODAY and get the handiest and most perfect ink writing pencil and a whole year's good reading. Address

T. A. RANDALL & CO.,

211 North Hudson Street, Indianapolis, Ind.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)

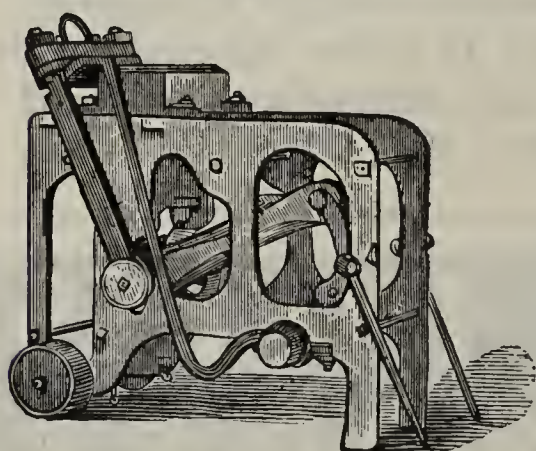


Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

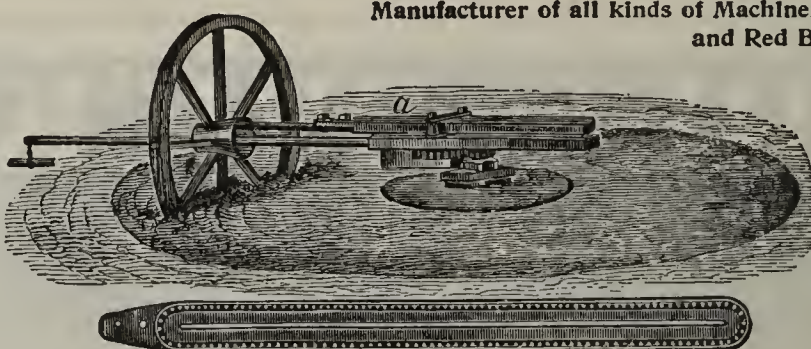
THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.



RED BRICK PRESS.



Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.

These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

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GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

The RICHARDSON-LOVEJOY ENGINEERING COMPANY,

Consulting Engineers and Factory Architects.

Geological Examination of Properties.
Chemical Analyses.
Clay Testing.
Investigation of Manufacturing Propositions.
Plants Designed and Construction Superintended.
Dryers for Any Clay Product.
Kilns of Every Type.
Faults of Manufacture Corrected.
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PUBLICATIONS.

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If you are to remodel your plant in order to make a better product and make it at a lower cost, or if you are troubled with some fault in the making of your product that is beyond the range of the knowledge and experience of your superintendent, is it not the part of wisdom and good business sense to submit your case to competent ceramic engineers, whose technical training and wide experience in handling such problems insures exemption from expensive experiments?

Expert service for special cases or by the year
at moderate prices.

TECHNICAL BUREAU FOR CLAYWORKERS,

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HAIGH'S NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning

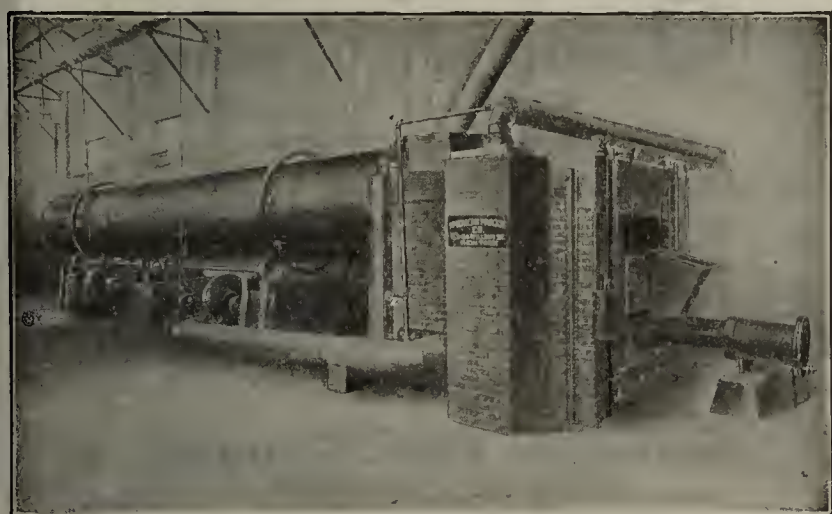
ROOFING TILE, DRY PRESSED, FACING, FIRE, PAVING AND COMMON BUILDING BRICK, and Burning from 5,000 to 100,000 Brick per Day.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

THIS KILN CAN BE FIRED WITH COAL, WOOD, OIL, NATURAL OR PRODUCER GAS.

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particulars
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H. HAIGH, Brick Works Engineer, Catskill, N. Y.



Automatic Improved DRYERS

ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

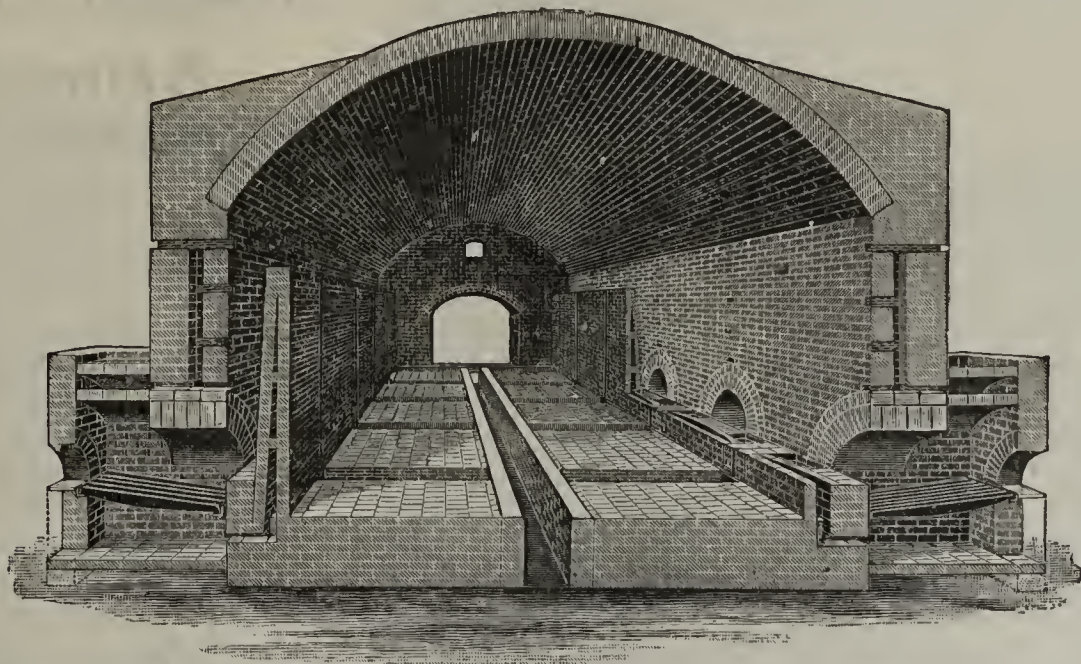
Send for Catalog "C. B."

AMERICAN PROCESS CO.,

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The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

THE BOSS SYSTEM Of Burning Brick.

We Are the Originators of the
Modern Way

Applying

AIR UNDER PRESSURE,
THE PRINCIPLE of which is

CORRECT.

BURNS WITH ALL SLACK OR LIGNITE
NO CLINKERS

NO BROKEN ARCH BRICK

LESS TIME AND LESS LABOR

APPLIES TO ANY STYLE OF KILN

BURNS ANY KIND OF CLAY WARE.

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JOHN C. BOSS,

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ELKHART, IND.

TAKE A VACATION THIS YEAR!

You Can If You Use
The BECHTEL P. D. Q. DRIER

Price Low

Drying Efficiency High

Quality and Quantity of
Output Maximum.

Write for Details and 1908 Catalog.

BECHTELS LIMITED,

DEPT. C,

Waterloo, Ont., Canada.



Steam Shovels,

**Railroad and
Traction Trucks,**

all sizes and suitable for all
classes of work.

**Placer Mining Dredges,
River, Harbor and
Ditching Dredges.**

For information write

**The Marion
Steam Shovel Co.,**

671 West Center St., MARION, OHIO.

GEORGE W. BARNHART, Western Mgr.
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F. H. HOPKINS & CO., Agents,
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THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.



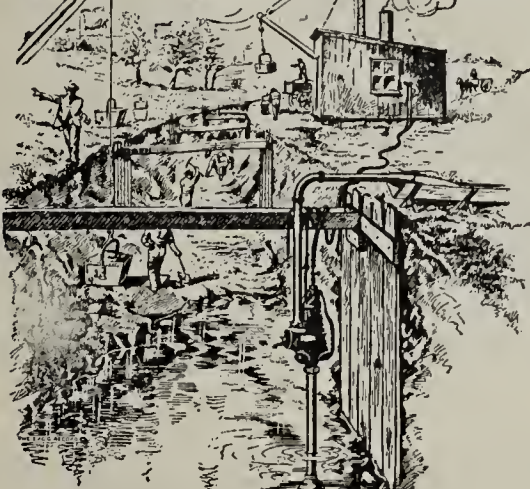
These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Sqaure Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.

PULSOMETER STEAM PUMP



ALWAYS READY

A pump that has no easily deranged inside or outside mechanism, no rods to score, no projecting or breakable parts to be injured by rough-usage;—one that is not likely to become choked or clogged by the mud, grit and sediment encountered in

DRAINING CLAY PITS

No engine, belt, oil, packing or special foundation required; just a steam pipe from boiler—that's all. Operates as well suspended as stationary, and may be raised and lowered as occasion demands without interrupting its work.

Often Imitated.

Never Equaled.

Illustrated, descriptive catalogue gratis.

PULSOMETER STEAM PUMP CO.,

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**Handle Your Clay
With One Man and**

The Thew Steam Shovel.



Type No. 0—Ohio Brick Company, Toledo, Ohio.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

WRITE US FOR CATALOGUES OR INFORMATION.

**THE THEW AUTOMATIC SHOVEL CO., LORAIN,
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Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

Only One Operator Required.

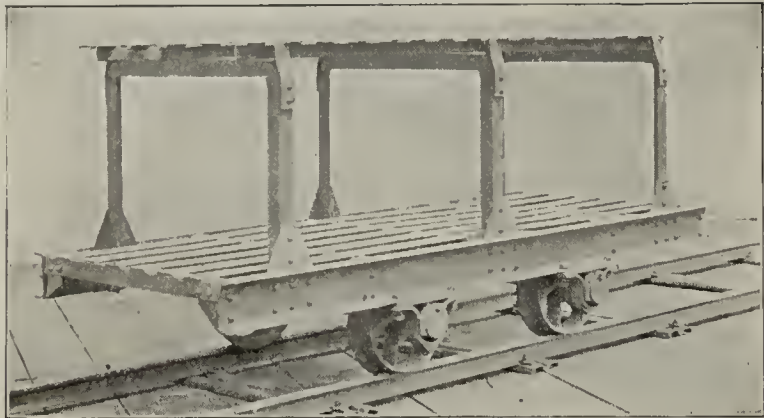
Wire Cables used instead of Chains.

Strictly First-Class in every Detail.

Made in four sizes.

Mounted on Car Wheels

or Traction Wheels.



Every Modern Brick Plant

Ought to be equipped with

Koppel Cars and Portable Track.

The track comes in sections, can be laid anywhere and easily moved by two men—Special cars have been designed for transporting clay from the mine and finished brick to and from the kiln—

Let us send you specifications and prices.

ARTHUR KOPPEL COMPANY

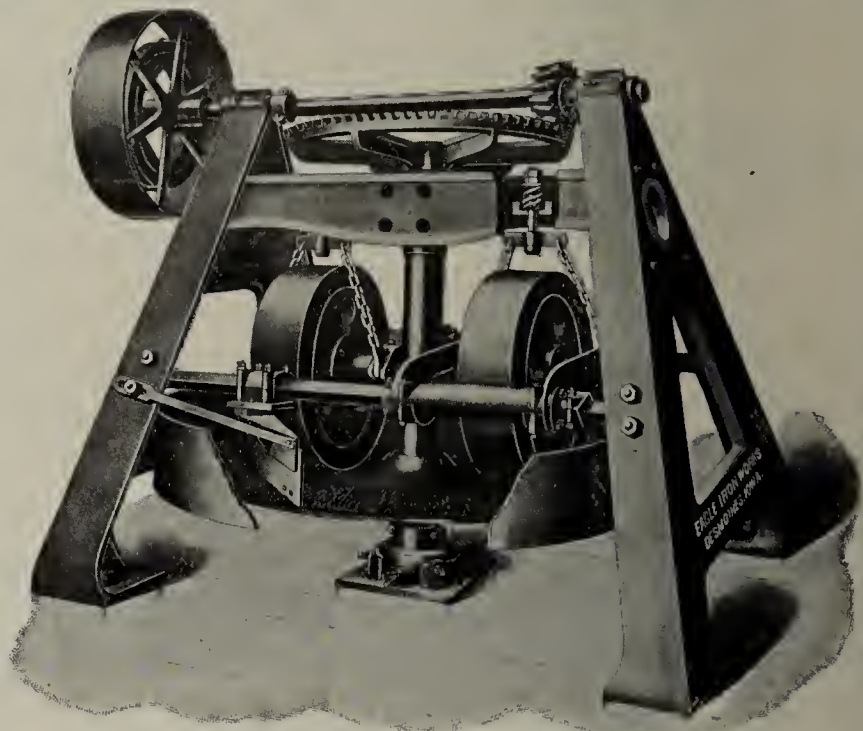
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WORKS AT KOPPEL, PA.

Independent and Suspended Mullers

the distinguishing feature of our **DRY PANS.**



Other valuable features which our catalogue fully describes.

EAGLE IRON WORKS,
Des Moines, Iowa.

THE KING ENGINEERING CO.,

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BRICK DRYER AND KILN SPECIALISTS.

Radiated heat dryers of the Sharer type remodeled with a guaranteed increased output of 15 to 25 per cent over present daily dried product, without increase in daily consumption of fuel. In our up-draft Calorific Kiln we are producing from 95 to 99 per cent hard burned brick and we have practically no waste. Old "Dutch Kilns" remodeled to conform to our system, guaranteeing to produce results equal to those produced in our new kilns. Our Dryer and Kiln systems fully protected by patents.

Write for particulars and estimates.



"If you have not used a Leviathan Belt you have no right to pass judgment upon it."

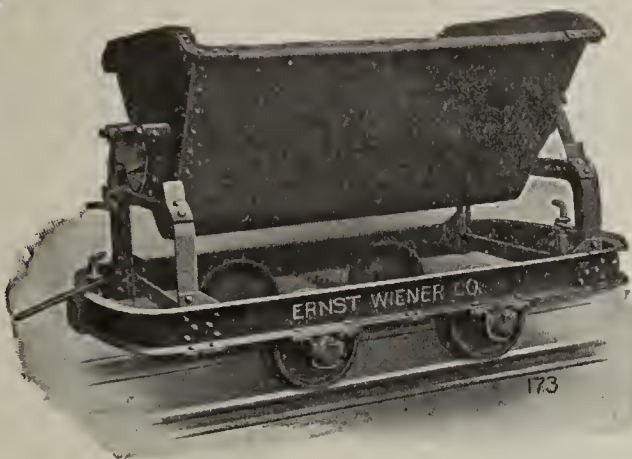
That's just to the point, and we are always responsible for its proving worth more, dollar for dollar, than any other belt.

Name a belt and ask our proposition.

MAIN BELTING COMPANY,

1224 Carpenter Street, Philadelphia.
59 Market Street, Chicago.

A DOUBLE SIDE DUMP CAR



- (1) This car has a heavy channel steel frame, which is bent round at the ends, so as to act as a buffer. It is rigidly braced throughout—strengthening it to stand hard service.
- (2) The box is made of thick steel plates, making it very durable.
- (3) This car, equipped with our roller bearing boxes (which have become standard) makes it the easiest running car obtainable.

Our booklet, Series No. 2, which gives further particulars, should be in the hands of every clayworker. Write for it.

We build cars and track material for all purposes and carry a **LARGE STOCK** of equipment ready for shipment.

RAILROAD SPECIALISTS FOR ALL INDUSTRIES.
ERNST WIENER
•COMPANY•

162 Morris Bldg., New York, N. Y.

BOSTON,
141 Milk Street.

BISBEE, ARIZ.
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The Original EXHAUST STEAM Dryer is the National.

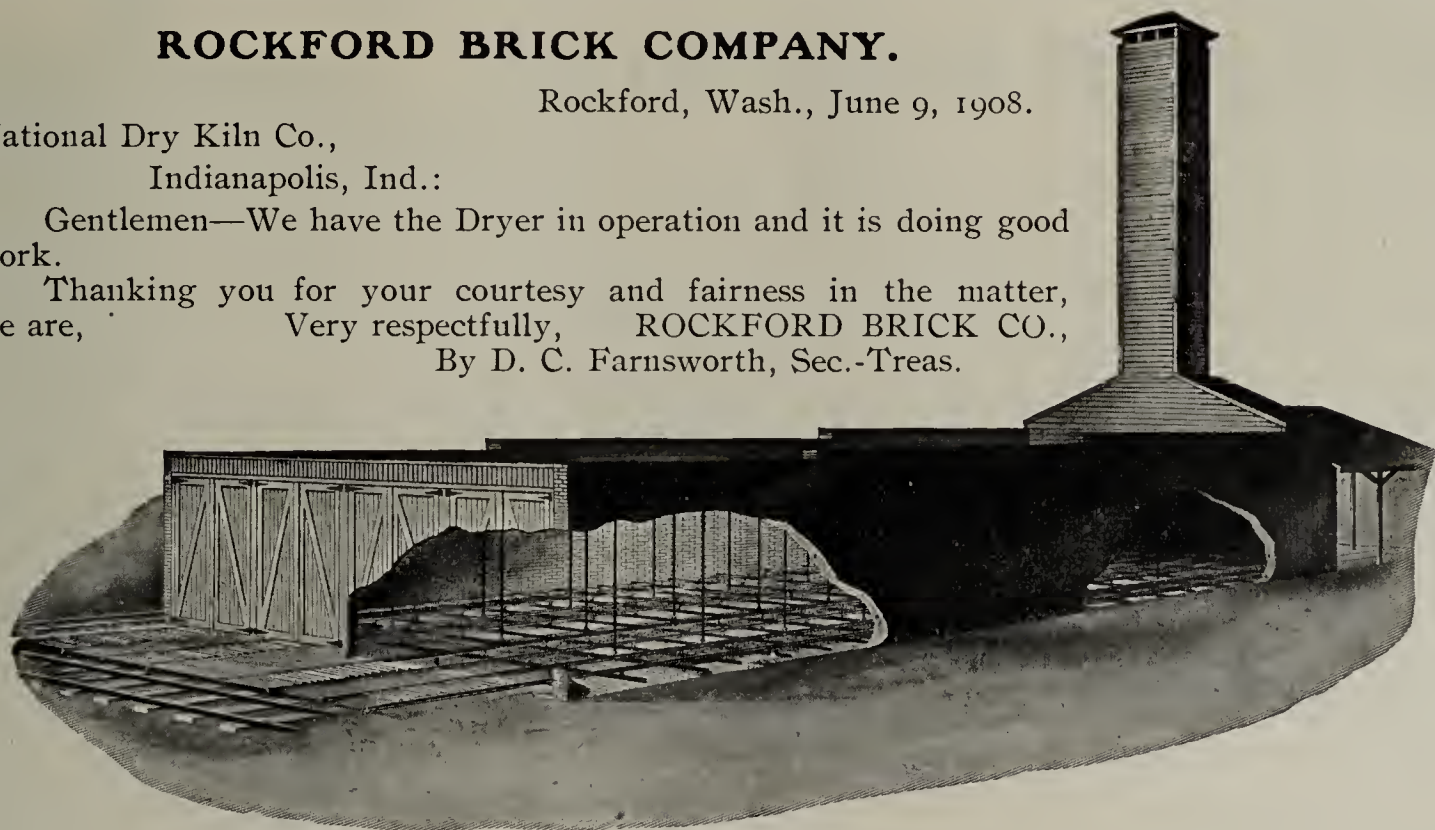
ROCKFORD BRICK COMPANY.

Rockford, Wash., June 9, 1908.

National Dry Kiln Co.,
Indianapolis, Ind.:

Gentlemen—We have the Dryer in operation and it is doing good work.

Thanking you for your courtesy and fairness in the matter,
we are, Very respectfully, **ROCKFORD BRICK CO.,**
By D. C. Farnsworth, Sec.-Treas.



No Fan.
Steel Roof Supports.

No Engine.

No Fire Danger.
Steel Roller Bearing Cars, etc.

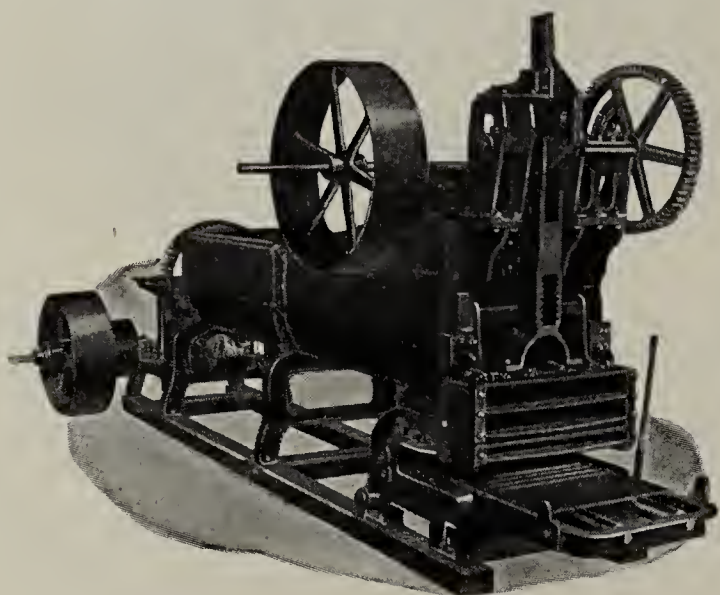
Steel Foundations.
Ask for Cat. 200

C. H. BEALE, Southern Manager,
Montgomery, Ala.

The National Dry Kiln Co., Indianapolis, Ind.

Mention The Clay-Worker.

The Potts Horizontal All Steel and Iron Sand Mould Brick Machine,



DISINTEGRATOR

having Chilled Rolls, Adjustable Steel Cutting Bars and Ring Oiling Bearings, and

MOULD SANDER

makes the Best and most complete outfit for making sand mould brick.

Cost of repairs reduced to minimum.

Quantity and Quality of brick made can not be equaled by any other outfit, no matter what you may pay for it.

The best Drying proposition ever offered.

DONT FAIL TO WRITE FOR CATALOG.

C. & A. Potts & Co. Indianapolis, Ind.

We manufacture a complete line of

BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BARROWS.

The best built. Price \$6.50 each.

Stock size wheel, 20 inches diameter.
(If wanted, 18 inches.)



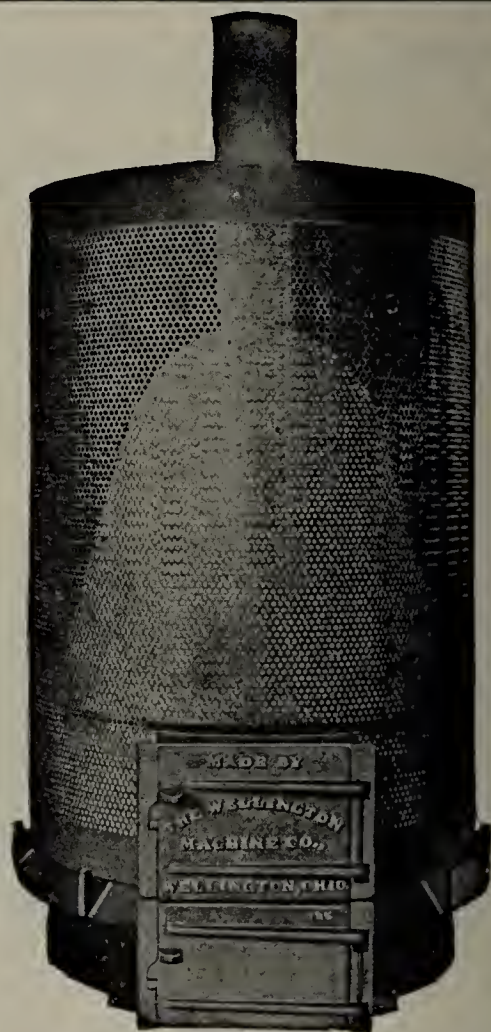
There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.

For catalogue and any further information address

James W. Hensley,

Successor to S. K. Fletcher.

Indianapolis, Ind.



SAND DRYER.

Weight, 1,100 lbs. Every brick work needs one. Diameter over all, 3 ft. 1 in. Height 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

JACOB BÜHRER'S TECHNICAL BUREAU

CONSTANCE, GERMANY.

ESTABLISHED 1860.

Construction of Brick, Tile and Lime Works for coal or gas firing and of kilns with or without artificial dryer.

Buhrer's Shortened Kilns are very suitable for burning ordinary and enameled goods, lime and cement.

Brick and Tiles made by the plastic process of clays of normal qualities may be dried in the Buhrer Dryer in 1½ to 4 days.

The Buhrer Fan applied to existing kilns increases the output from 50 to 100% of first-class goods with great economy of fuel.

Buhrer changes existing kilns after his system for quick-burning.

Clay is tested in a thorough way. Ask for pamphlets. Correspondence solicited.

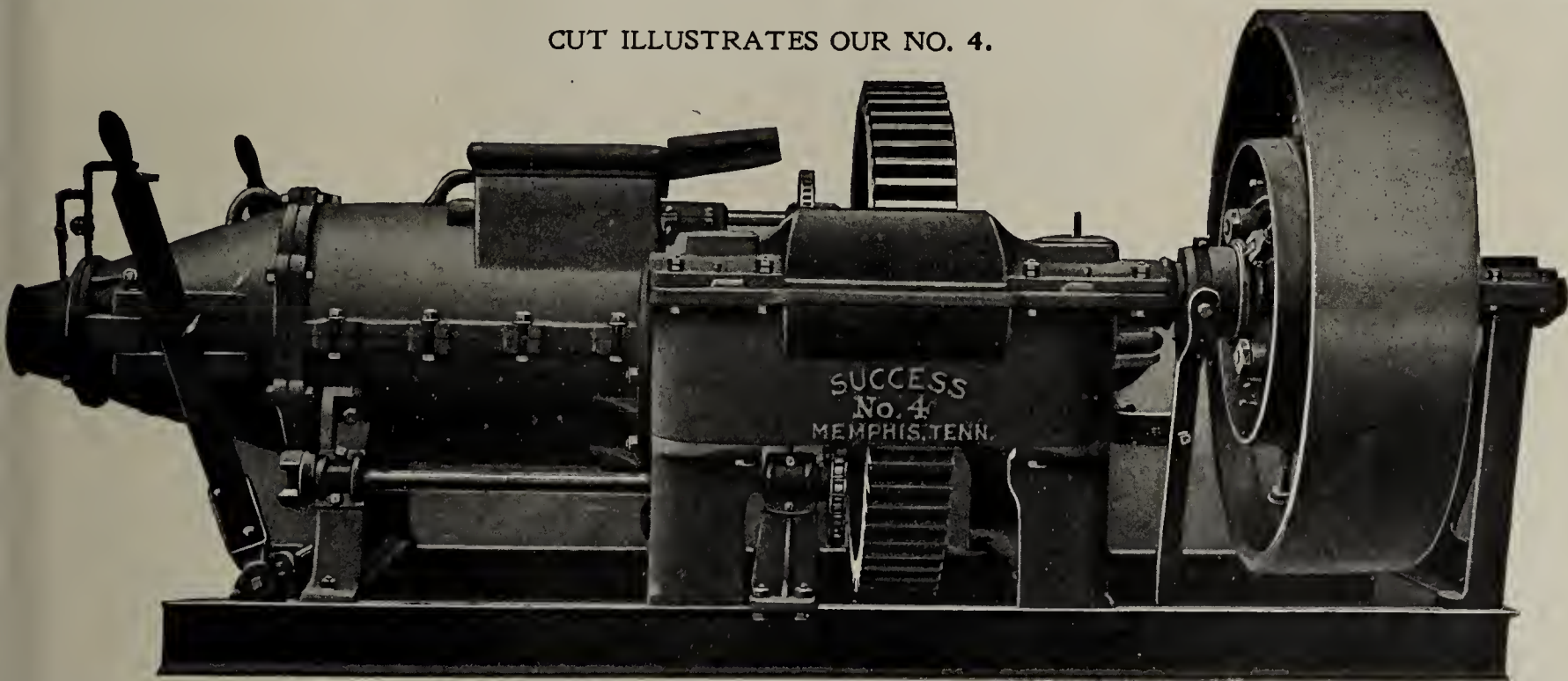
BUHRER BRICK AND TILE WORKS WITH BUHRER FANS.

TAKEN UP IN FEBRUARY, 1908.	Num- ber of Kilns.	Num- ber of Fans.	Single Fan Wings.	Artifi- cial Dryers	Length in feet of the fire canals worked with fan draught.	Total output of these works in bricks of 10" x 5" x 2½".
Works in Operation . .	115	118	154	84	35,620	631,500,000
Works in Construction.	18	15	16	11	6,331	101,000,000
Total Amounts.	133	133	170	95	41,951	732,500,000



SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for; write us.

Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.

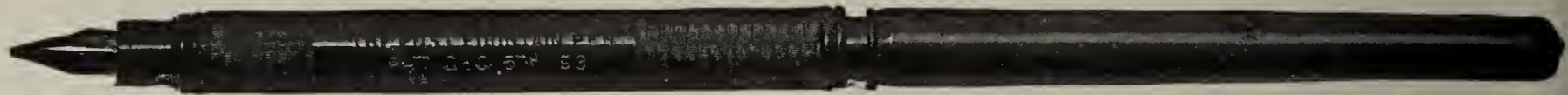
REMARKABLE OFFER.

We will send this famous Gold Pointed pen, post paid, and The CLAY-WORKER for one year, to any address in the United States and Canada for **\$3.00**



The New Way.

"POST" SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen. Guaranteed by Makers.
NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



The Old Way.

Gen. Lew. Wallace: The author of "Ben Hur" writes, "I have tried every kind in the market and unhesitatingly give the preference to the "Post."

Judge Luther L. Mills, Chicago: The "Post" Fountain Pen is the Best I have ever used; simple, reliable, durable.

Dr. Josiah Strong: The great author of "Our Country" says: "I have been hunting for twenty years a perfect fountain pen; have tried many, and they have tried me; but the "Post" leaves nothing to be desired."

The CLAY=WORKER, INDIANAPOLIS,
—INDIANA.

**DO
IT
NOW**

T. A. Randall & Co., Publishers The Clay=Worker, Indianapolis:

You will please send me THE "POST" FOUNTAIN PEN and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued, beginning with the.....Enclosed find \$.....

Name.....

Postoffice.....

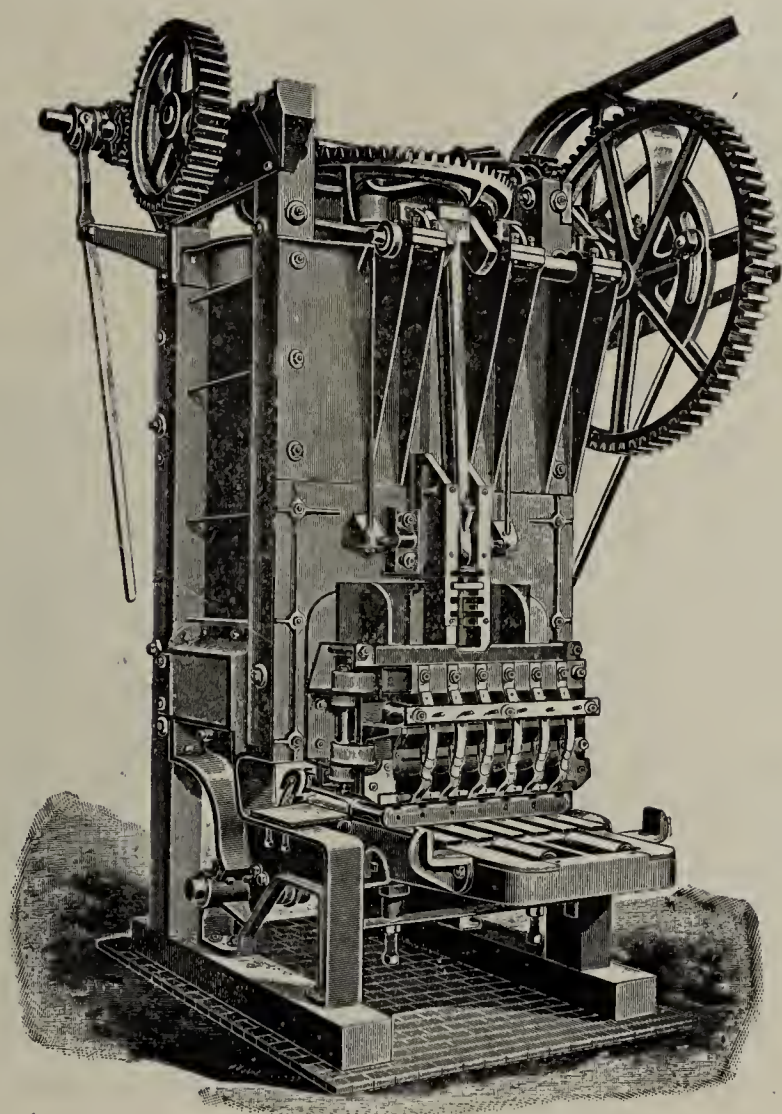
Street and Number.....

County..... State.....

SOFT MUD BRICK MACHINES

are the only kind we make, and we make them right.
New Haven Brick Machines are thoroughly
RELIABLE.

Every
Buyer
a
Satisfied
User.



Every
User
a
Satisfied
Brickmaker

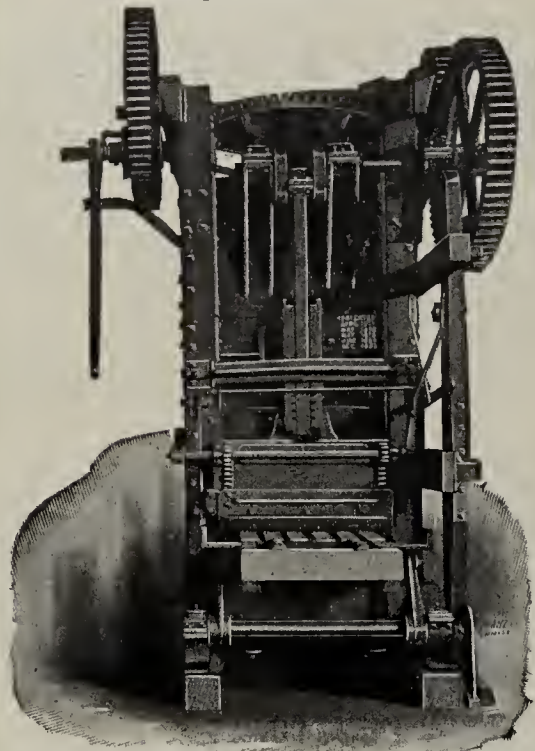
"NEW HAVEN" VERTICAL BRICK MACHINE.

When you buy a New Haven Brick Machine you get a machine that will not break down. The New Vertical is the most substantial Upright SOFT CLAY Brick Machine on the market, hence its earning capacity is only limited by the ability of the Brickmaker to handle the brick.

The EASTERN MACHINERY CO.,
NEW HAVEN, CONN.

Mention The Clay-Worker.

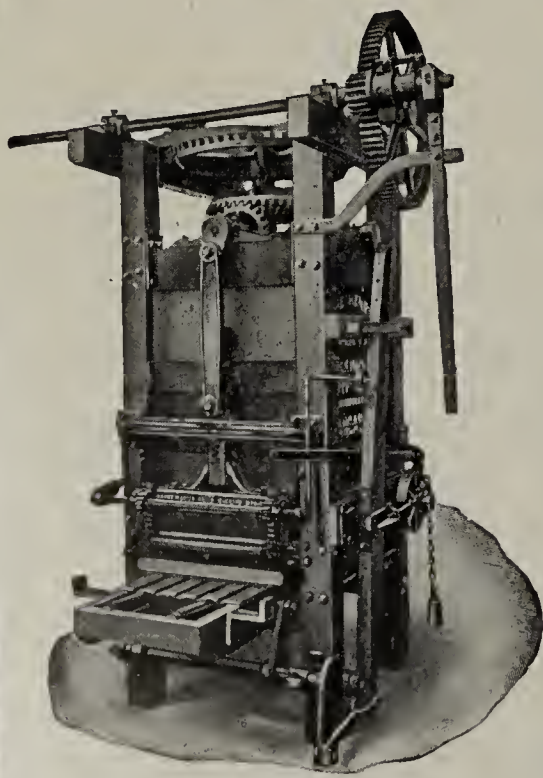
—SYTLE A—



STEAM POWER BRICK MACHINE

This View Shows the Handling of the Raw Materials to the "MARTIN" Patent Crusher—also to the Brick Machinery.

The "MARTIN" Company Have the Most Complete Line of Yard Supplies, Brick Moulds, Barrows, Trucks, Elevators, Cars, Conveyors, Dry or Wet Pans



STYLE "B" BRICK MACHINE

THE "MARTIN"

UP-TO-DATE

Clay Working Machinery

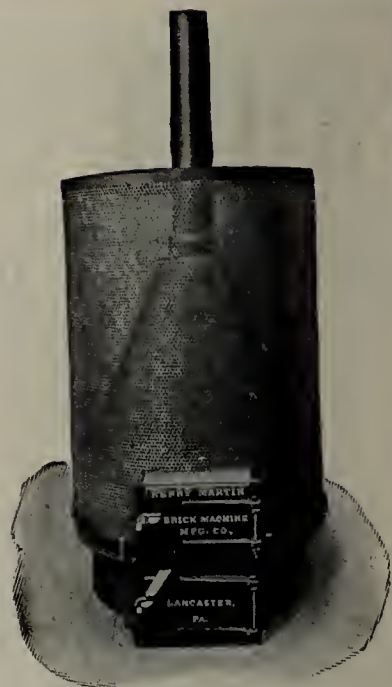
IS BUILT FOR

WORK AND WEAR

WE ARE BUILDERS OF

BRICK PLANTS FOR THE MANUFACTURE

OF HIGH GRADE BUILDING BRICK



MARTIN SAND DRYER



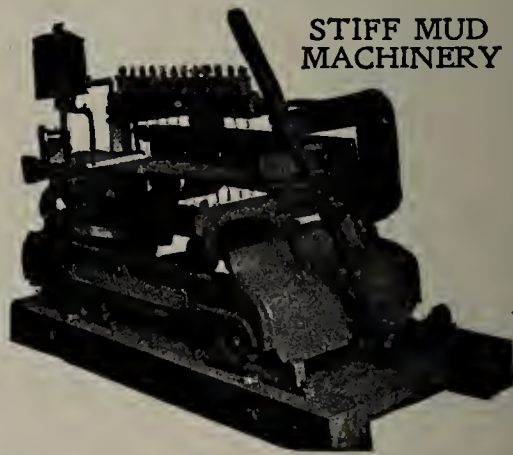
—THAT'S US—

"WE FURNISH EVERYTHING THE BRICKMAKER NEEDS"

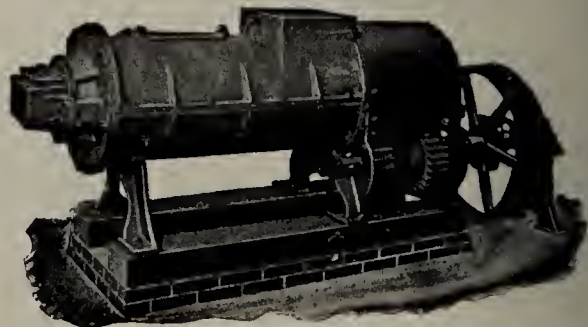
Let Us Talk it Over? We Are in a Position to Handle Your Order Most Satisfactory and Guarantee Good Results.

DROP US A LINE

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



STIFF MUD MACHINERY





ANIMAL POWER
BRICK MACHINERY

THE "MARTIN"

BRICK DRYERS

ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

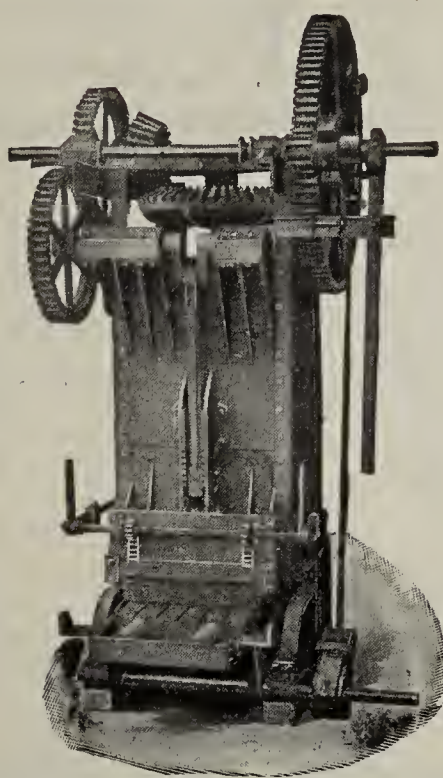
FULLY COVERED BY PATENTS

PATENTED

Feb. 22, 1898 -- 599509
Oct. 10, 1905 -- 95520
Nov. 14, 1905 -- 804489
May 26, 1908 -- 888831

UNITED STATES & CANADA

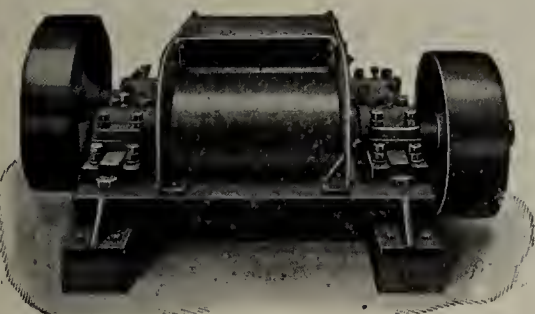
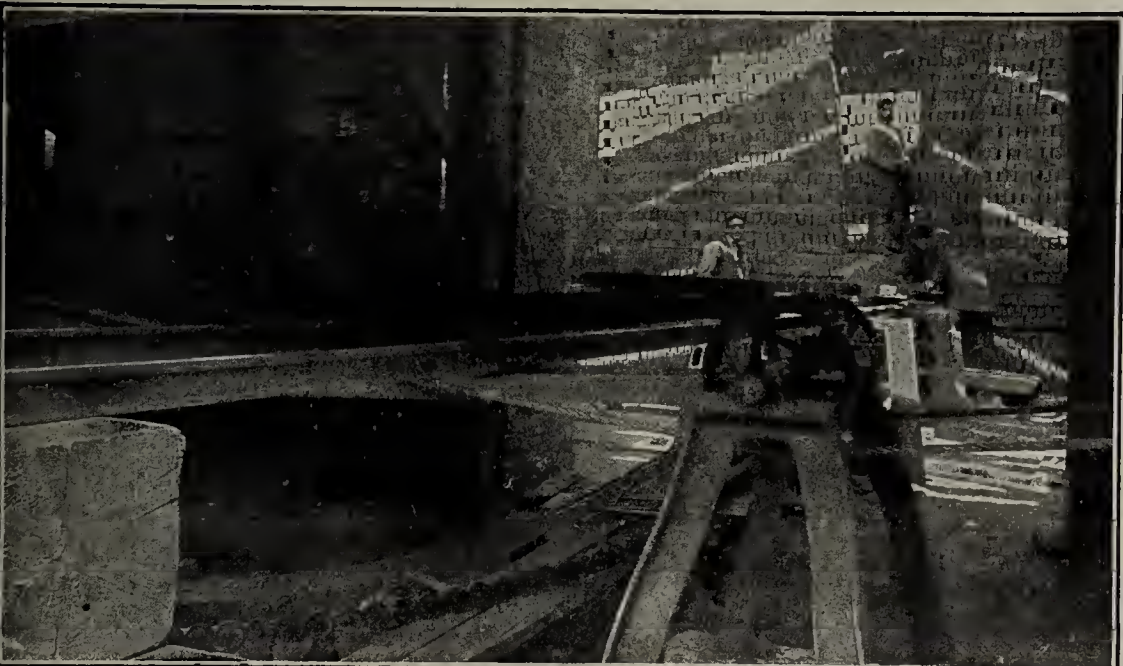
—STYLE "P"—



STEAM POWER BRICK MACHINE

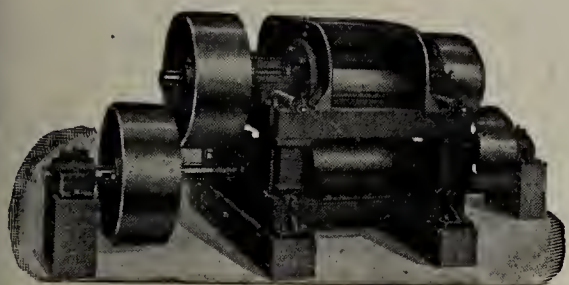
—
This View Shows the
Dried Brick Coming From
A "Martin Patent System"
Steam Brick Dryer to
the Kilns -- Labor Saving

—
The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem -- Quick to Install and
Low in Price -- Investigate



TWO-ROLL DISINTEGRATOR
—PATENTED—

FOUR-ROLL DISINTEGRATOR



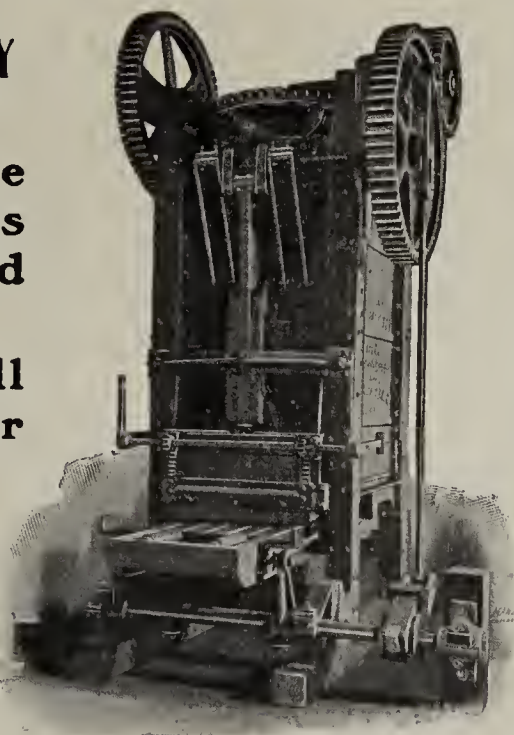
THE "MARTIN" COMPANY
AT LANCASTER, PA.

Own and Control These
Important Dryer Patents
and Have Authorized
—NO ONE—

To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

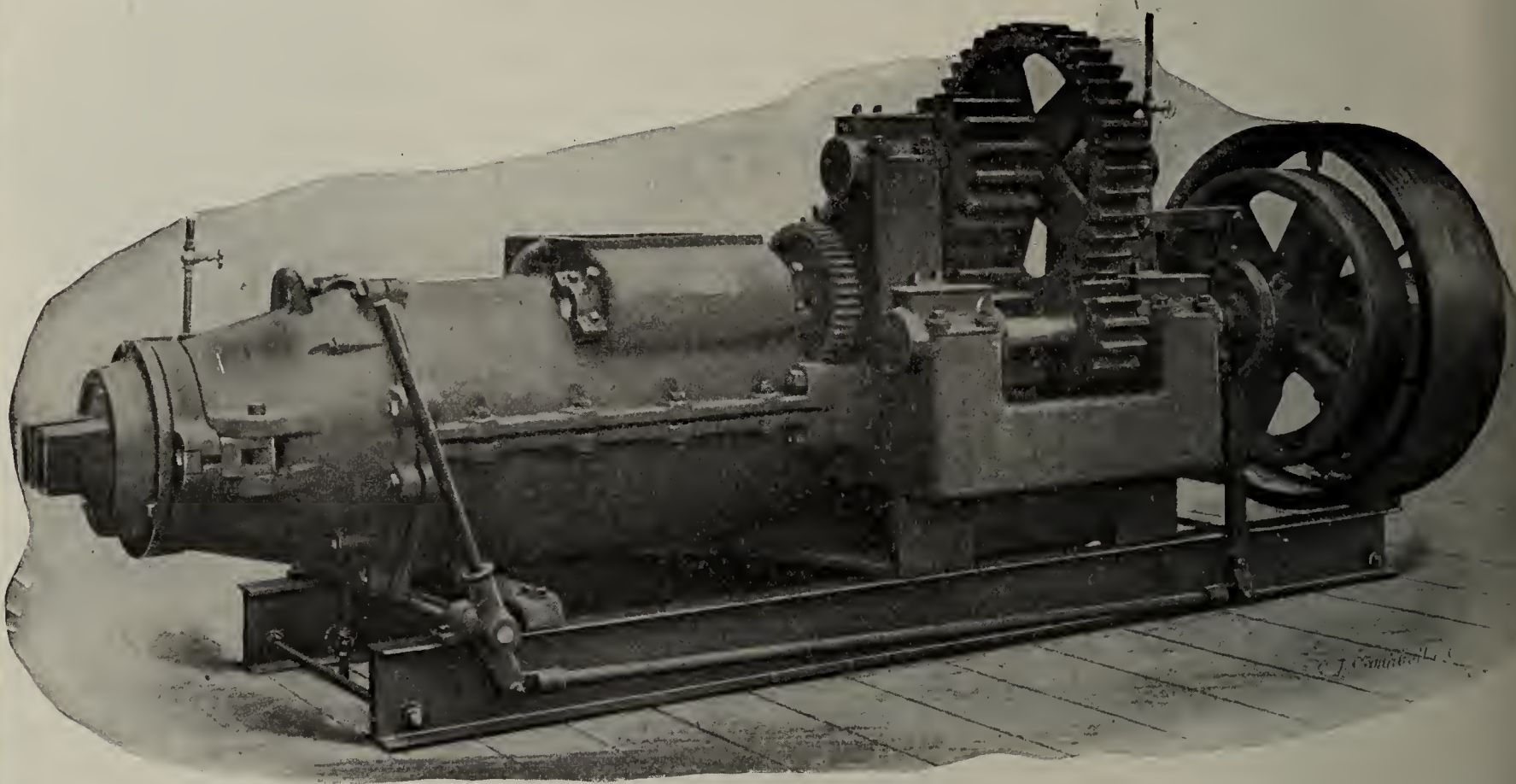
The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



STYLE "A" BRICK MACHINE

BRICK MACHINES.

The superiority of Brewer Machines does not exist in any one particular point. It starts at the design and continues through the material, the workmanship, and every detail of construction. Our catalog goes into the matter carefully and will come to you quickly if you ask for it.



WE BUILD 3 SIZES

Ranging in capacity from 2,000 to 5,000 bricks per hour; in weight from 5,000 to 14,000 pounds. The knives are all forged from hard, high-carbon steel; the expressing screws and casings are made of white-iron; the back-thrust bearings are self-oiling, self-aligning and adjustable; the journals are self-oiling; the gear frames are cast in one piece; all sizes are mounted upon steel I-beams, making them self-contained and not dependent upon their foundations for their alignment. They are good stiff heavy models, built to give satisfaction.

Our catalog will come quickly if you ask for it.

If Marked



It's Good.

H. BREWER & CO.,

Tecumseh, Michigan.

If Marked



It's Good.

The Steele Automatic Cutter.



Messrs. J. C. Steele & Sons, Statesville, N. C.:

Gentlemen—It is pleasant and delightful work when operating your No. 3 machine with a 20 h.p. engine and making 3500 bricks per hour. Your rotary automatic cutter can't be beat; it cuts square and smooth, Messrs. Bowers Bros. of the Canon Brick Yard, came to my plant at Royston, Ga. to see my machine work and of course were so pleased they ordered one of your machines. I have run two machines of other manufacture and they were both more complicated and expensive to keep repaired. I recommend your machines to anyone entering the business.

Very respectfully,
(Signed) W. E. STEVENSON.

Lavonia, Ga., Dec. 9, 1907.

We build a complete line of clayworking machinery.
Write for further information.

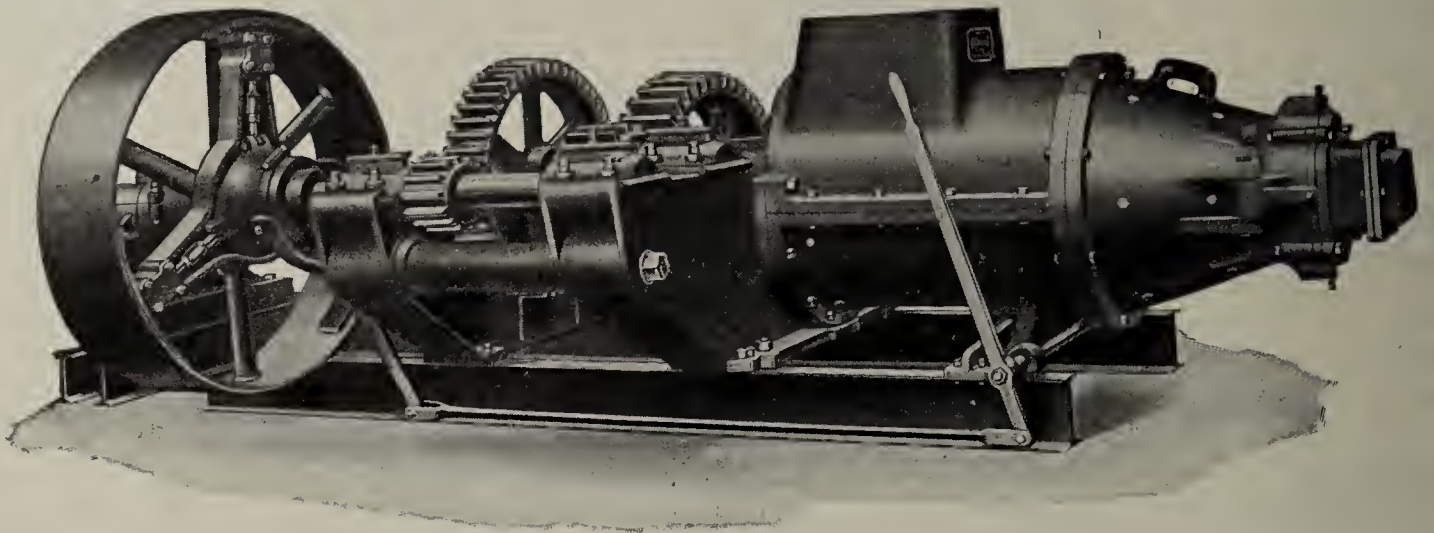
J. C. STEELE & SONS,

Success Brick Machinery Co., Memphis, Tenn.,
Western Agents.

Mention The Clay-Worker.

STATESVILLE, N. C.

Modern Clayworking Machinery



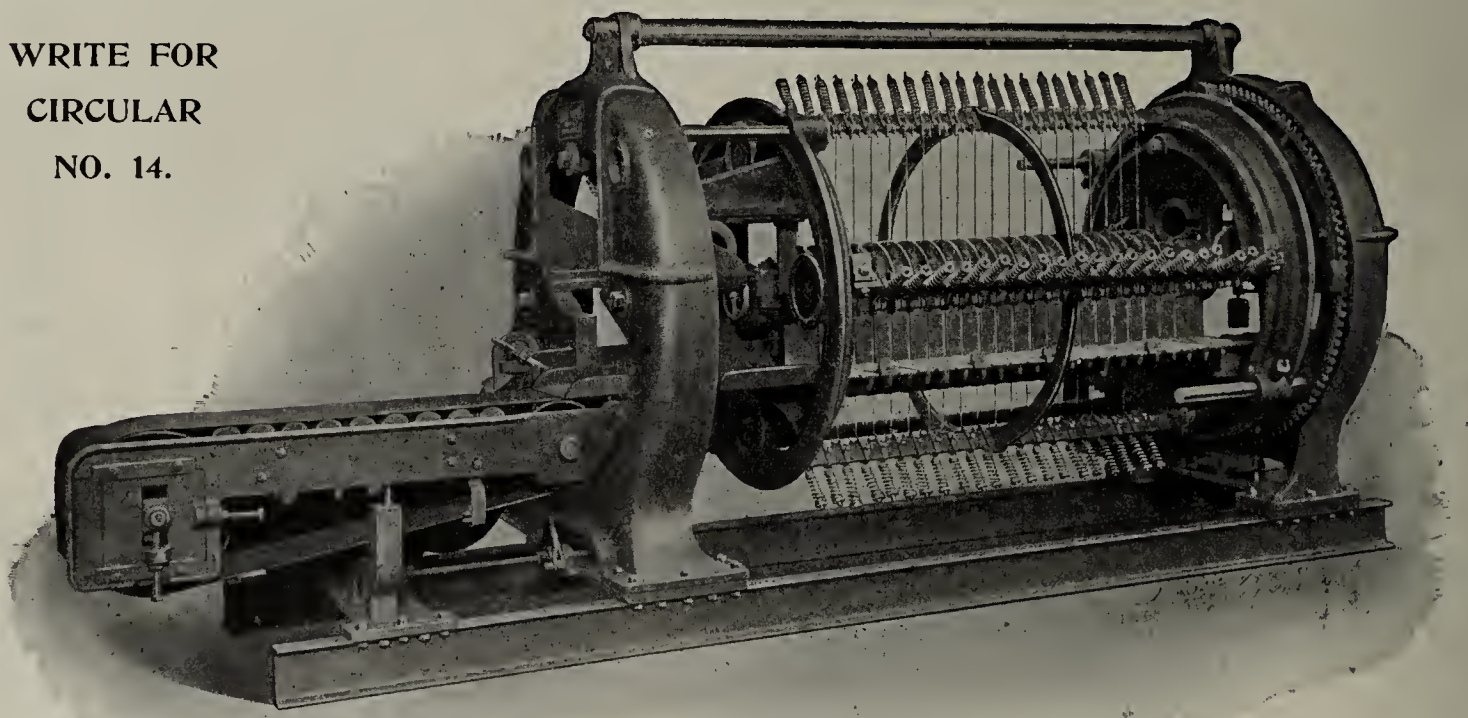
No. 10 Auger Brick Machine.
Capacity 50,000 to 75,000 per Day.

A GOOD MACHINE AND EASILY GET-AT-ABLE.

CANTON REPRESS is the Best of its Class.

ASK US FOR THE PROOF.

WRITE FOR
CIRCULAR
NO. 14.



Rotary Automatic Cutting Table.
Capacity Up to 100,000 Daily.

Cuts Brick Within 30 Inches of the Die. End Frames are Stationary.
COMPLETE LINE OF CLAYWORKING MACHINERY.

THE BONNOT COMPANY,

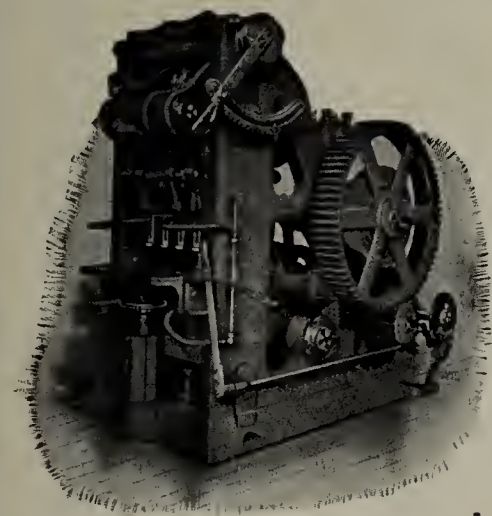
305 NEW YORK LIFE BLDG.,
KANSAS CITY, MO.

Canton, Ohio.

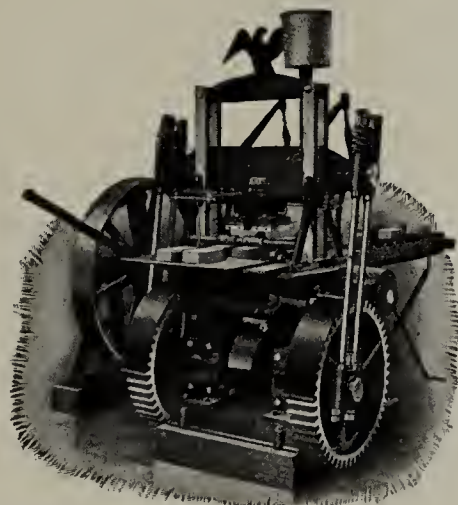
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

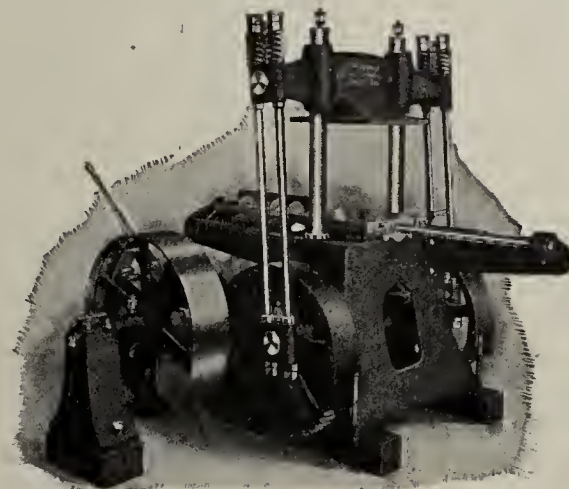
BUILT RIGHT RUN RIGHT



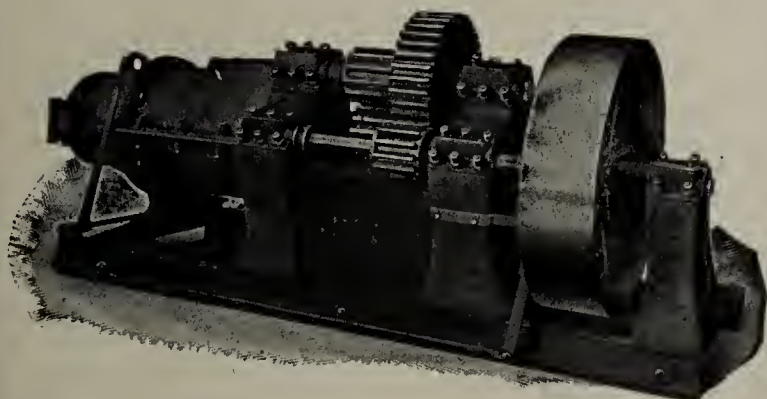
D-3 Dry Press



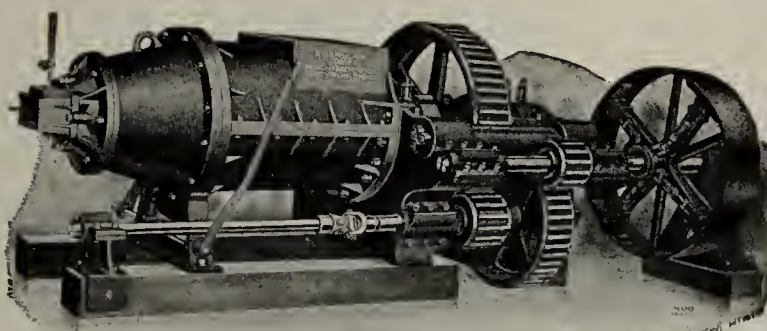
Eagle Reprass



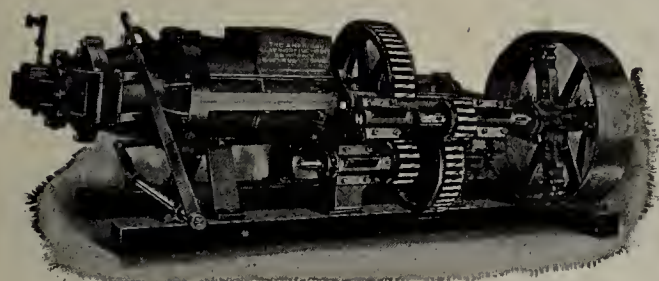
Roofing Tile Press



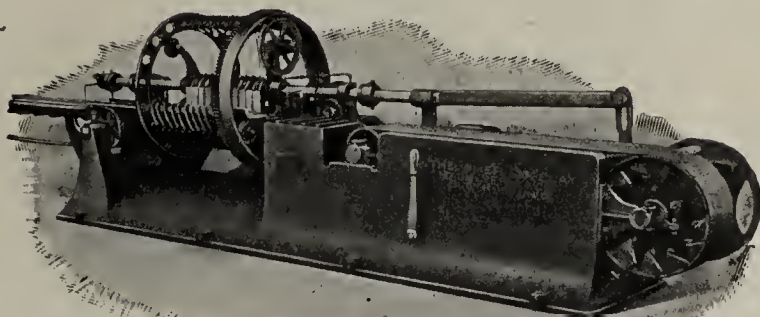
No. 65 Auger Brick Machine



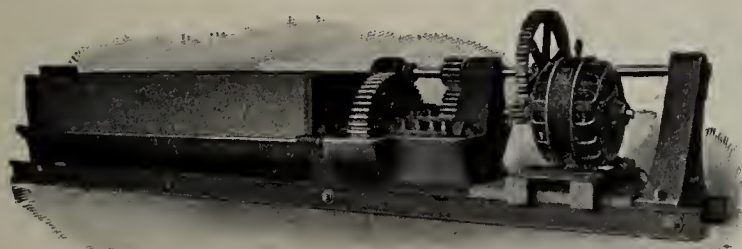
Special Giant Brick Machine



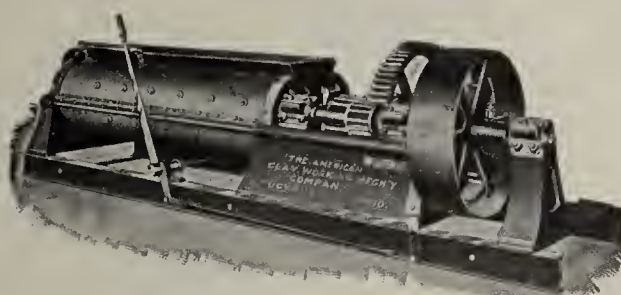
No. 2 Giant Brick Machine



No. 83 Automatic Cutter



No. 51 Electrical Driven Pug Mill

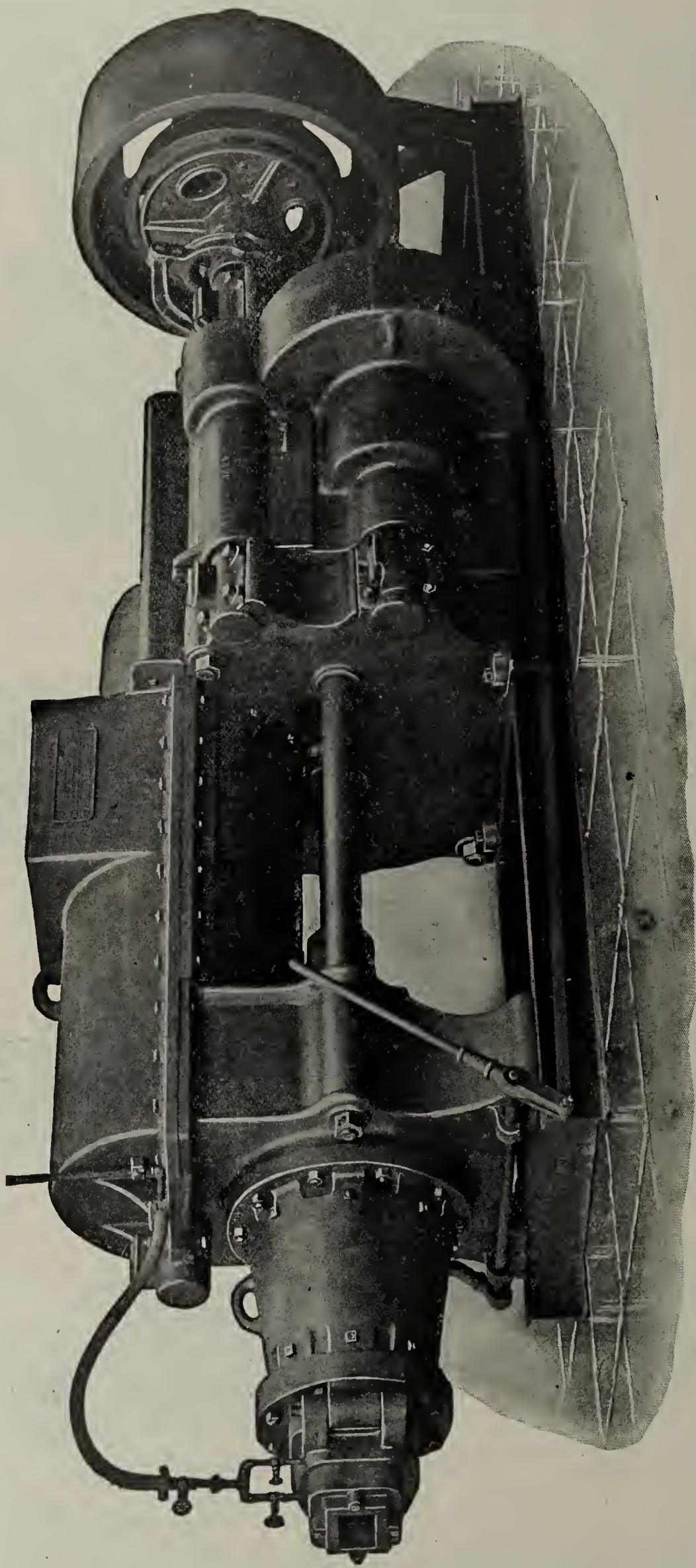


No. 38 Double Shaft Pug Mill

We Build Every Machine and Every Appliance Needed for the Manufacture of Every Class of Clay Products by Every Process.

See ad on page 358.

Another Brick Machine.



This is a Brick Machine of massive proportions and of modern construction throughout, designed for large capacity and severe service. The gearing, shafting and other parts are very heavy. The gearing is protected by a removable dust and accident proof covering, hinged for convenient access to the interior. The feeding chamber is of ample diameter and length, and this result is obtained without excessive overhang of auger shaft. The auger shaft is supported by three journal bearings of sufficient distance apart to give it a substantial support. The part of the auger shaft in the clay chamber is about 4 feet in length, while the part outside is more than 9 feet long.

The machine is mounted on steel "I" beam sills between which are placed heavy cast iron spreaders with flanges, affording a substantial method of attaching the machine to its foundation. The outer end of the pulley shaft is supported by a rigid stand having an adjustable journal box.

Height from floor to top of hopper, 5 ft. 8 in.

Weight of machine about 26,000 pounds.

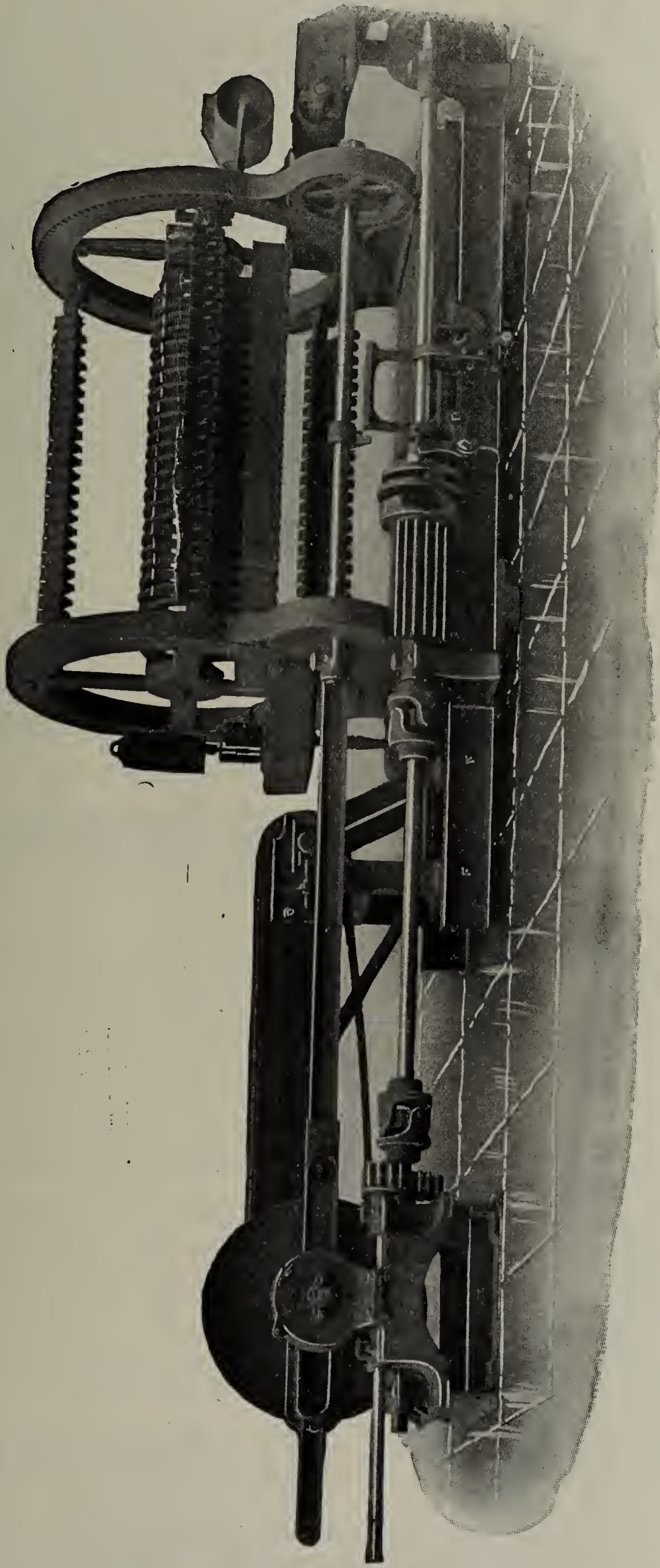
Length of machine over all, 19 ft.

Size of hopper, 26-in. x 26-in.

E. M. FREESE & CO., Galion, Ohio.

(Mention The Clay-Worker.)

An Improved Rotating Automatic Cutter.



Our Rotating Automatic Cutters are the result of many years' constant hammering at a single type of Cutter. One of the three sizes we are building will suit your Stiff Mud Brick Machine. We ship on trial—YOU say whether our guarantee of "satisfactory operation" is fulfilled. If desired a man will be sent to arrange details of installation. These Cutters will give you satisfaction when all others have failed.

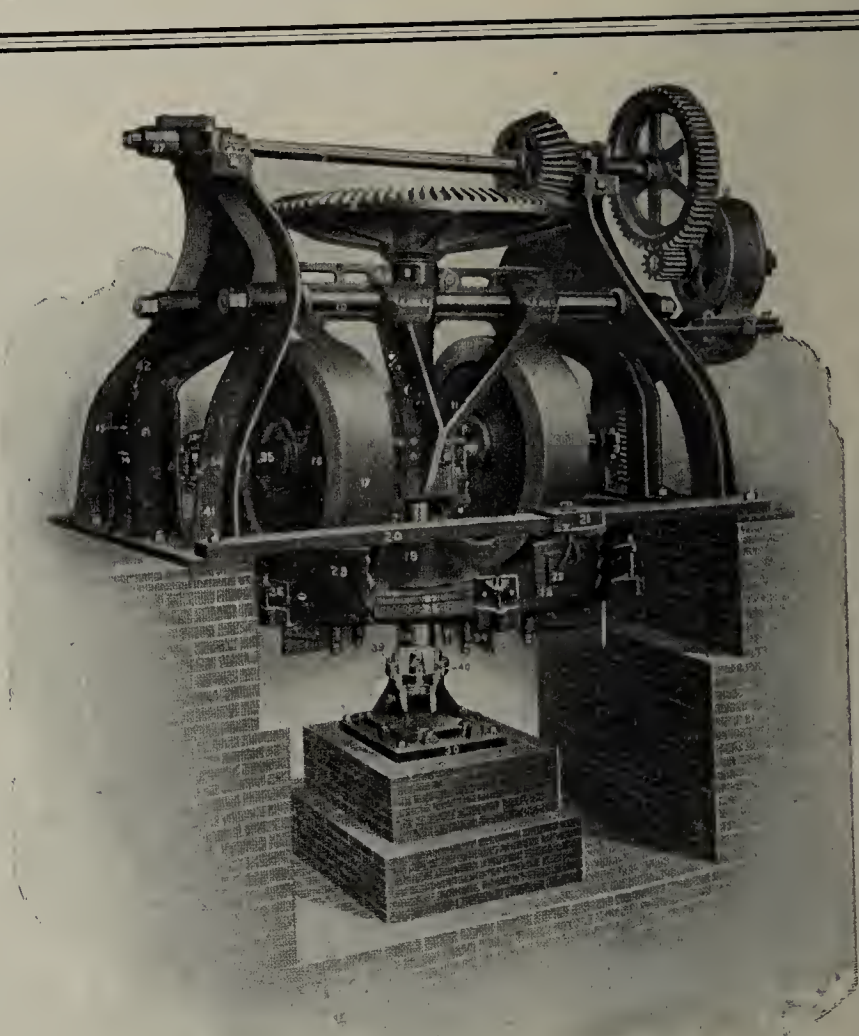
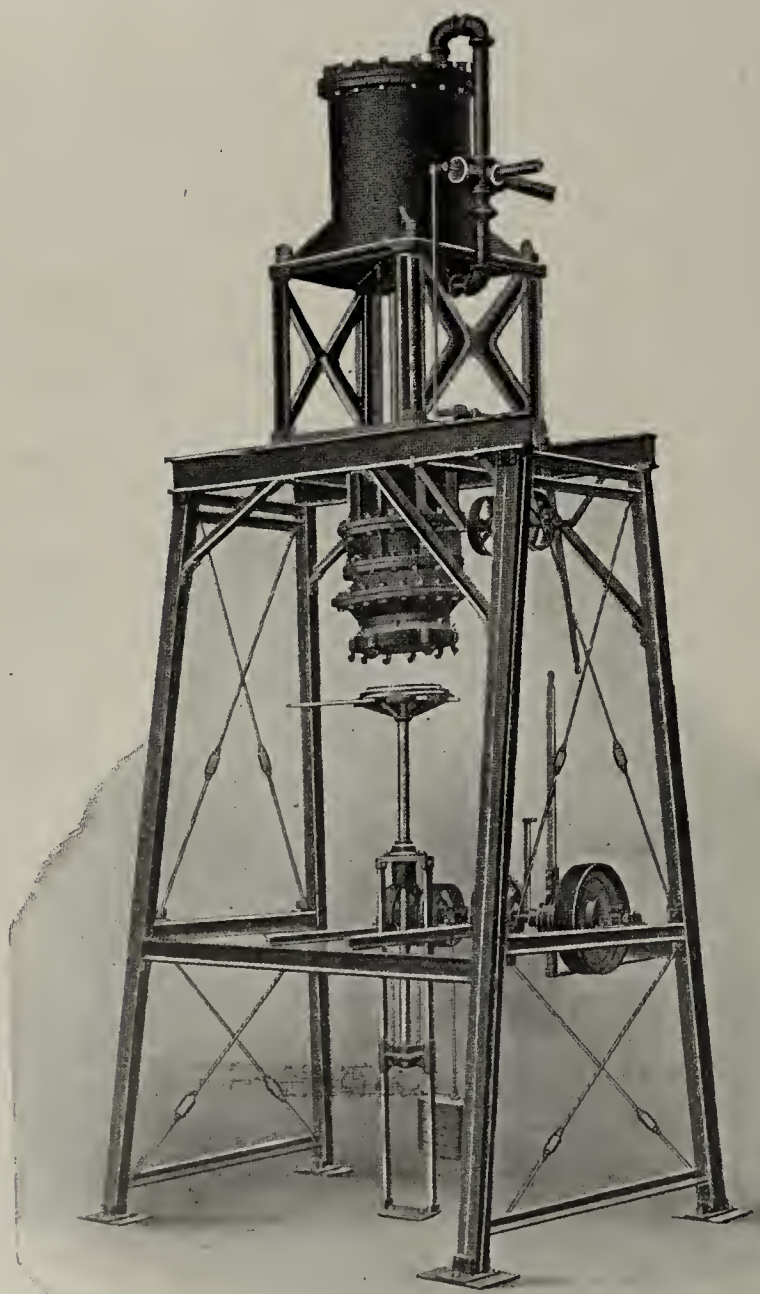
(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

THE HARRINGTON AND KING PERFORATING CO.

PERFORATED METALS

OF EVERY DESCRIPTION

AND

FOR ALL PURPOSES

FOR SCREENS OF ALL KINDS

PERFORATED STEEL FOR CLAY SCREENS.

Samples or blue prints with prices furnished on request.

For Chute or Gravity Screens, Shaking or Vibrating Screens, Revolving Screens, Dry Pan Screens.

For Cleaning and Grading Clay, Shale, Sand, Cement, Coal, Stone, Etc.

For Pallets or Trays, Car Bottoms, Drying Floors, Conveyor Bottoms, Separators, Etc.

NEW YORK OFFICE

No. 114 Liberty St.

No. 231 North Union Street,

CHICAGO, ILL., U. S. A.

IF YOU WANT SATISFACTION

we can give it to you, so far as the drying of your brick is concerned.

Rodgers Waste Heat Dryers

stand for

Reliability
Originality
Durability
Guarantee
Economy
Rapidity
Satisfaction.

What more could you ask for in a Dryer?

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

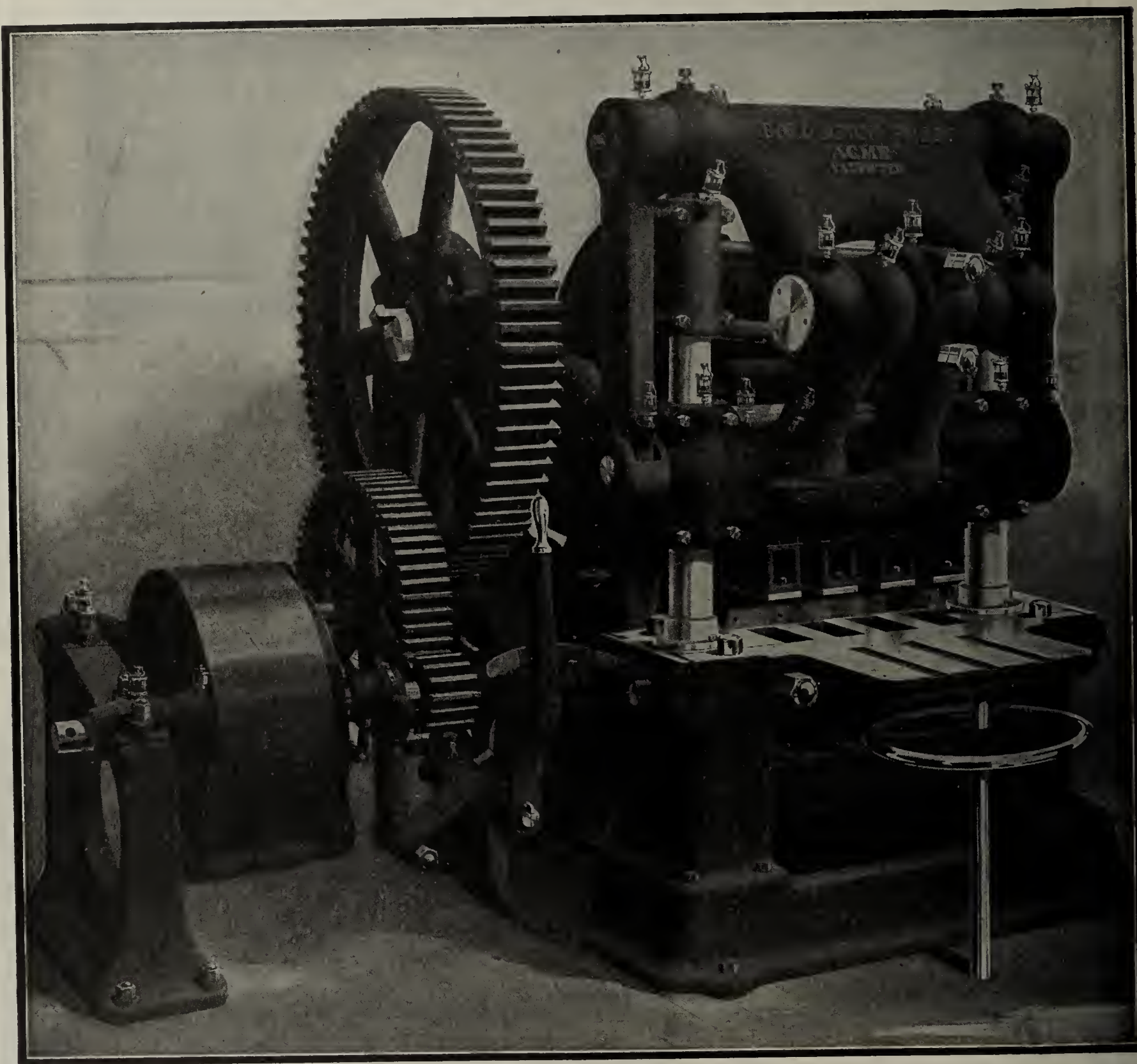
108 LA SALLE ST.

CHICAGO.

Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold "Acme."



We have been building this type of machine for over ten years. It has all improvements to date and embodies all the special features of the original Boyd Press.

Detailed perfection, strength, endurance and quality of product have made THE BOYD the Brick Press by which all others are judged.

We will send to any responsible party a *Boyd Brick Press on trial* under the broadest and safest guarantee. We take the machine back if not satisfactory.

Chisholm, Boyd & White Company,

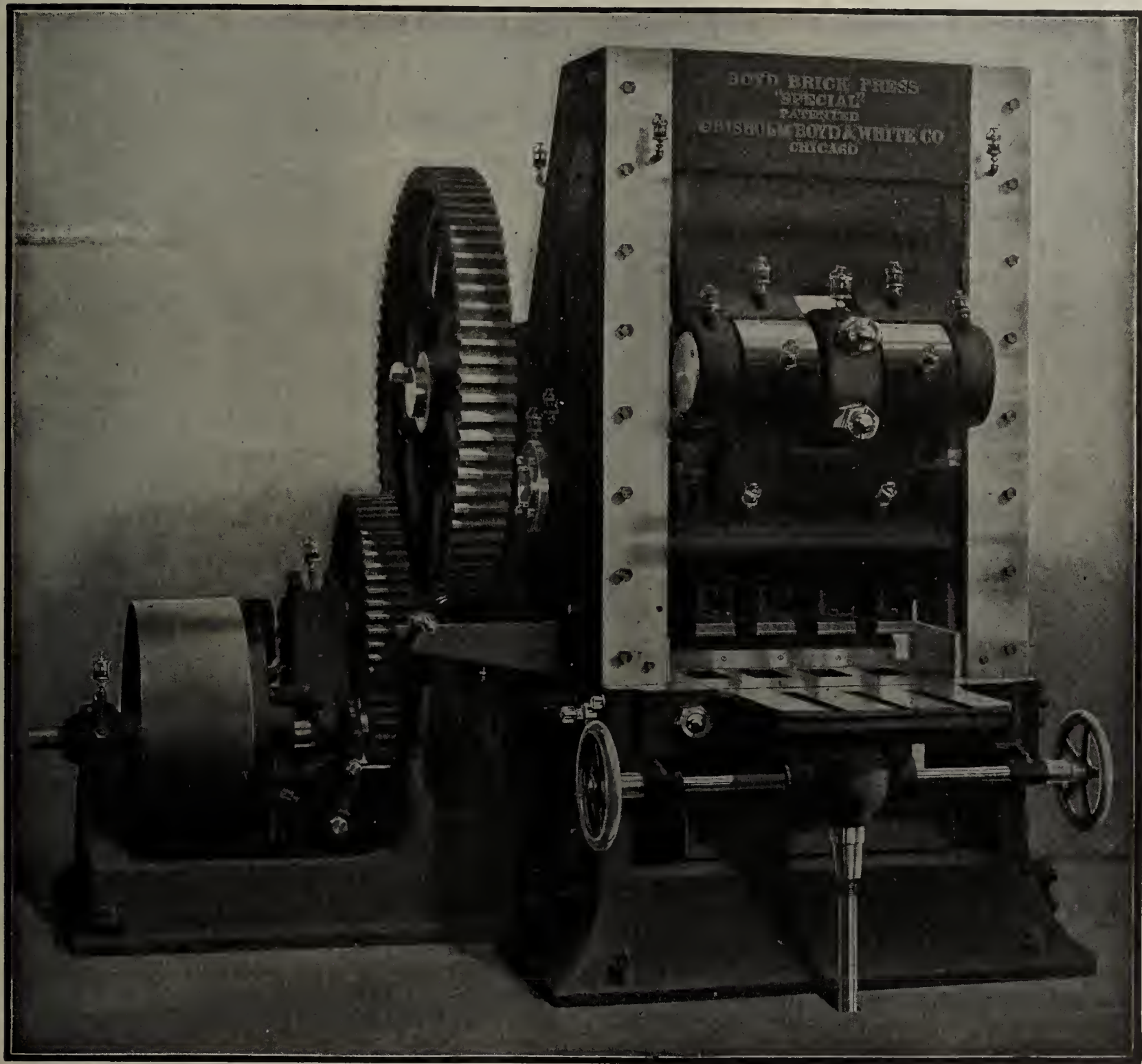
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Boyd Brick Press

Built in Two, Four and Six-Mold Sizes.



FOUR-MOLD SPECIAL.

BRICK PLANTS designed and complete machinery equipment furnished. Machinery and product guaranteed.

More Boyd Presses in use than all other Press Brick Machines combined.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 19 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Grath Special Brick Press

Patented.

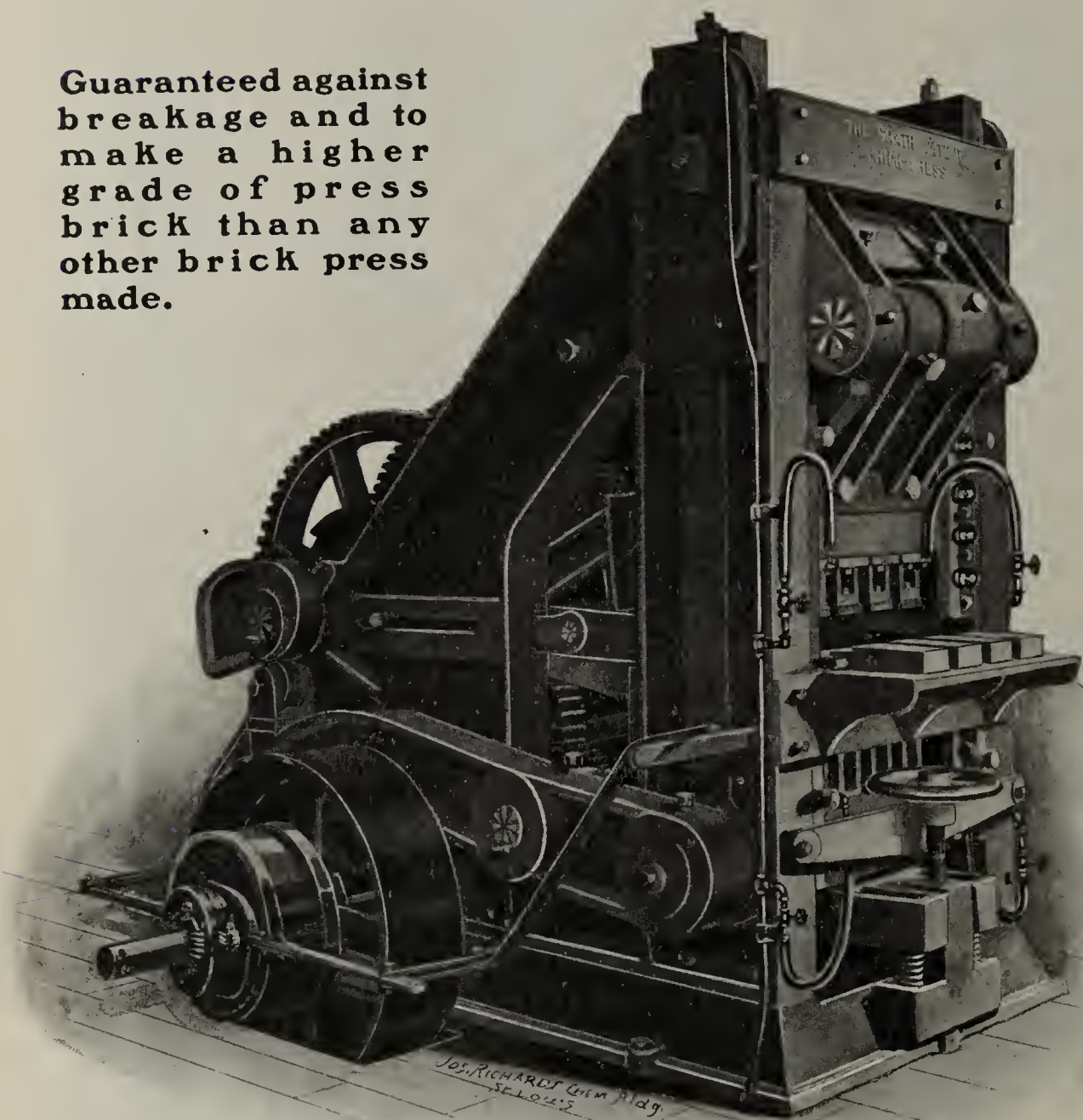
Made in Two, Three, Four and Five-Mold Sizes.

THE ONLY PERFECT BRICK PRESS

For SAND-LIME and DRY CLAY BRICK of Unequaled Quality.

FOUR MOLD MODEL.

Guaranteed against breakage and to make a higher grade of press brick than any other brick press made.



BRICKMAKERS

Do not buy Brick Presses every month or year.

When you **do** buy get a **modern** press. It costs no more than one which is **out of date**.

Unless the press is **double geared**, with gears between frames and bearings, which prevents all side strain and twisting of crank shaft, it is out of date and behind the times.

The above construction is contained in the **Grath Special** and is securely covered by patents. All infringements will be prosecuted.

THE PRESS OF TODAY.

THE ALBERTA PORTLAND CEMENT CO.

W. P. Grath, St. Louis, Mo.:

[Copy]

Sandstone, Alta., Sept. 26, 1907.

Dear Sir—Replying to your favor of recent date regarding Grath Special press purchased from you, would say that after working your press alongside another well-known make, your press has proved itself vastly superior in every way; it is stronger, simpler, easier of adjustment, makes more brick, and of much better quality.

After a long experience with presses, having operated five (5) different presses each of different makes, I consider yours "THE BEST YET," in short, "AN IDEAL PRESS."

Wishing you the success your press merits

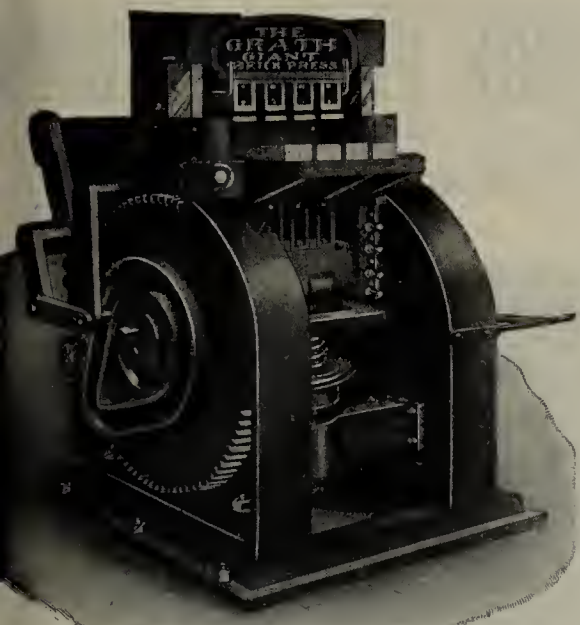
Yours truly, G. W. DELLER, SUPT.
Alberta Portland Cement Co., Limited.

Illinois Supply & Construction Co.,

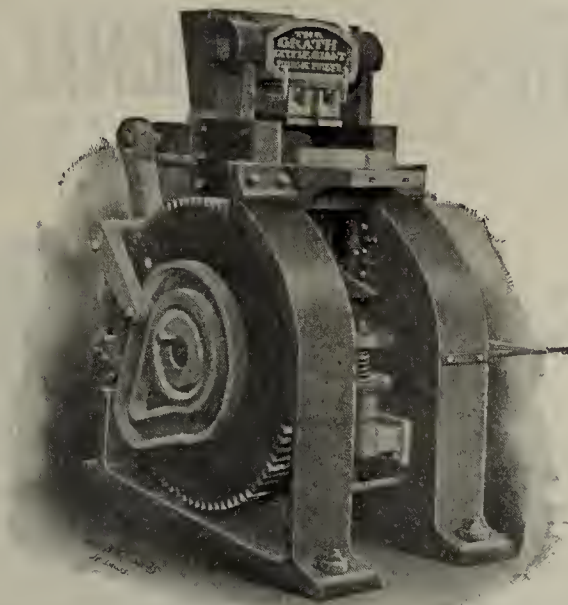
Suite 512 and 513 Holland Bldg.

St. Louis, Mo., U. S. A.

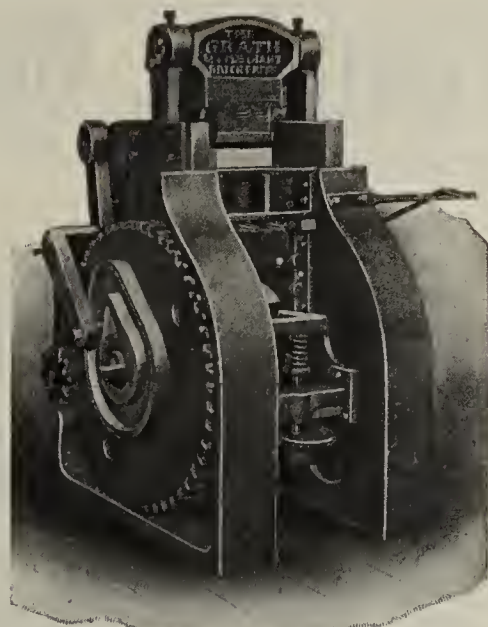
Mention The Clay-Worker.



**THE GRATH GIANT FOUR MOLD
BRICK PRESS**
For Fine Press Brick
From Dry Clay or Sand-Lime.



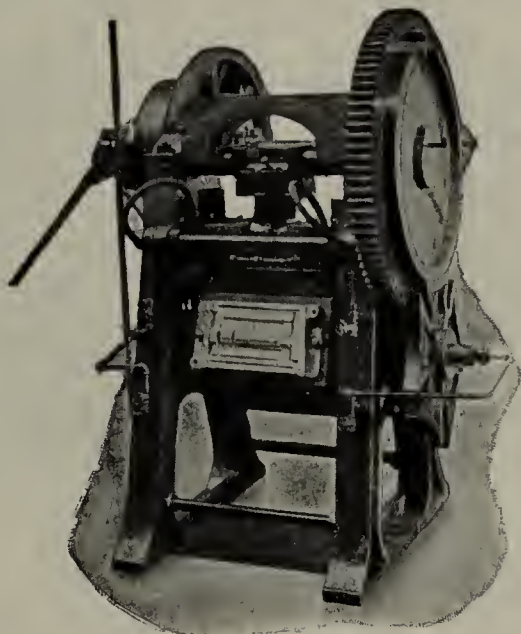
**THE GRATH LITTLE GIANT TWO
MOLD BRICK PRESS**
For Fine Dry Press Brick.



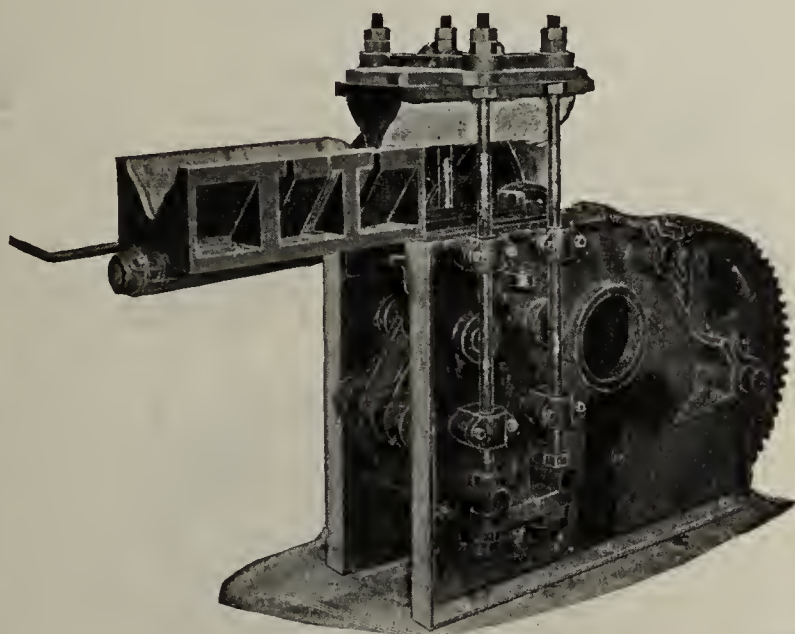
**THE GRATH LITTLE GIANT
ONE MOLD BRICK PRESS**
For Perfect Sand-Lime or
Dry Clay Face Brick.



**The Grath Special Hand-Power Brick
Press, for Plain and Ornamental
Press Brick.**
From Dry or Semi-Dry Clay or Sand-Lime
Guaranteed against breakage.

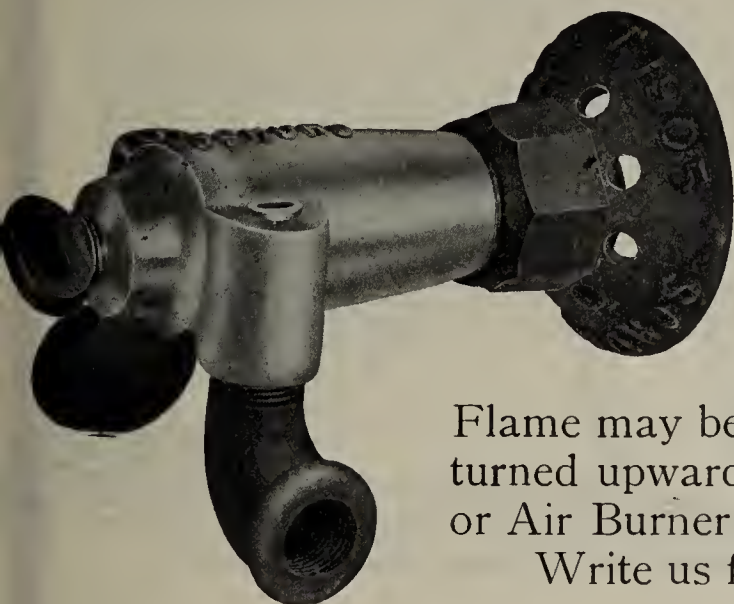


**The Grath Revolving Roofing
Tile Press.**
Strongest and Simplest Made.
For Plaster or Metal Dies.
Top Cross Head and Pentagon Adjustable.



The Grath Roofing Tile and Trimming Press
No Roofing Tile Plant
Complete Without This Press.
For Plaster or Metal Dies.
For Special Tiles, Hips and Crestings.

GUARANTEED AGAINST BREAKAGE.



Selling Agents for The **SCHURS PATENT PERFECT OIL BURNERS**

Especially designed for burning Brick, Tile, Terra
Cotta and Lime. For Up and Down Draft Kilns.

Flame may be regulated as desired and to produce any heat, can be
turned upward, downward or sideways. Most economical Steam
or Air Burner in the market. For Crude, Fuel or Coal Oil.

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Cable Address,
GRATH, St. Louis.

Illinois Supply & Construction Co.

HOLLAND BLDG., ST. LOUIS, MO.

Long Distance
Phone
Bell, Main 235.

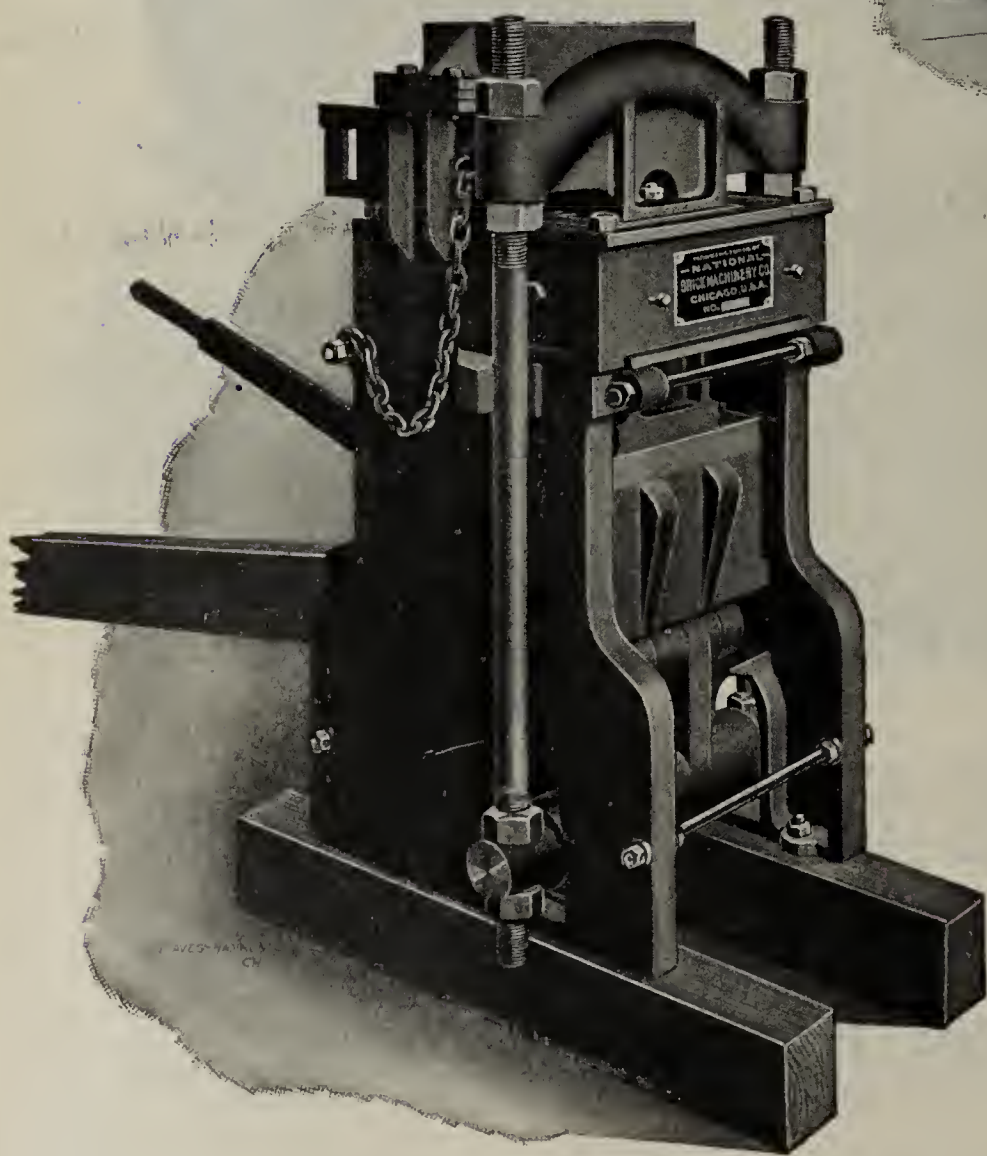
Complete Outfits for Brick Plants.

SEND FOR OUR NEW TREATISE
ON
DRY PRESS BRICKMAKING.

Write for prices on supplies of all
kinds for your yard.

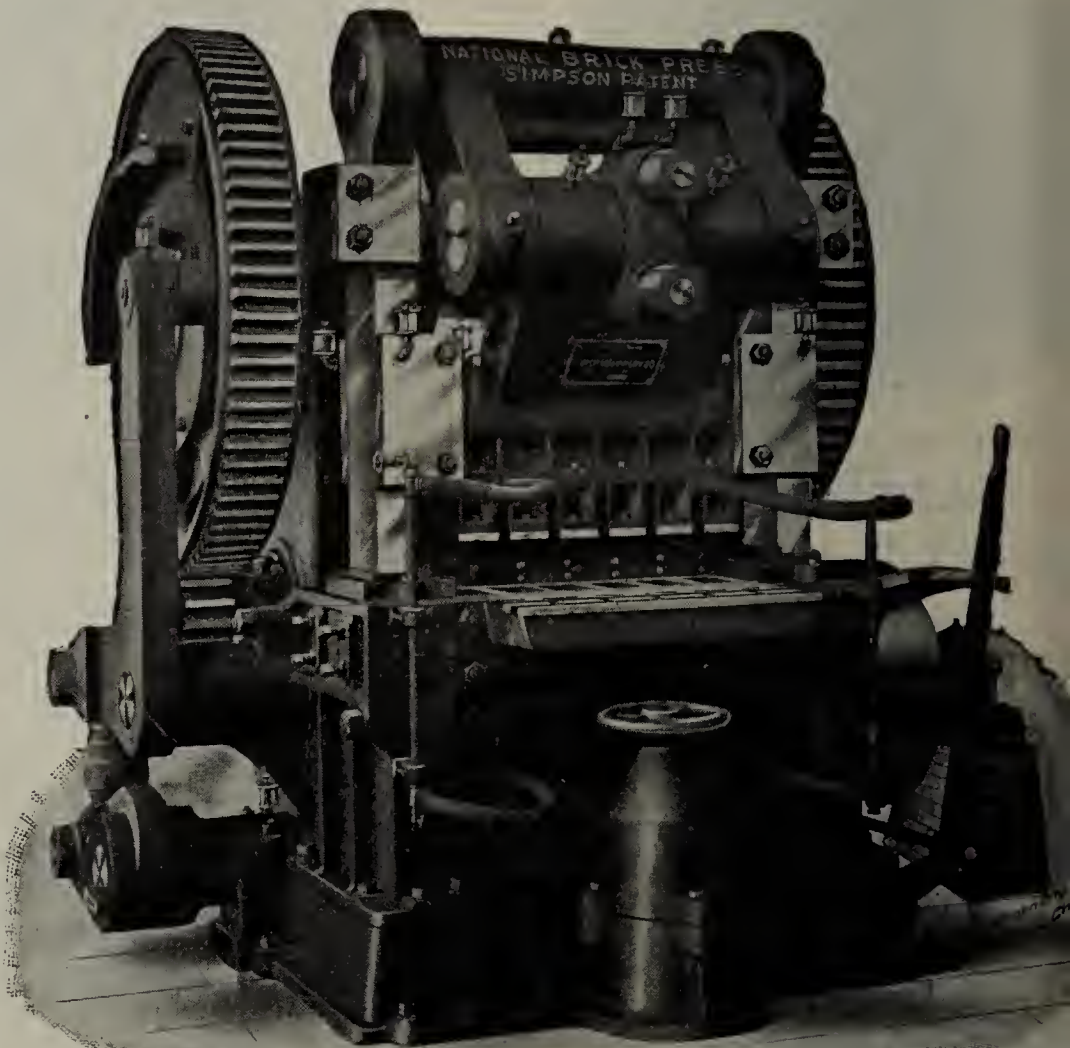
Correspondence solicited.

SIMPSON HAND PRESS.

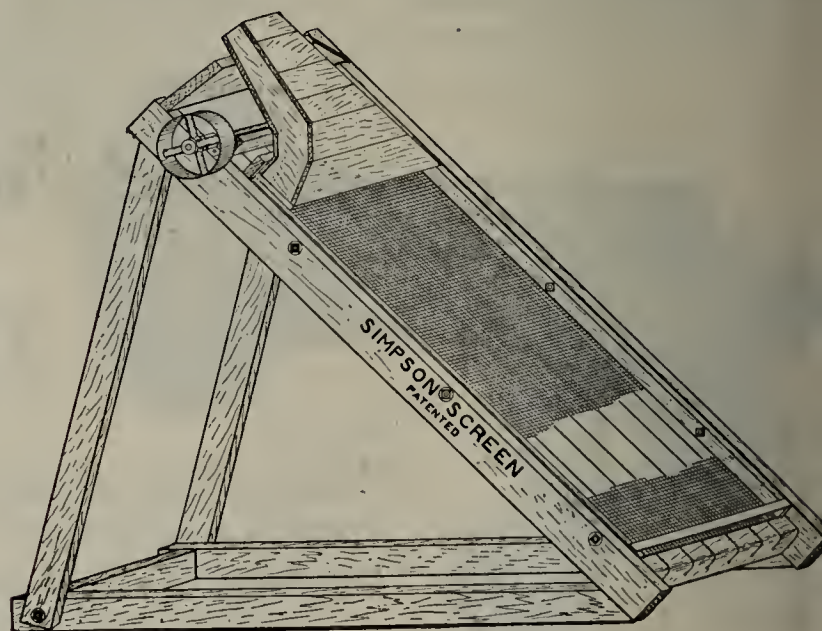


NATIONAL BRICK PRESS (SIMPSON PATENT)

Built in Four, Five and Six-Mold Sizes.



SIMPSON SCREEN.



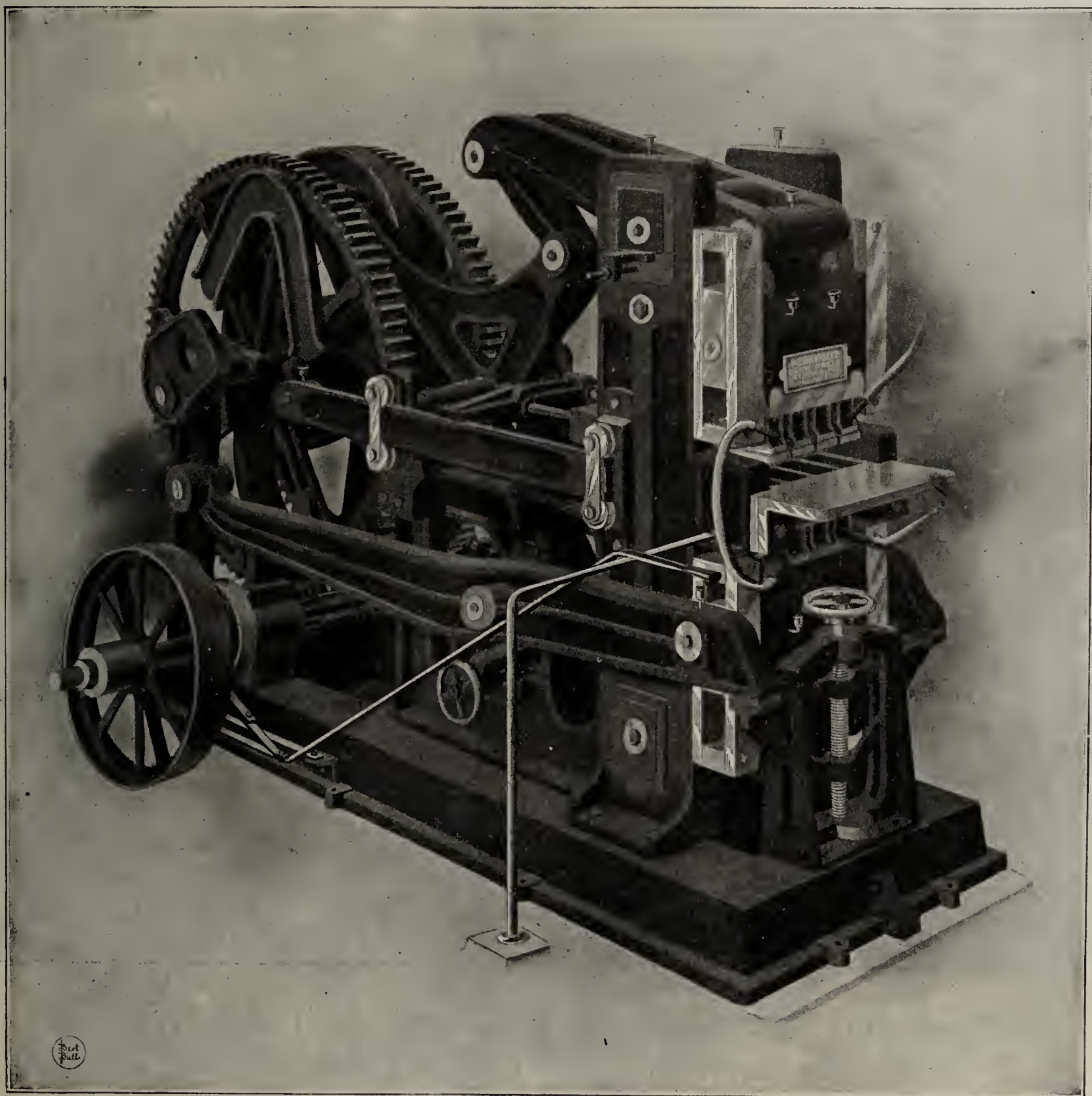
National Brick Machinery Co.,

Chamber of Commerce Bldg.

CHICAGO, ILL.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

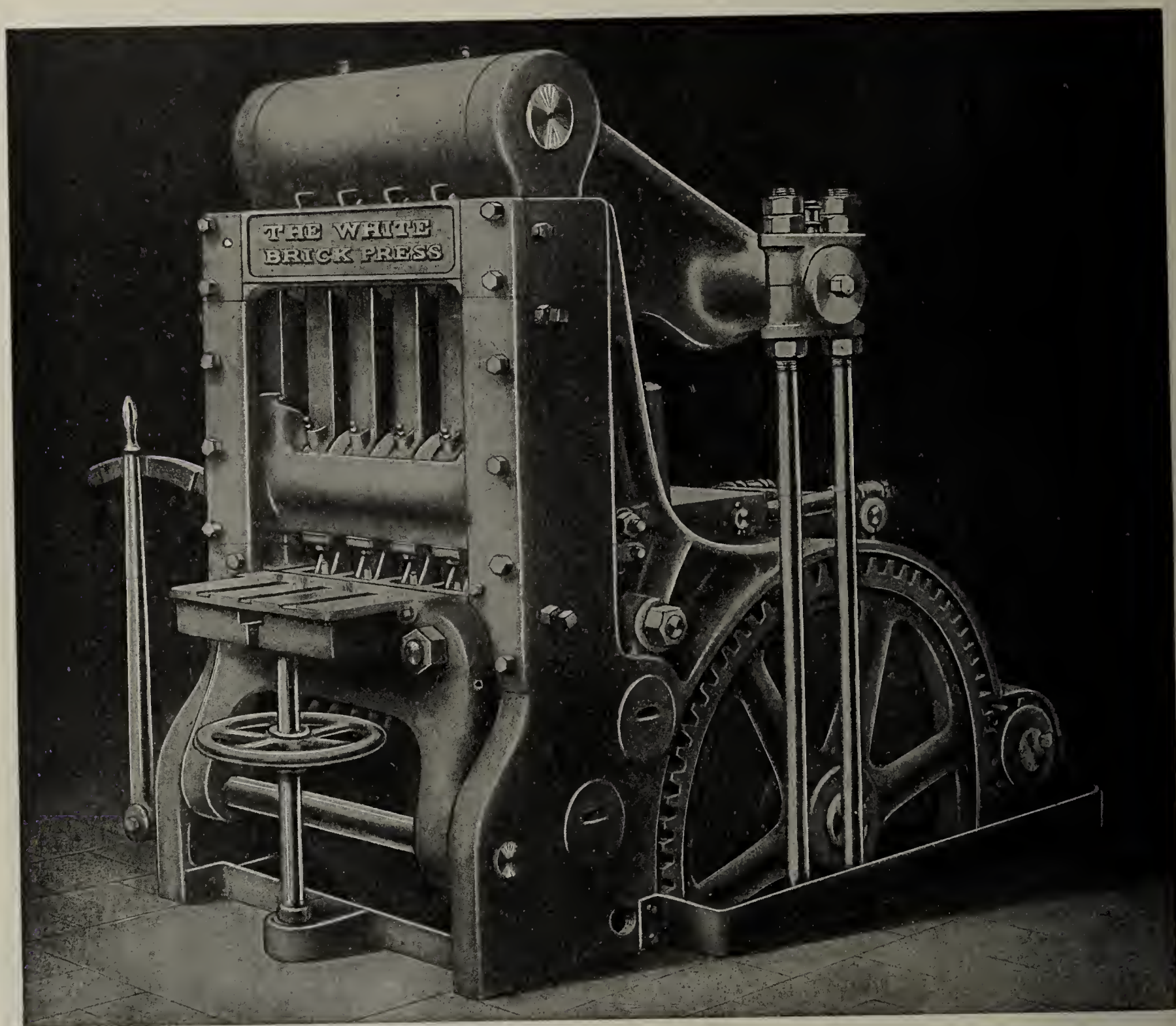


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

ALWAYS ON THE JOB— The White Brick Press.



When you learn of a Breakdown on the yard, you
may be sure it is NOT the Press if it is a

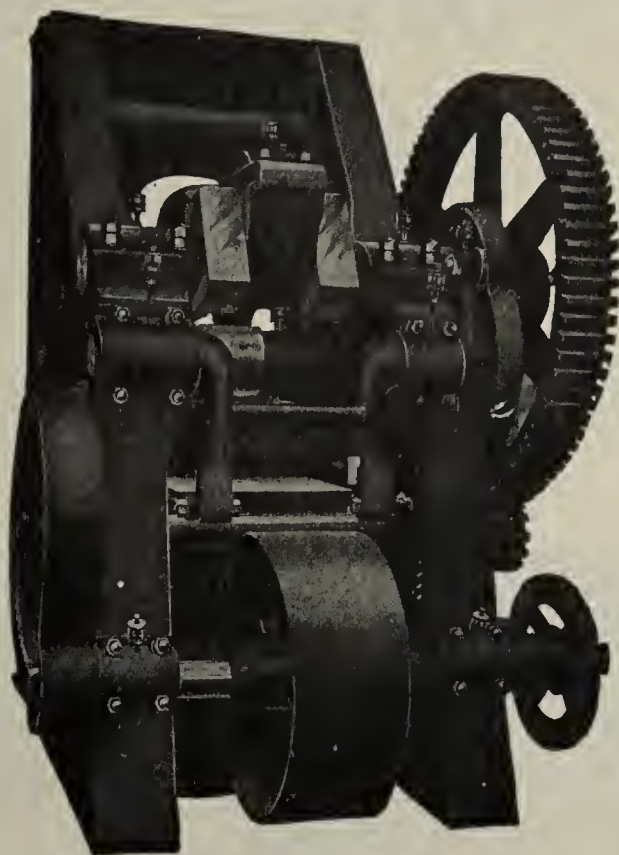
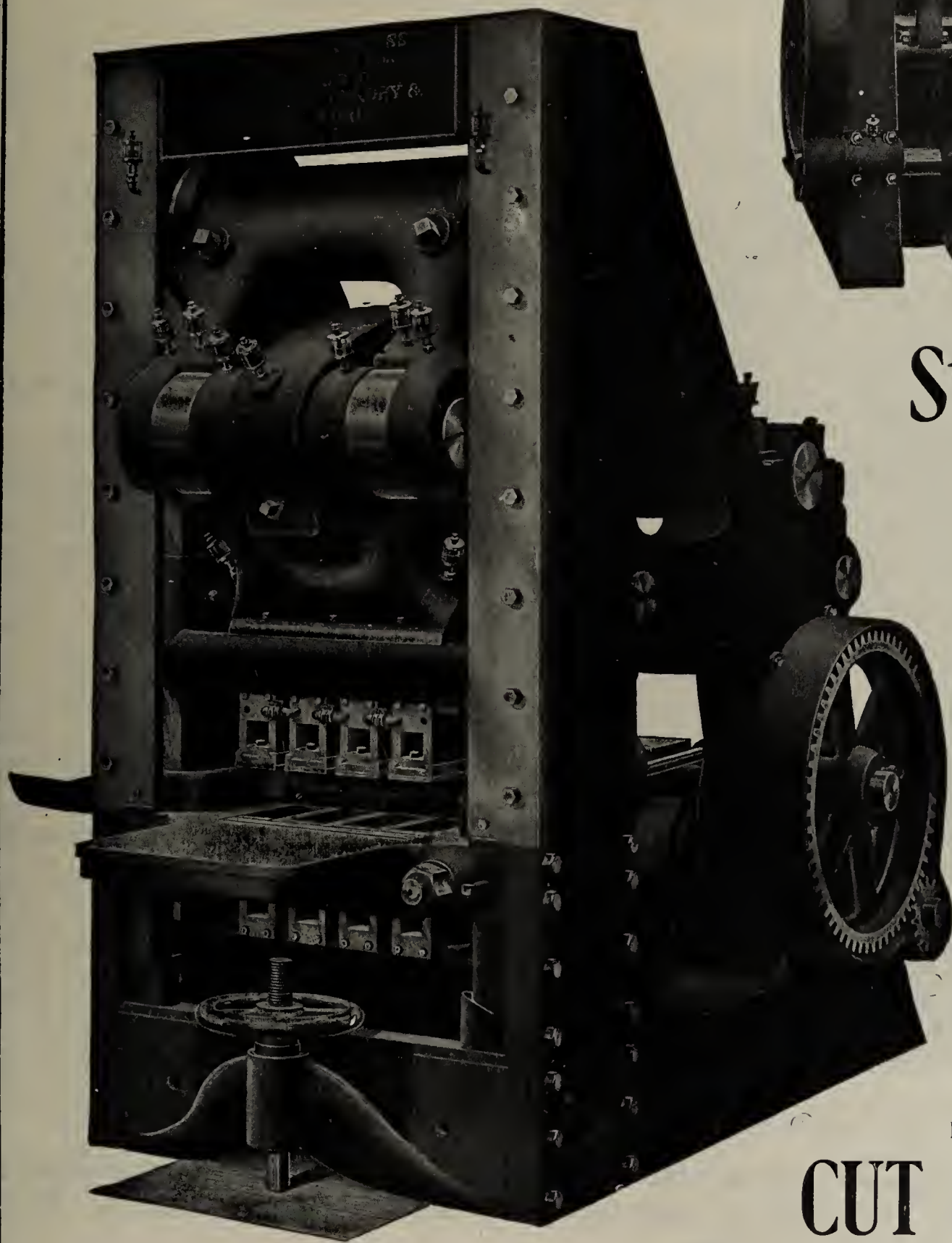
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CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

New Model Berg Brick Press



Back View.

Still in the
Lead
and
One Step
Further
Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact, and

SHIPPED IN ONE
PIECE.

Provided with

CUT GEARING

of either iron or steel, if desired.

Sold by

CHICAGO BRICK MACHINERY CO.,
Great Northern Bldg.
77 Jackson Blvd.
CHICAGO.

Manufactured and Sold by

Anderson Foundry & Machine Works,

Southwestern Office, Wilson Bldg., Dallas, Texas. ANDERSON, IND.

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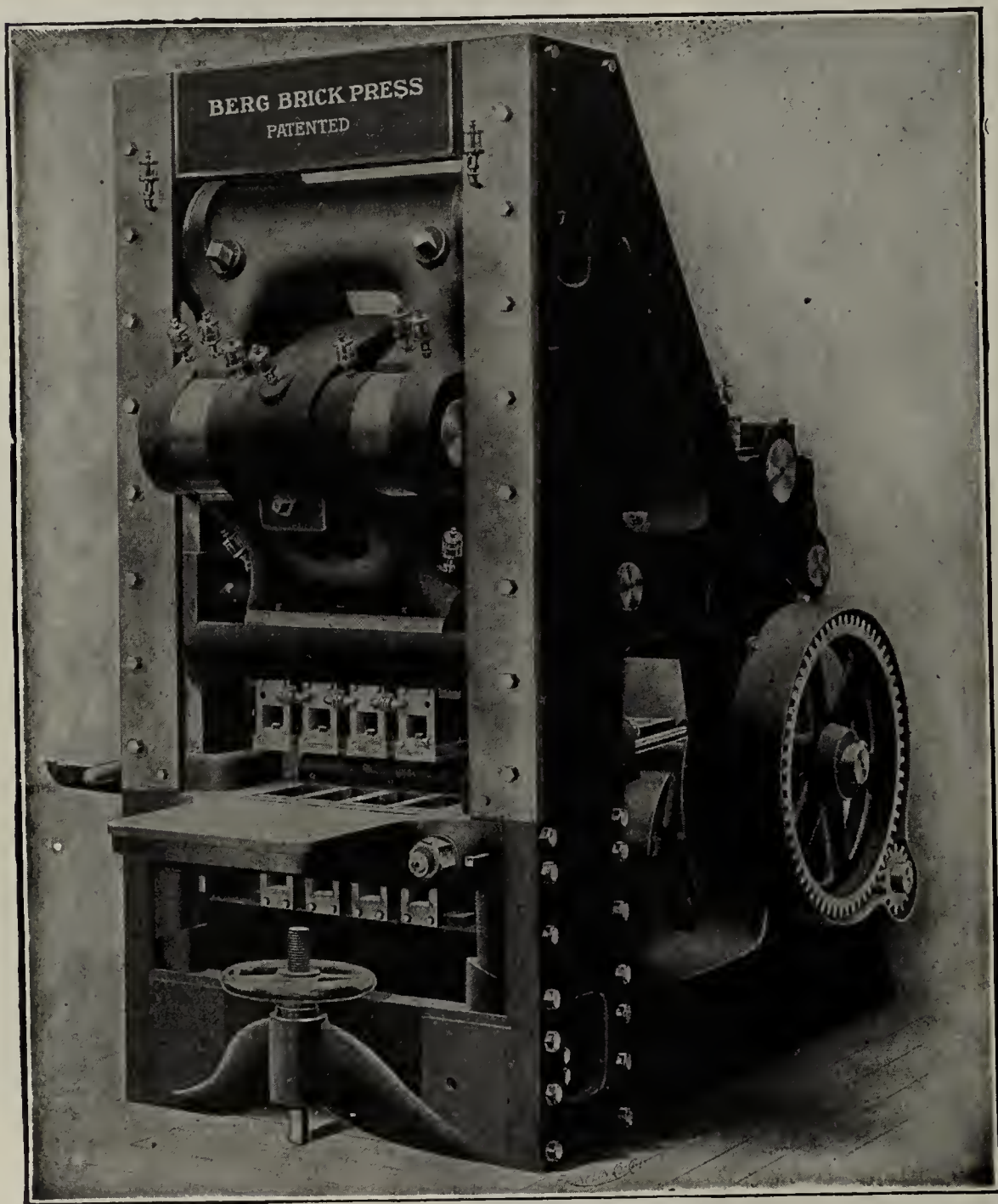
SIMPLICITY
STRENGTH
DURABILITY

ACCESS
TO ALL
PARTS

GREATEST
PRESSURE

BEST
PRODUCT

The "Berg Press" is The Highest Development in The Art of Brickmaking Machinery, so Pronounced by The U. S. Government.



IMPROVED BERG BRICK PRESS.

THE BERG PRESS EXCELS
for

Shale Pressed Brick.
Clay Pressed Brick.
Sand-Lime Pressed Brick.
Sand-Cement Pressed Brick.
Fire Brick.

THE BERG PRESS
Gives THREE Distinct PRESSURES:
Result is,
No Granulated Centers.

THE BERG PRESS
HAS ALL WORKING PARTS ABOVE
Clay Line.

THE BERG PRESS
is fitted with "THE BERG PATENTED
MOLD BOX"—the DELIGHT of brick-
makers, and which many OTHERS
have tried to IMITATE.

All Sizes and Shapes
Can be Made.
Molds Can be Changed in a
Few Minutes,
Owing to the
SIMPLE MECHANICAL
CONSTRUCTION.

Cut Gearing, and many other steps forward in *Improvements*, and built of the *Highest Grade of Material and Workmanship. Fully Guaranteed* as to its *Success*.

Manufactured by its Inventor in Toronto, Canada, exclusively. Also all equipments for Pressed Brick Plants to make *Sand-Lime Brick, Sand-Cement Brick, Shale Brick, Clay Brick* and *Fire Brick*. Correspondence solicited.

A. BERG & SONS,

Mention The Clay-Worker.

Manning Chambers, TORONTO, ONT., CAN

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An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryer, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

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A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

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A review of present practice in the manufacture, testing and uses of Vitrified Paving Brick.

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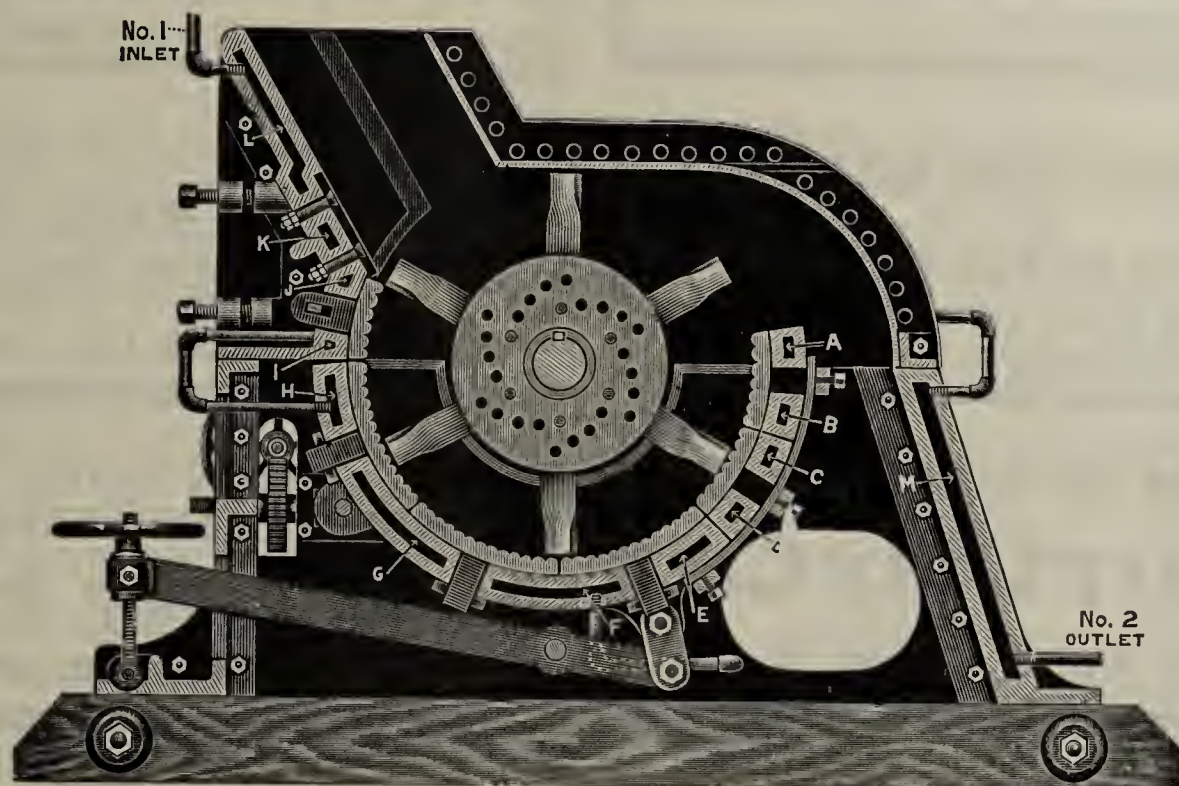
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We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

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St. Louis, Mo., U. S. A.

Old Colony Building, Chicago.

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Write for Bulletin 21.

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Vitrified Shale Paving Brick,
SEWER AND HARD BUILDING BRICK.
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Street Paving **Brick and Block.**

Samples on Application.

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Vitrified Shale and Fire Clay Paving Bricks and Blocks.

Burned in Yates' Patent Kiln.

Samples and Prices on Application.

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MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

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"SPECIALS," for crossings on macadam streets, GUTTER BLOCKS,
COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

Our material has for over fifteen years successfully stood the
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dozens of other large cities of Indiana and Illinois. We ask inves-
tigation and comparison by those seeking the best paving material.
Samples furnished on application.

Office and Works at VEEDERSBURG, IND.

Clinton Paving Brick Company,

Manufacturers of the Highest Quality of

Paving Brick

Which are offered to the municipalities of the Cen-
tral States under positive guarantee as to wearing
quality. None better.

Prices and samples sent on application.

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Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DE-
POSITS OF THE VERY BEST GRADES.

**Fire Clays, Terra Cotta Clays, Kao-
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Have been in the business for TWENTY-FOUR
years, and are prepared to meet every reasonable demand.
Unsurpassed shipping facilities. Prices and samples free.

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(C. A. Bloomfield, Treas. and Manager)

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HAS the largest and best equipped plant in the United States for the manufacture
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second to none, and this Company points with pride to its record for quality of
material and its methods of conducting its business.

Correspondence respectfully solicited.

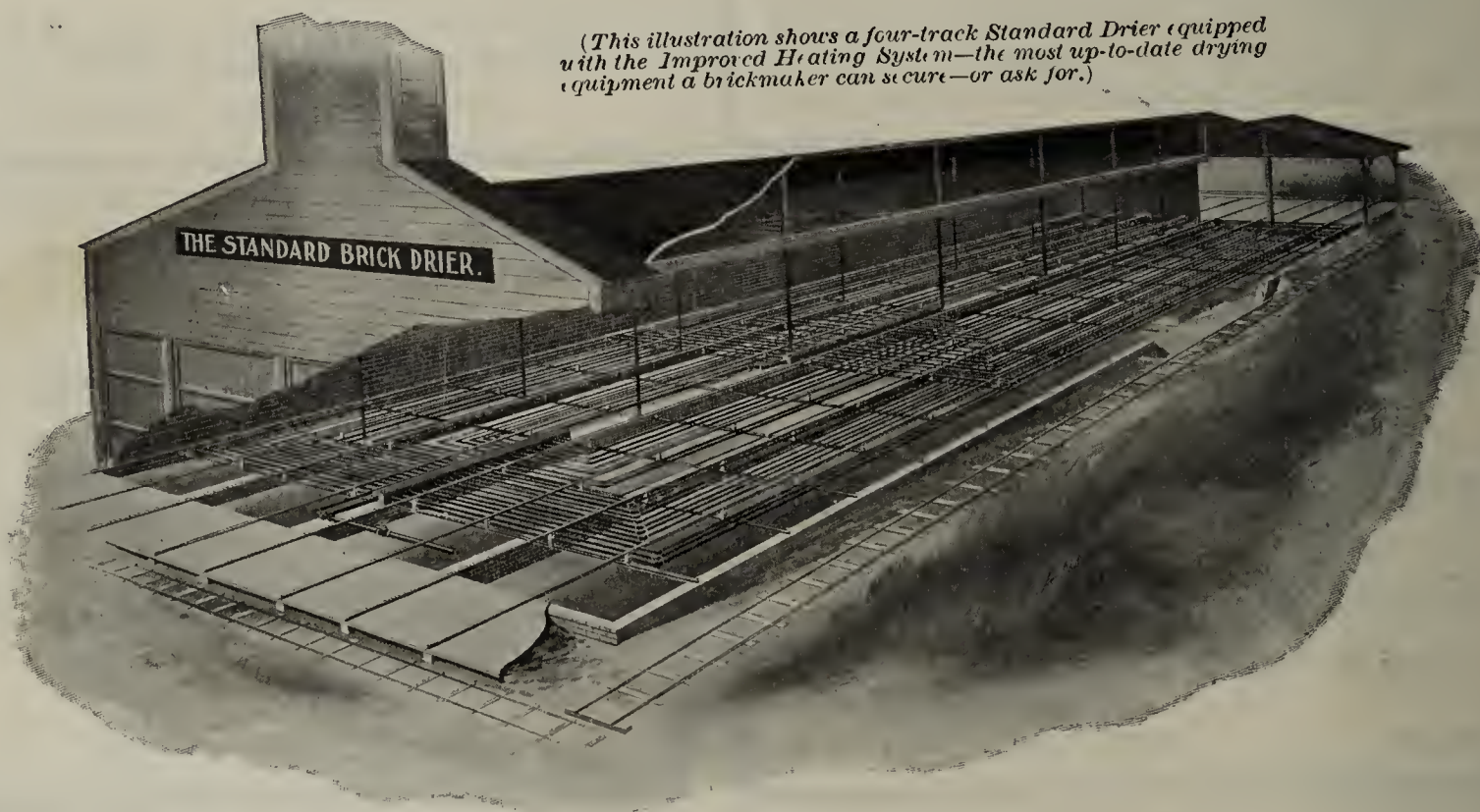
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647 South Pennsylvania Street, INDIANAPOLIS, IND.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. L

INDIANAPOLIS, IND., NOVEMBER, 1908.

No. 5.

Written for THE CLAY-WORKER.

CANTON'S FAMOUS PAVING BRICK PLANTS.

PAVING BRICK AND BLOCK SUFFICIENT TO GIRDLE THE WORLD.

CANTON, OHIO, has long been known as one of the most important paving brick centers in the United States. Here are located four of the seven large plants of the Metropolitan Paving Brick Company, a firm that markets annually over 125,000,000 paving brick and block. It is, without

doubt, the largest producer of paving brick in the world. Besides the four plants at Canton, the company owns and operates the Willow plant near Cleveland, one at Minerva, Ohio, and another at Moberly, Mo.

The four Canton plants are operated every day of the year, and are usually found running at full capacity. Even the coldest weather does not hinder the work. During the winter months, when street paving is almost impossible, the company makes ready for the spring demands, and stocks up on the yard millions of pavers. The spring trade cleans up the surplus piles, and few brick are seen in stock during the summer months.

The Metropolitan brick and block have a world-wide reputation for quality and durability. They have been shipped to almost every section of the United States, to say nothing of the orders the company has filled for shipment to Canada and Central America. It is interesting to note that the present output is such that two years' total production would be sufficient to girdle the earth with a line of paving brick four

to five inches deep and three and one-half inches wide. If the brick for the two hundred or more cities they supply in the United States were to be used for a national roadway, a pavement could be laid twenty-five feet wide that would extend from New York City to Chicago. For years they have been manufacturing millions of brick and have such rich and abundant shale lands that it will be several generations to come before their Canton plants run out of raw material.

The Canton plants are located in the southern portion of the city, a pair at either end of a 700-acre tract of shale land that extends to the southeast for several miles. The first pair

consists of the plants which we will refer to as the Canton and No. 6, while the second pair as the Imperial and Royal.

A Trip to the No. 6 and Canton Plants.

In making a trip through these plants, naturally the first point of interest is the fine shale bank, which averages 25 to 40 feet in depth. There is little or no top soil, so that stripping is unnecessary. This rich body of shale, which extends over the company's entire property, rests on a four-foot formation of limestone, which the company roasts in large furnaces, turning it into fertilizer, for which there is a ready market. Below this limestone is a two-foot



Setting Canton Pavers in Kiln.

vein of coal, beneath which is another rich shale body.

Large valleys have been made by the excavations in the shale deposits, which have been worked now for over twenty years. However, the deposits are so large and extend over such a long territory that they still seem inexhaustible.

A steam shovel is employed in the shale banks at either pair of plants, the banks being worked equi-distant between

the yards. These steam shovels are of the Marion No. 91 model, and have proven very satisfactory for the enormous amount of work necessary in gathering material sufficient to run the large plants. It is indeed interesting to watch the immense shovel swing down to the bottom of the bank and eat its way to the top of the hard face of shale, filling its jaws like some starving monster. With a sharp swing the shovel travels around to a point just above one of the six steel dump cars standing on the narrow gauge tracks ready to be filled, and with a rattle the bottom is opened and the shale dropped down into the car.

Each car holds two and one-half yards of shale, being sufficient material to make 1,000 brick. By the utilization of the steam shovel the shale is well averaged or mixed from top to bottom of the bank, so that a fine mixture is obtained and of such a constant composition that little or no trouble is experienced in the factory or the kiln. Not only is the steam shovel economical in this regard, but it also requires less labor in the clay field. Eight men are employed, while if the use of the shovel was abandoned, it would necessitate the working of a large force of men, digging, shoveling, etc. When the six cars are filled, a thirteen-ton Porter locomotive draws the train of cars to the plant. The locomotive makes in the neighborhood of fifty trips a day to either plant.



A Glimpse of the Kiln Yard.

The locomotive leaves the cars at the switch near the plant, where by means of a drum and cable they are pulled up to the top of the storage sheds, dumped, and then returned to the main track, where the locomotive couples on and takes them to the steam shovel to be refilled.

The storage sheds at each plant hold sufficient raw material for one week's run. The clay in the storage shed is shoveled onto belt conveyors that take the material directly to and into the pans, where it is ground and elevated to piano wire screens. There are three nine-foot dry pans at each plant, all of the Bonnot Company's pattern. The screens are of the Metropolitan Paving Brick Co.'s own make. The screened clay drops through chutes into the pug mill and brick machine, also made by Bonnot. In fact, all of the clayworking machinery in the four plants is for the most part of the Bonnot make, this type having proven satisfactory in their work.

From the machine a stream of clay runs from a die the size of a brick onto an automatic cutting table, where it is cut into brick and blocks. Two brick and twelve block are cut at a time, and are pushed forward by the stream of clay behind onto a fast moving belt that takes them along between a row of cars and represses.

Men standing on either side remove the brick and block from the belt, the brick being placed on dryer cars to the left,

while the block are put through the three represses on the right side of the belt. The represses stamp on the block in raised letters the words Metropolitan Block, while in the center is the depressed lettering, Canton, O.

The block are taken from the represses and placed on dryer cars, which when loaded are pushed into the dryer which is of twenty-tunnel construction and utilizes the waste heat from the cooling kilns. At No. 6 they employ a 13-foot fan and a Rogers furnace auxiliary, while at the Canton plant a Sturtevant fan with coil auxiliary is used. The former has a 10-foot disc exhaust fan, motor driven, while the latter used a stack exhaust.

From the dryer the cars are pushed to the kilns, where the



General View of the Canton Plant.



A View of No. 6 Plant from a Neighboring Hill.

brick and block are set 28 benches high. There are fourteen rectangular kilns at plant No. 6, all of down-draft construction with individual stacks for each furnace.

The power at the plant is furnished by a 350 h. p. rope drive Russell engine. A 75 h. p. generator furnishes electricity for the lighting of the plant and for operating the drum for the cable which brings the dump cars up to the top of the storage shed from the switch where they are left by the locomotive. A large pump is used for water supply.

Depressed tracks run past the doors of the kilns, which are built in a row, so that the emptying of the kilns is an easy matter. Ample yardage room is afforded on the opposite side of the depressed tracks. The B. & O. railroad runs into the

No. 6 plant, while the Wheeling & Lake Erie is used at the Canton. At the Canton plant, which is small but the older of the two, there is about the same equipment as installed at this plant, though only two represses are used. There are nine kilns here of the same type and capacity as at the other yard. The power is furnished by a 250 h. p. Buckeye engine. These two plants have a daily capacity of 175,000 on the seven-pound brick basis, averaging daily 100,000 block.

Imperial and Royal Plants.

This pair is the more important, inasmuch as we find here the famous Imperial plant, easily the largest one the company possesses. This plant turns out 75,000 block daily. The



From Dryer to Kiln.



Dried Brick Ready for the Kiln.

same size steam shovel as at the first pair of plants is used here, and the shale is taken to the plants in the same manner except that the locomotive here takes the cars directly to the storage sheds, thus doing away with the cable and drum system. Three dry pans are used at the Imperial and the rest of the machinery is identically the same as at the other plants, being all Bonnot machinery, save for the represses, which are of the Richardson type. The Royal plant, which has a smaller capacity, uses two dry pans. The power for the Imperial plant is furnished by a 400 h. p. Corliss engine and a four-boiler battery. A 10 h. p. generator is used for generating electricity for lighting. The power of the Royal plant is furnished by a 250 h. p. Russell engine. A small generator is used here for lighting the plant. The Imperial plant has a twenty-track

dryer, thirteen kilns being used for the burning, while at the Royal there is installed an eighteen-tunnel dryer and ten kilns.

These two plants have good shipping facilities, as the Wheeling & Lake Erie railroad passes in close proximity.

The water supply for the Imperial is furnished by deep driven wells, while at the Royal the water is obtained from a creek. All of the four plants are supplied with water towers. The Imperial plant is the only one that is not absolutely fire-proof, being the oldest plant and consequently not as up-to-date as the others, although the largest and most important. There is a large machine shop at the Royal plant, which is utilized for making all repairs. Blacksmith shops have been built at each plant, where the steam shovel teeth are sharpened every week and minor repairs made. All of the plants have good brick barns for housing the teams. The teamsters and burners live in dwellings also built by the company.

The company erects all of its buildings, barns and kilns, and does all of its own repairing. It employs a master mechanic, a master mason and carpenter, and carries a track gang for repairing the tracks and keeping the narrow gauge roads in first-class condition. This track gang is in charge of an experienced foreman. In all the company employs over 500 men.

The Metropolitan Block are burned with a high grade bituminous coal, over two hundred tons being used daily. The



Machinery Room, showing Represses and Conveyor Belt.

block when vitrified and thoroughly burned weigh ten pounds each, being hard and tough and of such a homogeneous structure that they withstand remarkably well the most severe tests to which any paving material can possibly be subjected.

It is claimed that Mr. Tillson, the author of "Street Pavements and Paving Materials," paid the Metropolitan Paving Brick Company a high compliment by stating that he considered their block one of the best of paving brick.

The fact that Canton, Ohio, will have none but brick paved streets is a proof of the satisfactory results obtained through the use of high grade paving brick. Canton has no asphalt, wood or sandstone block pavements. Brick pavements have been down nearly twenty years in this city, and are still in excellent condition, while the cost of repairs have been practically nothing. The traffic over these pavements is considered about the average. Under heavy traffic the city engineer estimates the life of the pavements to be from 25 to 30 years, while he declares the life under lighter traffic is indefinite. A good cement filler is used, which is considered one of the main essentials to good brick paving.

The Metropolitan brick have proven their worth in hundreds of other cities as well, and owe their success to the adherence to the rule that each brick shipped out must be an honest brick and must be laid according to definite specifications, made upon facts learned from long experience. With every new order the Metropolitan gives a guarantee, the strongest paragraph of which is the one stating that their guarantees are

of such character that they will replace every brick without cost to the taxpayer which does not come up to the claims made for it.

The Metropolitan Company was organized in 1902, having its origin in the Imperial Brick Company, whose plant was built in 1888. The officers of the Metropolitan Paving Brick Company are as follows: C. W. Keplinger, president; W. E. Keplinger, vice president; J. J. Sullivan, vice president; H. S. Renkert, secretary and treasurer; H. G. Barbour, assistant secretary; J. M. Shreffler, manager of sales and A. P. Maurer, assistant manager of sales.

J. E. R.

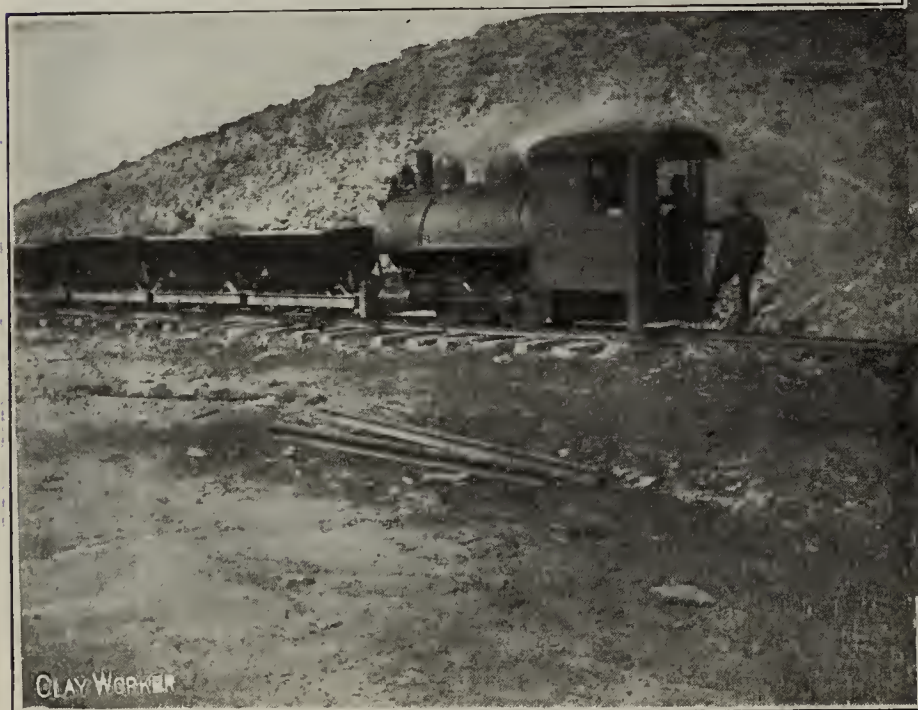
Written for the CLAY-WORKER.

THE CHICAGO SITUATION.



EXT YEAR WILL BE the best building year in the history of Chicago. This is the prediction which contractors, dealers in building material and brickmakers are putting forth as a result not only of the election, but also of the general conditions existing in the building market. Many building contracts which were held back dependent upon the election of William H. Taft, as President,

An Excellent Shale Bank.



The Mammoth Steam Shovel at Work.

and the continuation of the administration, have been let, and plans are being prepared for still more buildings to be put up next year. Already there is enough work on the boards to make it a good year for deliveries, and still more is coming.

This year has been active enough to please everyone, and the predictions of still greater activities next year are based on the belief that prosperity is not only to continue at its present standard, but will return to the flourishing conditions of 1906-1907. The architects expect to be busy all winter long, judging from present indications, and the contractors who, by the way, are not going to have much of a let up at any time during the winter, are looking for an unusual boom with the beginning of open weather in the spring.

One of the best indications of the way the election was going was the rate at which speculative builders let go of themselves and rushed into the market in the last two weeks of October. For several weeks before that the building records showed a considerable decrease from that of corresponding weeks in 1907. But the week ending October 25 showed the first decided jump. That week the number of permits taken out was 175, as against 116 for the same week last year, and the estimated expenditure involved was \$1,418,-

500, against only \$899,400 for 1907. The next week—the last before the election—an even greater increase was noted, the permits for that week running 176, as against 82 for the same week of last year, and the investments represented standing \$1,340,900 to \$686,000 for the week of the previous year. These last two weeks alone brought the record for all October, 1908, far ahead of October, 1907, although the previous month of this year had fallen behind September, 1907, a trifle.

Since election, business has come on so fast that it looks as though the winter would not be a profitable time for vacations. On the day after the election a permit was taken out for a six-story \$100,000-warehouse, to be erected for the McClurg Publishing Company, on Ontario street. The Blackstone Hotel, on Michigan avenue, south of Harrison street, which had been rather held back, came to the front with a request for figures on brick within a day or so after November 3.

The biggest structure for which permits have been taken out since election day is the large new building of the People's Gas Light and Coke Company, at the northwest corner of Adams street and Michigan avenue. Fees for permits were based on an estimated investment of \$2,500,000, and

netted the city \$793. The new building, which is to be a general office building in addition to housing the various departments, offices and show rooms of the gas company, will be 275 feet high. This is 15 feet higher than the limit prescribed by city ordinance, but as the difference of 15 feet lies wholly in the construction of the roof, the plans were passed by the building department.

In connection with the violation of the height limit for buildings involved in the erection of the gas company's structure, a movement has been set on foot to reduce the limit from 260 feet to 160 feet. This movement was started with the idea of checking the growth of great skyscrapers, but it is being fought with determination by the real estate interests of the city, and will probably not amount to much. The entire building code of the city is undergoing revision just now, and the real estate and building interests are watching the proceedings narrowly. The last revision followed the Iroquois fire horror, and is said to contain some defects, due to the fact that the condition of the public mind at the time dictated over-caution in legislating by the city council along this line.

Next to the gas company's office building, the most noteworthy building enterprise set forward is that of Morris & Co., packers. This company will put up, within the next

few months, a new cold storage plant at West Forty-seventh and Loomis streets to cost in the neighborhood of \$750,000. The building will be seven stories in height, and each floor will have an area of 243 x 214 feet. Building critics are surprised to see this amount of money go into a structure which they deem very much of an experiment, and an experiment for which there is no large number of favorable precedents. It is the present plan of the company to make this building of reinforced concrete construction, instead of using the brick and steel and fireproofing method which has general approval.

The erection of a \$200,000-hat factory for Friedman & Co. is planned. It will be put up at Loomis street and West Jackson boulevard. It will be of brick construction and fireproof.

One of the fine new buildings for which material contracts have just been let is the Northwestern University gymnasium at Evanston. The Thomas Moulding Company secured the contract for the exterior, and will furnish its Titanic light gray brick for this part of the work. The brick for the interior are to be furnished by the S. S. Kimbell Brick Com-

wall now can be had which will offer none of the unpleasant hardness and glare of aspect, to which objection has sometimes been made. By mixing manganese with the buff clay a gray is produced, and a brown by mixing manganese with red clay.

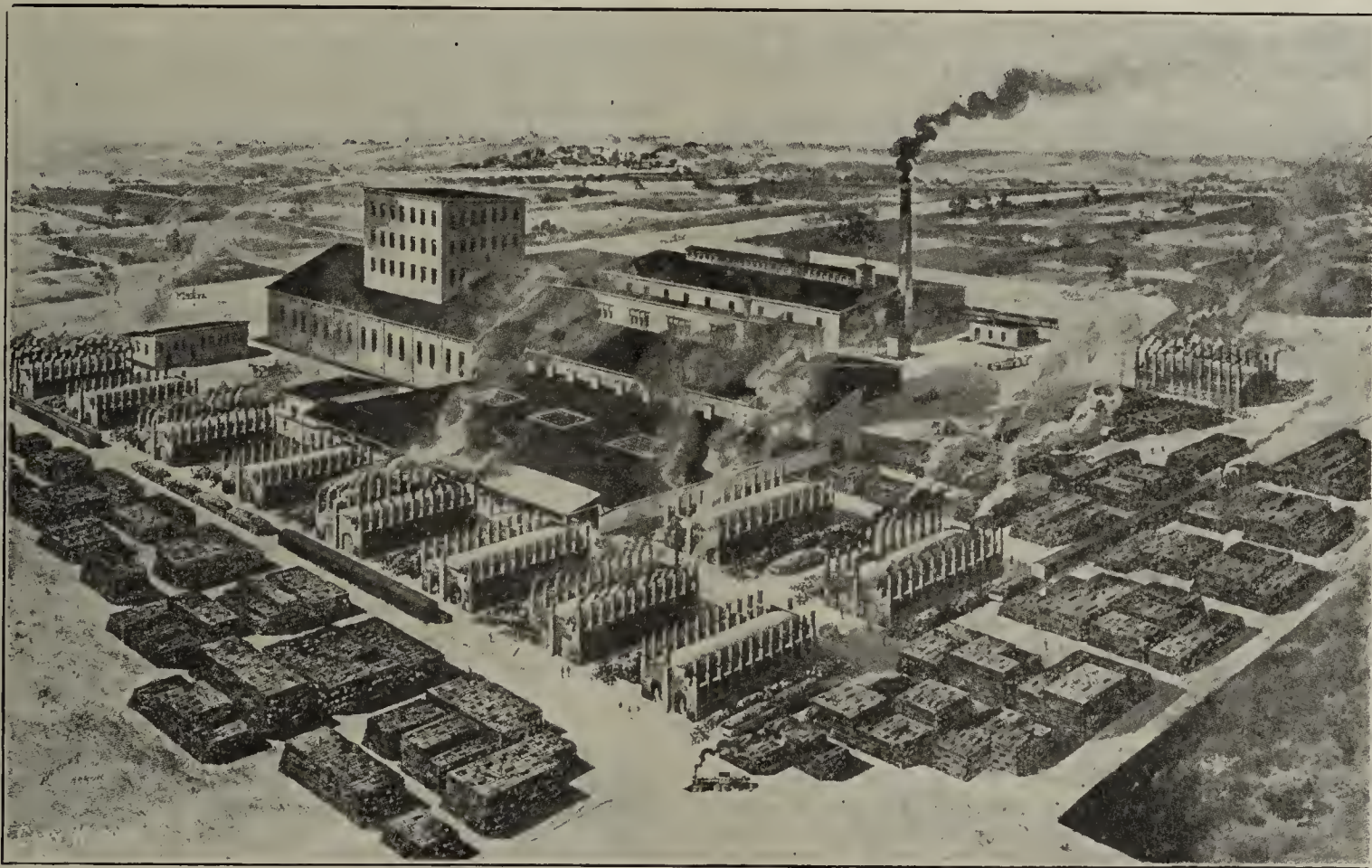
The S. S. Kimbell Company is now delivering 400,000 of the Devonshire face-cut brick for use in the Bowen High School, in process of construction in South Chicago. The lower courses will be in gun metal, and the upper courses in red.

At the rate at which plans are going forward for the next year, by the end of another month the builders will have a pretty fair line on the amount of business to look forward to.

SCRIP.

A CHARMING PICTURE.

A famous inventor named Maxin, in a highly colored word picture of the future in a current magazine, takes the position that when science and invention have progressed a little further we will be required to work only for exercise, and



General View of the Canton Plant of the Metropolitan Brick Company.

pany, which submitted figures on its Columbus Vitrified Ivory Buff brick.

The Chicago City Railway is putting up a new substation at West Forty-eighth and Honore streets. Purington Purple Continentals to the number of 60,000 are to be used on the outside, and 125,000 of the Templeton buffs, all from the S. S. Kimbell Company, will be used inside.

A good deal of interest is being manifested by architects and builders who are always looking for unusual and stunning effects in architecture, in the experiments now being made in the face-cut finishes for face brick. This type is altogether taking the place of the old "rain drop" brick, which had such vogue a few years ago. The experiments now are running into lines of buffs and lighter colors, whereas until recently this type of brick was found only in the darker shades—the reds and browns and gun metals. Such a brick was the Oriental brick, which has had a wide usage, and the Devonshire face-cut, which has also found admirers.

So much success was attained in softening the tone of a wall by the use of the darker face-cuts, with their mossy and tapestried effects, that efforts were made to see if similar results could not be achieved in the lighter shades. A buff

wealth will be so common as to be immaterial. In short, there won't be any need for tired men, poverty stricken families, for ill health nor for unhappiness of any kind. At times when we feel particularly optimistic we get to thinking that there is really no need for anybody to go hungry or poorly clothed right now, nor for anyone to be burdened with excessive labor, because we have inventions and science enough to provide for all, if we could only get the machinery of distribution to working better. Still, we are slow attaining the end of proper distribution, and as this winter promises to be a pretty severe one on lots of people we would like to urge this great inventor and others who think like him to hurry up and keep the wheels of invention moving toward this ideal end, even if in so doing they have to neglect furnishing copy of a sensational nature for magazines.

It should go without saying that every public building ought to be built of brick or some equally durable structural material. Most of them in the cities are, but in the country districts there are many school houses which are not built of brick, but ought to be. This is a pretty good point to keep in mind and bring into play when occasion furnishes an opportunity.

THE TESTING OF CLAYS AND CLAY PRODUCTS.

AN INVESTIGATION OF CLAYS and clay products needed in Government work is to be undertaken at once by the United States Geological Survey, Technologic Branch. A ceramic section has been created, with A. V. Bleininger, recently of Champaign, Ill., as ceramic chemist.

This is an important extension of the structural materials investigations which have been carried on for several years, with a view to determining the nature and extent of the materials belonging to or available for use in the building and construction work of the Federal Government, and how these materials may be used most efficiently.

With the growing scarcity of timber and the consequent increase in price, Federal officials in charge of the construction work, which now amounts to \$40,000,000 annually, have been looking about for desirable substitutes, such as clay products and concrete. The enormous fire losses of the country have also been an incentive in this direction, the Federal engineers realizing more than ever before the need for more definite knowledge concerning the fire-resisting properties of structural materials.

All this has led the Government to take up a general investigation of the clays and clay products.

It is believed that the coming tests, though conducted to meet the needs of the Government, will be of great value to the engineering profession and the general public. This construction work of the Government is being done under so many different conditions, and requires so great a variety of materials, that the problems which the Government needs to have solved for its own purposes can hardly fail to be broad enough to cover a large share of the needs of the engineering profession, for State and municipal governments, and for the general public.

The importance of the clay industry is seen when it is realized that the value of such in 1907 was \$149,697,000, a gain of 14 per cent. over the previous year.

Mr. Bleininger, the ceramic chemist, in speaking of the plans for the work of his section, said: "First, it is intended that it should do the testing of clay products, such as common and pressed brick, paving brick, hollow tiles and conduits, sewer pipe, fireproofing, terra cotta, enameled brick and glazed tiles, floor and roofing tiles, fire brick, electric porcelain insulators, and other structural goods submitted for this purpose by the construction bureaus of the Government. Though standard tests of most of the above materials do not exist as yet, the work of the division would tend to fix and unify the methods of testing of the burnt clay products, thus insuring the highest quality of ware obtainable in the industry for the construction work of the Government. It is in no way intended that the testing be done arbitrarily, without due regard to the just claims of the manufacturers, but it is proposed to aim for results beneficial to both the Government and the conscientious manufacturer.

"The second part of the activity of the new section is to consist in evolving standard tests of clays for the purpose of determining the use to which they are best suited, thus assisting in the development of the clay resources of the country, and avoiding the great money losses caused by ill-advised investments in low-grade clay properties. This field is an extremely important one, and was urged upon the United States Geological Survey by the American Ceramic Society and the National Brick Manufacturers' Association, the two leading organizations devoting their attention to these lines. Until the proper methods are devised, clay testing will continue to be an empirical procedure, depending upon individual experience and judgment, which are deceived only too frequently. An examination of many failures of new ceramic enterprises may frequently be traced back to a mistake made in the selection of a clay deposit.

"Strange as it may seem, it is nevertheless true that we do not fully understand such familiar properties as the plasticity of clay, and no satisfactory method for determining the varying degrees of plasticity is known. Similarly, the nature of the various grades of clays, from the kaolins of North Carolina and Georgia to the paving brick shales of

Ohio, Indiana and Illinois, is not clearly understood, and the settling of these questions would mean the explorations of deposits representing enormous economic values. The problem of differentiating between shale suitable for paving brick and those unsuitable for this purpose is agitating many manufacturers.

"The standardization of clay testing is proposed to be carried on in co-operation with the English and German investigations, so that finally international standards may be adopted.

"The third class of work to be entered upon deals with the general manufacturing problems, the solution of which would mean the elimination of much loss, or would lead to greater efficiency and perfection. There might be mentioned the important question of 'white wash,' or efflorescence appearing on brick walls, a difficulty causing serious annoyance and loss to manufacturers and users of brick by marring the beauty of many structures. Of other problems there might be mentioned the proper heat treatment of paving brick clays, the drying of tender clays, the burning of clay wares in the continuous kilns, the reduction of heat losses in burning, the adaptation of kilns to the use of low-grade fuels, the proper preparation of hard shales for plastic molding, the proper structure of firebrick and tile for different uses, the elimination of injurious structure in ware made by the auger machine, the best physical structure of fireproofing, and many others.

"In all of those investigations the Survey will consult with an advisory committee, composed of a number of leading clayware manufacturers and technologists, so that the needs of the industries will be served in the best manner.

"The ceramic laboratory of the technologic branch will begin work at once on three investigations, of which the first deals with the testing of burnt clay products. It is intended to study the relation between the true crushing strength of commercial brick and their porosity, the object being the establishing of a technical definition for a good building brick, thus enabling engineers and builders to reject poor materials and encouraging the manufacturers of well made and burnt brick. Although many hundred crushing strength results of brick have been published, it is a fact known to those familiar with the testing of brick that the tests as usually carried out are subject to grave experimental errors. It is proposed to eliminate these by adopting a standard test piece in which the proper ratio of the dimensions is maintained. By making the standard pieces on the same machine, and under the same conditions as the brick, a factor should be obtained between the crushing strengths of the standard blocks and the brick, which would lead to the calculation of the correct crushing strength of the brick. At the same time the crushing strengths are to be correlated with the porosity obtained from the true and the apparent specific gravities of the specimens for each of the three processes of brickmaking; the soft, the stiff, and the dry clay methods. It is expected to do this work at a number of brick centers of the country. In this manner it is hoped that the lowest permissible strength of a good commercial brick will be clearly established, and the uncertainty now existing removed.

"The second investigation is intended to begin the study of the clay testing methods, and the fundamental property of plasticity is to be attacked from a new standpoint, with the hope of working out a practical rapid method for the discrimination between the different clays, with reference to their working quality and general plasticity. The method depends upon the absorption of some complex organic substance in solution and the determination of the amount absorbed by the clays, using calorimetric methods.

"The third investigation deals with the study of the difficult drying clays found in many places, especially in the western States, of the type of the 'joint' clays. These clays cause such great losses on drying that their use has been abandoned in many instances. It is proposed to treat these materials in a commercially feasible manner, so that they will become available for industrial purposes. This work assumes some importance, since frequently these clays occur in localities devoid of other workable clay deposits and lacking timber resources."



Pottery Export from Germany.—There were exported from Germany in the first half of this year 21,776 tons of porcelain ware. Of this amount 14,538.2 tons were exclusively tableware, while 2,480.6 tons were electrical articles. Porcelain buttons amounted to 382 tons, and porcelain insulators and electric porcelain reached the total amount of 2,684 tons, while miscellaneous porcelain amounted to 1,891 tons.—Tonind. Z., No. 101, 1908.

Smoke Complaint.—The University of Bonn, Germany, has brought suit against the porcelain and tile works of Ludwig Wessel, at Bonn, and has asked the court to prohibit the pottery from using its kilns. The complaint states that the university authorities claim that the gases from the pottery kilns are injurious, and kill all the plants in its botanical gardens. The pottery, on the other hand, claims that all its kilns are equipped with the latest devices for smoke consumption, and that gases as passed from the stacks are harmless to plants.—Keramische Rundschau, No. 34, 1908.

Crushing Strength of Brick.—Recent tests made by the Royal Prussian Testing Station at Gross-Lichterfelde have shown that sand-lime brick as manufactured today around Berlin are of inferior quality, so far as the crushing strength is concerned, as compared with clay brick. The crushing strength ranged, in twenty-two tests, from 1,976 to 3,796 pounds per square inch. The average test on paving brick was between 7,110 and 8,500 pounds; on hard-burnt building brick from 3,550 to 4,980 pounds, and on backing up brick or common building brick from 2,200 to 3,550 pounds per square inch.—Deut. Topf. & Z. Z., No. 69, 1908.

Slip Glazes for Roofing Tiles.—For the burning of slip glazes on roofing tiles, and also for glazed buff brick, which will mature at a heat corresponding to Cone 10, the zigzag kiln is not adapted. Its construction is such that the long duration of the high temperature will work injuries on the kiln proper. The many sharp corners in the flues will also not give proper, even burnings. The best kiln for burning glazed roofing tiles at a temperature of Cone 10 is the continuous kiln. These kilns can be so constructed that the flame and gases will not work on the glaze in an injurious manner. The periodical round down-draft kiln is also recommended for this purpose.—Deut. Topf. & Z. Z., No. 64, 1908.

The Use of Broken Pottery.—The broken biscuit and glost ware of potteries can, to a certain extent, be used to advantage in the manufacturing of pottery. The pieces are ground fine, and used as an addition to the regular pottery body. They also can be used for glazing material with great success. In a pottery body consisting of 25 per cent. of kaolin, 25 per cent. of ball clay and 10 per cent. of feldspar, 40 per cent. of ground biscuit and glost ware was used. The broken ware was ground thirty-six hours on a ball mill. By the glaze there was always used from 20 to 25 per cent. of this ground material. This same method is also used for the manufacturing of porcelain.—Sprechsaal, No. 29, 1908.

Glass Pots Made by the Casting Process.—At the glass works of Kirschbaum & Hellwig, in Pirna, the casting process for glass pots has been introduced and operated for nearly a year. They use a six-pot furnace, and all their glass pots are made under the new process. The advantages of this process are that it saves much room in the clay department. The new pots dry quicker than the hand-made pots. The casting of a glass pot holding twenty-eight tons takes only four

minutes. The wages are saved in proportion, while they formerly employed one potmaker and six helpers, they have now only one potmaker and one man. The life of the pots are just as long as the hand-made ones on an average. They have found, however, that several pots lasted from one to two weeks longer than those made by the old process. The pots are much smoother on the inside than the other ones, and lesser clay will be dissolved by the glass mixture. The melting of the glass in the new process pot is from three to four hours quicker, on account that the pots stand higher heat. There is no more shrinkage after the pots are once set.—Sprechsaal, No. 28, 1908.

Record Prices for Old Delft Faience.—At an auction which was recently held at The Hague, Holland, some Delft faience and Hague porcelain was sold at record prices. The Dutch have taken in the last few years a great fancy to collect old Delft, and the prices paid are in harmony with this movement. For three vases in polychrome \$4,300 was paid, and for small animals, such as horses, cows, chickens and others, the Dutch buyers paid willingly from \$200 to \$300 per piece. The record price was paid for a royal dinner set of Hague porcelain, which was bought by an Amsterdam wholesale dealer for the sum of \$8,500. The dinner set consisted of 156 pieces.—Sprechsaal, No. 30, 1908.

Cleaning of Brick Fronts.—Mr. Fred. Hauers read a paper in the meeting of the German Association of Brick and Terra Cotta Manufacturers regarding the cleaning of brick fronts. He emphatically protested against the use of any sand blast, or other method by which the original face of the brick would be taken away. When sand blast is used, and the face of the brick taken off, the cleaned front will show a good appearance only for a very short time, as the brick with the original face removed will be very much more porous than before, and absorb dirt more readily. The use of steel brushes is also very bad, and will not give a first-class job. The best method is cleaning the brick fronts with a solution of muriatic acid. The strength of the solution can be made to one in twelve. When this solution is too strong for the brick, acetic acid should be used. A good soap solution will, as a rule, take off all thick dirt first, and the cleaning with acid solution can then be done easily.—Tonwaaren Fabrikant, No. 19, 1908.

Fire Clay Products in Sweden.—The principal industry in Sweden is at Helsingborg and Høganäs. Silica brick is manufactured at Høganäs. The raw materials used here are quartz or quartzine from Simrisham, and also quartz from Kopmannabro. The quartz is ground and mixed with 1 per cent. of lime, though roughly mixed and burnt. In order to overcome the usual swelling of silica brick, the product is burnt at a temperature of 1,500 degrees centigrade, approximately Seger Cone 19. The swelling amounts to 1 per cent. The crushing strength of Swedish silica brick is between 4,200 and 4,900 pounds per square inch.

Another product which has a very large industry is the ash brick. These brick are, however, not fire resisting. They are produced by a mixture of slack from blast furnaces with about 12 per cent. lime. The crushing strength of these brick is only from 950 to 1,050 pounds, while common brick in that section has a strength of 2,000 to 2,400 pounds.

The Norska Magnesit Aktiebolaget, of Snarum, by Drammen, manufactures exclusively magnesite brick. Magnesite is mostly used, dolomite only very rare. The magnesite is first calcined, which takes place right at the mines. The calcined material is then transported to the factory, where it is reduced in size to fine powder and coarse material. The mixture is tempered with water, and the brick are pressed wet. They are dried from three to four weeks before being burnt, and then put in a continuous kiln and burned to a temperature of Cone 19. The analysis of the magnesite brick is

Silica	6.97%
Alumina	2.35%
Iron Oxide	6.49%
Lime	1.54%
Magnesia	82.97%

The results of comparison tests have shown that the Norwegian magnesite is superior to the Venitian magnesite. It is of higher fire-resisting qualities, and will not melt at Cone 39.—Tonindust. Z. Z., No. 92, 1908.

Written for THE CLAY-WORKER.

BRICK PAVED STREETS IN TEXAS.



HERE IS PROBABLY no city or large town of Texas today in which the paving of the streets is not one of the most pressing questions. The rapid growth of Texas towns has thrust upon them very suddenly the need to solve problems of drainage, water supply, sewerage, and paving, and as a result you find a keen public interest in all discussions that will throw light on these questions.

Every citizen is anxious to have good pavements; and is concerned in the efforts of engineers and other officials to lay pavements that will stay good. The materials, the methods of laying them, the cost, and the repairing, are all subjects of interest to the tax-payer.

In some particulars conditions in Texas are peculiar, and there are certain grave difficulties which are apt to come up whenever questions of public improvement arise. In the first place, each of the eight or ten Texas cities which is now wrestling with pavement and sewerage and drainage problems finds itself face to face with this obstacle: Its popula-

Texas," contains the following excellent account of the situation, which is one of much interest to all producers of paving materials, as well as to engineers and contractors. By courtesy of Mr. Wadsworth himself, I reproduce the greater part of his paper here:

"As the paving of streets results to a very great extent as a direct benefit to the abutting property thereon, the cost of such pavement should be chargeable to such property. If the State laws permitted the assessment of such cost against all such property, it would result in a great benefit to the owners thereof, as in that case they could get the improvements so badly needed, paying for same in small annual payments by securing their indebtedness with a lien on the property. As the law will not permit this procedure, and as the result of the special election of August 6, 1907, indicates that there will be no immediate change in the law, the question arises as to how the necessary street improvements can be procured, with the least possible delay and at the lowest possible cost.

"Many methods have been employed in the various cities of our State to procure street paving, most of which have proven absolute failures.

"The plan of paving by *general bond issue* is very unfair unless the entire city is paved with the proceeds of one bond issue, which would rarely happen, owing to the enormous cost of such an extensive improvement. Should a city attempt to improve her streets in districts, but under a series of general bond issues, depending upon successive bond elections, it would most certainly fail, before all districts of the city were paved, for the reason that many of the owners in the first favored districts would hesitate to vote in favor of bonds to pay for the improvement of outlying districts, thus increasing their own taxes, without any apparent advantage to themselves, and with the possible thought that the improvement of such



Tearing Up the Wooden Block Pavements to Lay Vitrified Brick in Houston, Texas.

tion is made up very largely of country-bred folks, who consider these city necessities as expensive luxuries till they have learned by bitter experience that to do without them is more costly than to provide them; and even when a majority of the property-owners have been convinced that they must have these improvements and can afford them, one or two stubborn, ignorant, or parsimonious citizens can block the progress of the city effectually by taking their stand behind the Homestead Law of Texas, which forbids the laying of a special tax against a man's home for any purpose.

This produces a very serious situation. Several different methods of solving the problem have been tried, but the only really satisfactory one seems to be to educate public sentiment up to a point where the desire to invoke this law is lacking, among most of the citizens, and the courage to do so, in face of popular disapproval, is wanting among the few disgruntled "pikers."

Of course, this rigid Homestead Law was not intended by its originators to operate against the progress of the country. It was a provision against tyranny such as the Mexican government imposed upon the early settlers, and it proved during the first decades of the life of Texas to be a wise and beneficent law.

A paper read before a meeting of the Texas Society of Civil Engineers in Galveston last October, by Charles S. Wadsworth, of Dallas, on "The Street Paving Situation in

streets might divert a portion of the business from their own street, already paved.

"Under special charters, recently granted by our State Legislature, certain of our cities are empowered to issue district bonds in payment of street improvements, or rather the proceeds from the sale of such district bonds may be used for such purposes. The success of this method has not been fully determined. The city of Marshall has proceeded under this plan and the result of their attempt should be watched with a great deal of interest.

"The methods employed by certain contractors, in circulating petitions amongst the property owners, should not be countenanced, for such contractor, if successful, is forced to add to the cost of pavement the large salaries of his promotion agents, together with their large expense accounts. Such petitions as a rule often include harmless appearing clauses, which prove more costly to the property owners than the above mentioned items. The State of Tennessee has very wisely recognized the dangerous features of this method by providing that all contracts are invalid if a showing is made that any contractor took any part whatever in the promotion of such public improvement. Through this method pavement is often forced upon property owners before they are ready for it and before the conditions surrounding would justify the expense, which sometimes reaches a large per cent of the assessed value of the property. The writer has an instance in mind, of this condition, where, at the present time, and in one of the larger cities of the State, a portion of a certain street is being paved. This pavement, when completed, will be an isolated piece, with the nearest connecting pavement more than a mile away; and with the mud and dirt roads connecting with it on either end and mud and dirt roads on every intersecting street, it will be impossible to get the benefits in this case from the pavement that the great cost of same should insure. To add to this condition certain property owners are refusing to agree to pay their proportionate part of the cost of the improve-

ment, with the result that the contractor will be forced to leave muddy gaps in the pavement in front of such property.

"With the necessity for immediate improvements and with the undesirability and uncertainty of the above mentioned methods, we believe the most satisfactory method to be employed in procuring street pavement, with the least possible delay and at the lowest possible cost, and with absolute certainty as to results, is to work along the following suggestive lines. The city officials, if such is the case, should make it known to the people that their city is ready and willing to pay its fixed portion of the cost, in so far as their available funds will reach. That they are willing to proceed with the paving of any street on petition from the property owners thereon. That petitions will be considered in the order of their filing, after certain requirements have been fulfilled by such petitioners. Before the city officials will grant the petition to pave, and before said petition shall be considered as having any prior rights, as to date of filing, such petitioners shall deposit with the city treasurer such sums in cash or negotiable paper in amount equal to the total amount that would be chargeable to the total frontage of abutting property in the district to be paved. This would put the officials in a position where they could advertise for competitive bids,

each rail—and the city one-third, and also the intersections of streets.

Different materials have, of course, been tried in Texas cities as elsewhere. The disadvantages of asphalt are more apparent in the hot climate of the South than at the North; and asphalt is also used at a great disadvantage where the paved streets are few and mud from unpaved sections is dragged across them, grinding and cutting the surface away. Shell or rock macadam is in general use on most of those streets and roads where the expense of more permanent paving is not warranted by the state of the public purse. In the early days of paving in Texas the material most in use was wood. Wooden blocks, generally unprepared by antiseptic treatment, were laid down, usually without foundation. It is surprising that such pavements served as well as they did. But the woods used were very hard ones—bois d'arc in north and central Texas, mesquite in south Texas—and after twelve



A Model Modern Brick-Paved Thoroughfare.

offering payments in cash for the entire work, which would result in the lowest possible prices being offered in the sharpest of competition. Some objections may be advanced against this method, in that it depends too much upon the energy and activity of the property owners for its success. But why should not a property owner give such matters the same personal attention that he would in daily business affairs, in matters of equal importance to him financially? The results would certainly justify such attention. Under this procedure, property owners should organize and appoint from their number a committee to finance the proposition, which committee should arrange to offer the necessary assistance to those who may not be able to pay for the improvement in cash. The committee should also make necessary provisions to prevent having to leave any space unpaved in the entire district."

In the different cities I have visited I have found examples of these different methods of financing the paving work. It is usual for the property owners to pave one-third of the space in the street, before their property, the street railway one-third—or the space between their rails and one foot outside

or twenty years of use these blocks today show no signs of decay. Their surface is worn, but they are sound enough to be taken up and laid down again in muddy side streets, as has been done in Houston.

But the increasing number of brick streets which are replacing mud, shell, gravel, and asphalt, in Houston, Beaumont, San Antonio, Austin, Dallas, Fort Worth, El Paso, and even in smaller places like Tyler, is a most encouraging sign of progress. I have visited recently all these places except El Paso, and purpose to give a detailed account of the paving situations in each, from facts and statistics furnished through the courtesy of the city engineers, the commercial clubs and others.

It is better to borrow money to buy a new machine than to lose money trying to operate an old one. Then, too, you can find a buyer for your old one by running an ad in THE CLAY-WORKER "For Sale" column.

Convention of the Iowa Brick and Tile Association.

THE IOWA BRICK and Tile Association will hold its Twenty-ninth Annual Convention at Mason City, Iowa, on January 13 and 14, 1908. The Executive Committee met at Mason City on October 21, and decided to place some changes in the by-laws before the convention for ratification. This will be taken up during the first session. The proposed changes are to be offered for purpose of providing for increased revenues, and enable the association to carry on a campaign of education and publicity. It is proposed to create two classes of membership; one consisting of clay products manufacturers wholly within the State of Iowa, and the other associate, or those indirectly interested in clay products manufacture and sale. It is proposed to increase the dues of the manufacturers and leave the associate class as it is at present. There are a few other minor changes proposed. According to the present by-laws, a two-thirds vote of the members present is required to amend or change the by-laws.

Mason City will undoubtedly prove an attractive point of meeting. It is perhaps the most interesting clay center in the West, owing to the large number of extensive and modern plants, and there is a further attraction in the well-established hospitality of Mason City clay manufacturers.

President Smith, of the association, is at the head of the

largest plant now in operation—the American No. 2. This plant is one of more than ordinary interest and size. It gives great promise. On this plant can be seen a very fine kiln plant. These kilns are the triple-draft pattern, the patented idea of Secretary C. B. Platt, of the association, and as C. B. sells rights at \$50 per, it is probable that this installation at the American plant accounts for the fact that he is casting sheep's eyes at high-priced autos.

Treasurer Stephenson, of the association, has under his especial care at present a fine new plant, known as the Mason City Drain Tile Company. This is the latest plant of the original "Mason City" clayworking organization, headed by O. T. Dennison. Three other large ones constitute the force this company exerts in the market. Mason City is surely a "city of stacks." One can stand in one spot in the clay district and count forty-eight large stacks, serving some 120 round kilns. The annual shipment of drain tile and hollow blocks from Mason City foots up the grand total of 10,000 cars.

It is probable that the attendance at the Iowa convention this year will break all records, since Mason City is the mecca for the Hawkeye clayworkers.

TURKISH MEERSCHAUM DEPOSITS.

THERE ARE MANY strange and interesting things to the average American mind connected with the Turkish Empire, and not the least by any means of the interesting things which might be classed among clay deposits and industries in the product known as meerschaum. Meerschaum is a silicate of magnesia, and while it is mined at several points in Turkey, its principal source of supply is in the caza of Eski-Shehr.

If you take some of the encyclopedias and look up meerschaum, you will find it referred to as having once been used as a substitute for Fuller's earth. This is probably an error due to the fact that at one time the Fuller's earth, which is found about three feet thick overlying meerschaum deposits, was collected and shipped to the coast, but of late this industry seems to have died out, having probably become unprofitable. It is easy to understand how this Fuller's earth, coming from the same source, would lead to the opinion that meerschaum was used for the same purpose. Some of the meerschaum deposits have been worked for over 2,000 years, and it is said that any one wishing to mine this substance can obtain a permit from the Turkish Administration of Mines. There is said to be about 1,270 pits now giving employment to about 5,000 miners, and our Consul-General, Edward H. Ozmun, of Constantinople, in writing of the methods employed in the work, says that they are very primitive. Usually a pit is worked by a foreman and from two to five workmen with picks.

The depths of the pits vary owing to the varying depths at which deposits are found. Sometimes they are twenty yards deep, and other times forty or even sixty yards in depth, and the practice is to dig down until they strike a layer of red ground in which the meerschaum is found, and then they branch out in this and dig for the meerschaum, which is found in nuggets disseminating through it and varying in size from that of a walnut up to nuggets containing 12 to 16 cubic inches. The galleries seem to be run without plan or design, and it is not infrequent for the miners of one pit to meet those of another, the galleries coming together.

The nuggets as they are taken from the mines are sold to local merchants; that is, they are taken from the mines and have the earthy matter cleaned off with a knife, after which they are sold to a local merchant, who dries, cleans and polishes them, and then it is sorted into various sizes. There are thirteen recognized grades or qualities of the meerschaum, and it is assorted into four classes or sizes generally, and then comes a number of smaller sizes. The four sizes of the more expensive material are put up in boxes or cases $6\frac{3}{4} \times 13\frac{1}{2} \times 28$ inches. The first size must be such that only thirty or forty pieces will go in a case; the next size puts seventy or ninety pieces in a case; the next, 140 to 170, and the fourth, 300 to 350. Then there are four smaller sizes put up in larger cases, the cases being $7\frac{1}{2} \times 14\frac{3}{4} \times 32$ inches. The size put in these range from 500 pieces to 1,500 pieces to the case. These are the only sizes recognized and permitted by the Government, and the Government puts a tax of \$3.30 per case on the output.

The price of the case varies from \$8.00 or \$10.00 up to \$220.00, depending on the size of the nuggets and the quality. There is, naturally, a lot of waste in cleaning and preparing the matter, and this waste, that of which is cleaned or can be cleaned, is exported to Vienna. It is used for cheap meerschaum or imitation meerschaum, being put up with a bonding material. The entire output of the Turkish mines seems to be exported to Vienna and from there it is distributed to various parts of the world. It is said that the United States buys only of the first four sizes, and that only in the first seven qualities. It is worth noting that the United States is considered the best customer of this meerschaum, and our consul says it is rather surprising, in view of this fact, that our people do not buy it direct from Constantinople, instead of getting it by the way of Vienna. It is intimated that if some one of modern ideas and enterprise would get hold of these mines and work them, there might be more in it for the miners, and, at the same time, more people might be able to smoke good meerschaum pipes without it costing them so much money.



DRAINAGE TESTIMONIALS.

W. I. CHAMBERLAIN, in "Talks on Farm Crops," says: "If I had farmed better I should have found it decidedly profitable. My good crops were on a field that I thoroughly underdrained, and which I manured this spring. And the extra yield of potatoes will pay for all the drainage, for all the manure, for cultivation, and for the land itself.

"Now thousands of men all over the country can testify from personal knowledge, and from repeated and long-continued experience, that tile drainage, when properly done, is of immense advantage to any land that stands in need of drainage. Stiff clay land and spongy land are of the sort that need it. Thousands of farmers, I repeat, could testify from knowledge as to the benefits of tile drainage.

"On May 20, 1879, I finished laying about three miles of tile drains on twelve acres, $3\frac{1}{2}$ feet deep, and 2 rods apart. Part of the land was in wheat and required careful hand filling. The drainage cost \$21 per acre. When we could fill with teams it cost \$20 per acre—tile, labor and board all told. The average cost of tile on the field was \$13.

Effects of Drainage.

"On my own and three neighboring farms are over 100 acres of land drained 2 rods apart. The tile have been laid from ten to fourteen years, and all work perfectly. The effect of the drainage on the crops has been, in some cases, almost magical. One field of ten acres had lost two crops by "too much wet" before drainage. After being drained, wheat was sown and lightly manured, the yield was 464 bushels on the ten acres—a few rods short—and now the clover crop is immense for this year.

"Another field of twenty-eight acres on a neighbor's farm was in pasture, absolutely not yielding \$2 per acre each year. It was tile-drained, had a short rotation and a very light manuring, and then was seeded to timothy with a sprinkle of clover, and now yields over \$16 net per acre in hay. The field was simply immense.

"I might multiply examples indefinitely of fields and farms I have seen and watched in this (Ohio) State and other States. I can only say that where land is worth \$50 per acre, and can be drained with tile for \$20 per acre, it will pay big interest on the investment for drainage, provided it be land that needs draining, and provided it be properly drained afterwards."

W. H. Brown's Experience.

"Before tile-draining my land I usually had a yield of from forty to fifty bushels of corn per acre—from ten to twenty bushels of wheat per acre, and a ton and a half of grass per acre. Unfavorable seasons my yield of corn would run down to fifteen or twenty bushels, and some few acres to almost nothing. After tile-draining my land the yield of corn has run from sixty to 100 bushels per acre, my wheat from twenty-five to forty bushels per acre; this year (1879), forty-eight and one-quarter bushels per acre, but this is extraordinary. My corn, take it one year with another, has doubled its yield on the land that is well tile-drained."

Profits of Drainage.

"On forty acres that needed tile-draining badly, the average yield of corn for ten years before being tile drained was about

thirty bushels per acre. After tile-draining it, the yield went up safely to sixty bushels per acre, and we can now surely count on sixty bushels or more any season.

"The gain of thirty bushels per acre on forty acres means, as we count it, 1,200 bushels more corn, which, at 40 cents per bushel, makes \$480 profit, to be set to the credit of drainage. Besides, it requires less labor to prepare the land to plant, and less labor to cultivate the crop. This added profit on crops for ten years aggregates \$4,800—think of it."—Robert Schoolcraft.

Mr. Delos Wood's Experience.

"My first experiment in drainage was made in a heavy clay field, having a gentle and nearly uniform fall from south to north, where the surface water found an outlet in a creek that formed the northern boundary of the field. I first laid the main drain to receive the lateral drains east and west about 40 feet from the north side of the field, and discharging it into the creek; the laterals are laid 40 feet apart, lying up and down the slope, receiving in many places the water underground springs or seeps. The creek into which the water is discharged is usually nearly dry in the summer season, but rises rapidly with every heavy rain, and is quite a stream through the winter.

"My outlet, in consequence, is often a foot under water, sometimes much more, but the stream from the drain can be traced clear and pure for 2 or 3 feet in the muddy waters of the creek, showing that the discharge is perfect. I put down my own tile with the help of a man hired by the month, doing also in the time other ordinary farm work. Consequently, I am unable to give the precise cost, but allowing the established rates for my own labor, I consider \$20 per acre as covering all the expense, while, in my opinion, the value of the land is more than doubled.

"The summer following was very dry, and I was often told that I would get little, if anything, from the field, but, on the contrary, it produced all the really good corn I had, while that adjoining, on the same kind of soil and with precisely the same kind of treatment except the draining, rolled up and then burned up—not a leaf on the drained land curled until the corn was almost ready to cut. But at the harvesting the contrast was still more striking; that on the drained land averaged ninety bushels per acre, while on the land not drained it was not over thirty-five bushels per acre. This year it is in corn, with precisely the same results."

Mr. John Johnston says: "Tile drainage pays for itself in two seasons, sometimes in one.

"This is certainly true in my case. Its effect upon other crops is also equally well marked.

"My drained land is dry enough to plow, some part of it, at least every month during the spring, and I could, if I had desired, have sown my oats in February, this year.

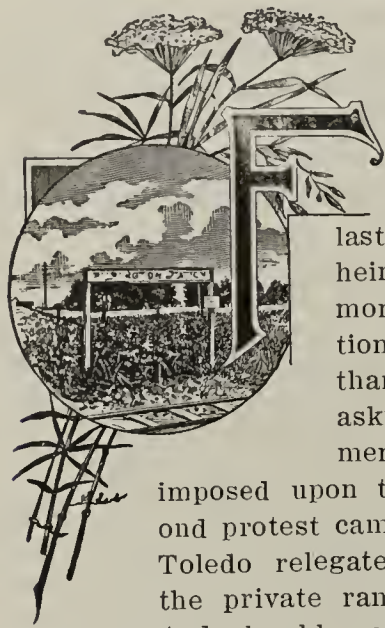
"If you are disposed to try the effects of tile-draining for yourself, take one acre of the best land you have, that needs draining at all, and after the tile are laid put on the usual amount of manure and give the crop the usual tillage, and then invest the increased value of the crop in draining the next acre, and you will find that the cost of draining all of your land in cultivation is, in reality, only that incurred in the expense of the first acre."

GOVERNMENT TESTS OF CONCRETE.

The United States Geological Survey has just issued a bulletin (No. 344) showing the results of tests of the strength of concrete beams under many varying conditions. The tests indicate that concrete is unsuitable for use under conditions where it must resist tensile stresses, because of the small loads it will sustain, and particularly because of the suddenness with which it fails, in striking contrast to the behavior of reinforced concrete, which usually shows a gradual development of cracks preceeding failure.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



FOR THE SECOND time within the past six months the people of Toledo have spoken in no uncertain terms relative to the so-called trust busting campaign which was inaugurated in this city a year ago last April by Prosecutor L. W. Wachenheimer. The first protest came several months ago in the form of a huge petition bearing the signatures of more than 10,000 business men and citizens, asking the court to omit the imprisonment part of the penalty previously imposed upon twenty-three lumbermen. The second protest came last Tuesday, when the voters of Toledo relegated the so-called "trust-busters" to the private ranks by an overwhelming majority. A deplorable condition has existed in the business circles of Toledo for more than a year and a half, because of the mistaken notion upon the part of certain county officials that it was a part of their duty to wage relentless war upon capital in every form, and against all classes of business men.

The effect of this wholesale attack upon the honor and integrity of Toledo business men has been disastrous. Building operations have been narrowed down to almost an inconceivable extent, all kind of building projects were abandoned, contracts were cancelled wherever possible, dealers in all kinds of building materials found their trade dwindling away until the public finally became thoroughly disgusted with a course of action which was costing the city and its business men thousands upon thousands of dollars, and which had relegated the city itself from a position in the front ranks of growing cities to an obscure place in the rear ranks.

Some time ago, after Prosecutor Wachenheimer had been renominated as his own successor, and Judge L. W. Morris had likewise been chosen as a candidate for the Common Pleas bench to succeed himself, the prosecutor, in an interview with the local newspapers, threw down the gauntlet, and invited an expression of opinion upon his policy by the public at the recent election. After the statement that he should accept his re-election at the hands of the people as an unqualified endorsement of his trust-busting campaign, he concluded the interview with the significant statement that it was "up to the people." The people, being in a resentful frame of mind, took him at his word and accepted the invitation. From that day until election there was waged in Toledo the hottest campaign ever known in the history of the city, with Wachenheimer and Judge Morris as the central features. Meetings were held in all parts of the city and county, in tents, halls, from the street corners and the Court House yard, and at the shops during noon hours; State and even national issues were lost sight of in the contest over the more personal issue, and the one which Toledo business men felt to be even more vital to themselves and the welfare of the city. The result was what might have been anticipated. Wachenheimer and Morris were both defeated, and the end of the so-called "trust-busting" campaign is now thought to be in sight. Since the result became known the change has been a most remarkable one. Business has been picking up on every hand. Building materials are beginning to move as if by magic, orders for thousands of feet of lumber alone having been placed; building brick are beginning to look up, prices which have been ridiculous are stiffening, architects and contractors are flooded with inquiries, and it now looks as if the last vestige of obstruction which has been persistently thrown in the pathway of progress in this city has been removed.

Trade conditions present a very pleasant prospect at this

time. There has been more or less dullness for months past, especially in the line of building brick. Of the nine Toledo yards, four did not run all summer. Two closed down on October 15, and the other three are still running. Had it not been for the out-of-town trade the brick dealers would have been in a bad way, but fortunately there has been a nice demand from the surrounding territory, and a heavy shipping business to these points has been carried on all summer. Since the election there is a noticeable improvement in conditions. A great many important contracts are under way, or soon will be, and it would seem that the only thing that will hinder some nice business in the future would be the weather conditions. Should it be an open winter, there will undoubtedly be a good demand for building brick from now on, and at any rate indications point toward a highly prosperous condition with the opening of spring. Prices have stiffened up some within the past few days, and building brick are now selling in this city at about \$6.

The summer's business has been highly satisfactory to paving brick dealers and manufacturers under the existing conditions. While not quite as heavy as last year, with a trifle weaker prices, trade has been far better than was anticipated early in the season. At the present time there is much legislation under way for street paving and sewerage, which will be brought to a head speedily. In addition to new work there is a considerable grist of uncompleted work which is sure to swell the volume of business. Prospects for next season are extremely flattering, and it seems certain that there will be a large demand for both paving block and sewer pipe. Most of the large plants are running at or near capacity, and few, if any, of them will shut down at all during the winter. The Logan Brick Company reports an increasing demand, and are now shipping out from ten to fifteen cars per day. Prices are also getting better than they were, No 1 vitrified paving brick selling from \$13.50 to \$14.

Hon. J. Park Alexander, who for many years was well known as a leading tile manufacturer, died, at his home in Akron, Ohio, this week. He was a prominent Republican, having been State Senator and held several city offices in his home town. He had lived in Akron for seventy-four years.

One of the nicest contracts reported in this section recently is that of C. T. McCracken & Co., for constructing a storm sewer in Scott street, Columbus, Ohio. The price named for the work was \$17,778.

Merle Walther, seventeen years old, in the employ of W. S. Pace, contractor on the Washington-street paving job at Sandusky, Ohio, had his right leg so badly lacerated in an accident this week, that amputation will probably be necessary.

T. O. D.

FIREPLACE SUGGESTIONS.

"Mistakes are sometimes made by inexperienced persons in building the fireplaces which are coming into such favor again," said a builder. "The people find that the fireplace smokes and is susceptible to every vagrant breeze that happens to blow down it. The reason for this is a fault in construction, a disregard of a fundamental law and a principle well known to most builders. The fireplace has not been provided with a proper 'throat' and 'smoke shelf.' Some people have the idea that the bigger the chimney the better will be the draft, and they build the chimney large and of the same size throughout. The throat should be a few inches above the arch of the fireplace and should be comparatively narrow. The part of the chimney wall which juts in to form the throat is called the shelf, and when a wind blows down it provides a shelf against the breeze, so that the smoke does not blow out into the room."—Ex.

The machine which does not answer your purpose may be just what some one else needs. Tell the "needee" about it in a card in the "For Sale" columns of THE CLAY-WORKER.

Written for THE CLAY-WORKER.

SOME VAGRANT TENDENCIES IN ARCHITECTURE.



WHILE MUCH of it is not entirely new there is to be observed a more persistent following after what might be termed some vagrant tendencies in architecture, especially in connection with modest cost houses. Among these tendencies is a disposition to make frame houses veneered on the outside either with brick one layer thick or with terra cotta or tiling. Last

year and this year there has been quite a lot of this in one form and another, so much, in fact, that the subject suggests the need of closer looking into to point out more clearly the merits and limitations of this class of work.

It may be said at the outset that that is false architecture, just like using half-length brick in the facing of a brick wall to give the appearance of a header, and the whole thing is false in that it suggests a brick building in appearance

peculiar wanderings of architectural ideas unless it is the desire for something new. We can understand why a man would take an old brick building that has become dingy with age and go over and plaster the outside with cement or something of the kind, but when we see a man building a new brick wall, immediately plastering it over with something, we begin to wonder. Yet an example of this very style of architecture was noted this summer—a somewhat pretentious one, too. Every wall was built of brick—that is, common brick without any facing or pointing of joints, stone trimmings were added and then the body of the wall was plastered over with a mixture of concrete and crushed tile of various colors. It looked bad at first, but after the entire structure was completed, which included gray stone and dark green trimmings, and the whole was topped over with red clay roofing tile, the effect was rather pleasing. Also it was discovered that the purpose was simply that of having something new and original in the architectural line as well as a substantial building.

Some modest houses and some more pretentious buildings,



The Whitesides Bakery, Louisville, Ky. A New Brick Building Plastered With a Mortar of Crushed Tile and Cement.

areas it is only veneered. We find that frequently some of these things we term false ideas prevail in cabinet work, especially in furniture, and in mill work. The veneer idea is so frequently a good one and is made use of in the higher grade mill work, including doors, to quite an extent, and it is claimed they are superior to solid wood. These claims are well supported, too, and it is possible that we may develop out of this veneering of frame structures and the facing of outer wall with brick or tiling some desirable features that will on occasions outweigh the objectionable ones. Anybody who is playing peculiar pranks in architectural ideas, find concrete walls veneered on the outside with brick to give a better appearance. We find steel frames filled in with brick and terra cotta and occasionally we find a rough brick wall plastered over with cement or some combination of cement and crushed tile so that it looks like a concrete wall. In fact it is brick. These things are just as false in a plain architectural sense as the idea of building a frame house and facing it on the outside with brick.

It is difficult to account for what it is that leads to the

and even apartment houses, have been erected just as if they were to be frame structures with bevel siding on the outside. Then the storm sheathing was put on the frame houses and instead of finishing with weather boarding the whole is covered over with brick. This makes a wall from the outside brick face to the inside plastering approximately ten inches, a little over four inches of brick outside, an inch of plank wall, four inches of studding and about three-quarters of an inch of plaster and lath. Now the question is whether this wall will really not stand up as well as any other? If the building is well framed together the framing will give it strength to stand against almost any storm. The studding space gives a hollow wall effect, and this prevents the moisture from finding its way through the wall. Of course, brick on the outside naturally furnishes better protection against the weather than a thin covering of lumber lapped over like the regulation bevel siding is laid. The inside plastering is done on lath instead of on brick. There, of course, is some danger of fire, but for that matter there is danger of fire in any brick building having joists, floors, etc., made of wood. The out-

side brick walls furnish some protection against fire from the outside and, altogether, while the house is not a brick one, it may answer certain purposes and have advantages enough to make it quite popular. It would seem to make a better house than the hollow concrete block house, and it would help out considerably if the subject were carefully investigated and various points brought out, including that of cost as compared to solid brick walls, and to concrete block walls, and as compared to regular frame structures.

In addition to building new houses in this way and also in addition to using brick there is some tendency to use tile and terra cotta on frame buildings. Sometimes an old building is remodeled, especially in the front, and a tile and terra cotta facing put on, this facing being made up of glazed tiling and ornamental terra cotta. It is not new—this idea of making a veneered front and the application of this class of veneer to frame buildings has been in use several years, but it seems to have been coming to the front more lately than ever before. And when we come to look at it right it is not

surprising. Even in brick buildings and steel frame buildings there has been for many years a general practice of making the front and exposed part of special brick or terra cotta, or something to give ornamental effect, and this ornamentation, as it did not extend back into or make properly a part of the sustaining wall, is just as much a veneer in the true sense as it is to fasten on with spike and special holders a thin covering of tiling and ornamental terra cotta to a frame building. The question of most interest about the old thing is, however, one of the future, that is, to just what extent will these things develop? Are we to have an era of building in which this will become a prominent feature of the modest home, or does the examples met with so frequently of late simply indicate occasional vagrant wanderings that are not likely to become a permanent feature of structural work used in modest home building? These are things for brick men and architects to look into and, while they are about it, make a special feature of finding out whether or not this is a better idea than that of building with concrete blocks.

Letters from a Young Clayworker to His Younger Brother.

The Use of Dampers—Letter No. 4.

CLAYBURN, IND., April 13, 1908.

Dear Jack:

Yours of March 31st duly received, and I am pleased to know that you are getting on so well and are finding so much to interest you in your everyday work. I fully agree with you as to the desirability of studying up on all points bearing on your problems, and also making notes on your daily observations. As for there being so little information available that will help one in working out his kiln problems, I should say that while the dearth of such information is a disadvantage in one way it is encouraging in another, for this subject still offers a fruitful field for investigation, and the introduction of better systems for determining the best methods of burning. True, every factory presents different conditions, and that is so much the more reason why every factory should have some way of knowing what is being accomplished, and should be able to show by actual records that a deviation from the methods employed by it would mean a loss of money.

If I were to make a general criticism of the average kiln burner, it would be that he does not give enough heed to the amount of coal he burns. And I would add that the fault is no more his than that of the man over him. I am not surprised to find that you think the burning is done too much by guess where you are, and that it should be possible to establish things more definitely; that is, such things as the proper stage in the burn to begin to check the draft and how much it should be cut down. I agree with you in this emphatically, but you will have to make up your mind to one thing in the beginning; there is no definite rule that can be drawn to cover all cases. The great variety of kilns, fuels and clays, all requiring different methods of handling, complicate matters so much that it is difficult even to draw general conclusions. This much we have to work on:

1. A high draft and a correspondingly large volume of gases of the proper temperature entering the kiln when heating up tends to favor the bottom and lessen the evenness between top and bottom, thereby shortening the time required to hold the kiln at a high temperature to get the bottom finished.

2. With a high draft, rapidly flowing gases and large volume of gases passing out of the kiln each minute, the amount of heat escaping up the stack per hour is greater, but the number of hours during which this loss must continue is less than with the opposite treatment.

3. Shortening the time during which the kiln must be

kept burning at a high temperature cuts down the amount of heat lost by radiation, etc.

You can, by taking an individual case and varying the handling of the kiln from burn to burn, doing it systematically and keeping accurate records of each burn, accumulate data from which you can determine within narrow limits what method of firing, including the regulation of the draft, is most economical, all things considered, for your particular product with your particular kilns and fuel.

I shall not attempt to tell you at this time what records you should keep, or how, but after you have worked out your own home-made method I shall be glad to compare mine with yours, and perhaps between us we can improve on both. But as to measuring the draft, I have some suggestions to make that you may wish to consider, particularly in dealing with the collection of heterogeneous relics in the way of kilns with which you have to contend at present.

In the first place, you want to get a draft gauge. Look through the advertisements in *THE CLAY-WORKER*, and get catalogs from the people handling testing and controlling apparatus. What you will learn from the catalogs themselves will amply repay you for the trouble. Then get the company to buy a good draft gauge. Don't get a recording one to start with, because you want something that is readily portable. Later on, when you have got to keeping a record of your measurements, you will want some more gauges, and it may pay to buy recording ones. But for the present do not start out with the idea that you are going to use your new draft gauge as soon as you get it unpacked. Better figure on spending your spare time, between fires, etc., in learning how to use it. That may sound strange to you, for I suppose you know that a draft gauge is about as simple a piece of apparatus as a coal shovel. You can set it up and have it ready for use in a few minutes. Well, for that matter a coal shovel comes all in one piece and ready for business yet there is only now and then a man that can fire a kiln and it took each one of them some time to learn it. The essential thing in firing a kiln is judgment, and so it is with measuring draft.

When your gauge comes set it up and attach it to a kiln according to directions. If your kilns are all alike in construction, go ahead and fix a place at several kilns for attaching the gauge. Some of the best gauges are self-contained and arranged so that all you have to do to move one from

a kiln is to pick it up and carry it over to the place where you want to use it, set it down there, and see that it is level. Under the place made for it there is a piece of quarter-inch pipe extending down into the flue, between the kiln and the stack. It isn't much of a job to put in the pipe and fix the place to set the gauge standard on. I don't know but I would fix a pipe in every stack flue, even though your kilns are different, for you will want to take a reading of the draft in the stack flue now and then, even if you decide not to measure there regularly.

Now rule up a couple of pages in your note book like this:

	1	2	3	4	5	6	7	8
0								
6								
12								
18								
24								
30								

The numbers in the first column are to represent hours—the number of hours since the kiln was lighted. You have to run it on down until you have room for as many hours as it takes to burn off a kiln. The numbers along the top of the page are the kiln numbers—one for each kiln. Better start some such thing as this just as soon as you get your gauge. You can manage to go around when you come on shift and take the reading for each kiln that is burning. Just jot each one down in its proper place that you have ruled up for it in your note book, and look the figures over when you get more time. They won't mean much to you at first, anyhow. Take the readings again about 12 o'clock and again about 6 o'clock. Then, if you can get one of the fellows on the other shift to take them for you in the middle of his shift, you will have one reading for each kiln every six hours. Better keep this up religiously until you can work out a better plan.

One thing you will find to be just as you would naturally expect: that during the first part of the burn, before the flues and the stack commence to get hot, the gauge shows very little draft. The draft comes up gradually with the temperature. Now, as you get the corresponding figures for different kilns in your note book, compare them. You would expect that under ordinary conditions one kiln that had been burning for, say ninety-six hours, would have about the same draft as another kiln that had been burning the same length of time. The figures in the ninety-six hour line would all be pretty nearly the same. Compare them and see if it is so. I predict that you will find considerable variation. But don't be alarmed; it is probable that you may find some reason, either good or bad, for all the unevenness.

The amount of draft required by different kilns is likely to vary greatly by reason of differences in construction. Moreover, it is frequently the case that a kiln may have a poor draft and yet be on a good stack. If you happen to

have a kiln that is hard to burn off, seemingly because of lack of draft, it will be interesting to see what the gauge says about it. If, say when the kiln is near the finish you find that the burner has the damper wide open and still don't get draft enough from a stack that gives ample draft when it is pulling from a different kiln, you ought not to need any gauge to tell where the trouble lies, but the gauge should verify your previous conclusion. In such a case the draft as measured by the gauge will naturally be higher than the other kilns, which burn properly, show at the same stage. The reason lies in the kiln bottom, which, because of faulty construction, does not allow a free passage of the gases. The gauge simply measures the pull in the stack flue, and when most of this pull is expended in dragging the gases through the kiln bottom the discrepancy between the draft where measured and that where needed (at the fires) may be great. Of course, a kiln that needed cleaning would have the same tendency, but you must not burn kilns that need cleaning, so that need not be considered in this connection.

(To be continued.)

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.



ACCORDING TO INFORMATION obtained from leading manufacturers throughout New England, accompanied by information from leading building and other construction workers, the coming year promises to be far more prosperous than the one which is so nearly passed. Details have not yet been obtainable, but as one large manufacturer put it, he didn't care particularly for details. It was sufficient for him to know approximately that something worth while was to be done.

About Boston there has been marked improvement since the election. Building permits have been more numerous, and the character of the buildings is far more satisfactory.

In Chelsea, development will go ahead much faster than it has heretofore, though no one can say yet just what will occur. It seems, however, that construction of all classes of dwellings will be upon a much more liberal scale, and that the burned area will be covered as rapidly as possible. It is a question now of getting the work done, it is said, while heretofore all through this year it has been a question of getting the money with which to do the work.

Operations in the yards in New Hampshire, whence comes much of the Boston supply, have practically ceased for the season, as the weather is close to freezing. The situation has not yet improved materially, even though it is better, but makers are looking forward and are expecting something worth while when the spring season comes again.

Not much has been done in Vermont. The year is closing as quietly as it has been all along. Business has been done in a small way only in most localities, and scores of yards never opened at all. Some have good supplies on hand. Others, which have made scarcely any this season, are without any, and the outlook for them is better. They will have to open as early as possible in the spring to get upon a working basis for next season. Not much fresh development in the business in the way of new plants or the increase of old ones can be expected. If the present plants are operated to their full capacity during the coming year, the results will be far more satisfactory than they have been this year.

In Connecticut the prospects are better than the retrospects. Many plants which were not operated at all, or only in a small way, will begin work in the spring with their storage sheds virtually bare. The market will, to that extent at least, feel the impetus of improved business. Some of the largest plants operated only a portion of their capacity this season, but they expect to do business next season upon a much more satisfactory basis than they have the past season, and the market will to that extent be better. Perhaps the important building operations which are projected for various large cities will have their influence upon Connecticut yards, and business will be better in proportion.

HIRAM.

Written for THE CLAY-WORKER.

THE CONTINUOUS KILN AND ITS IMPORTANCE IN THE CERAMIC INDUSTRY.

K. DUEMMER, BERLIN.



FIFTY YEARS AGO last June contractor Frederick Hoffman, of Berlin, was granted the first patent on a continuous kiln, called by him "Roundkiln." It was not an easy matter to find a brick manufacturer who would be inclined to install this new burning apparatus on his yard, which was more expensive to erect than the old style scove kiln. The opportunity to test the new burning apparatus was granted on a brickyard in Scholwin, close to Stettin, Prussia. The results were very gratifying and conclusive. The brick burned in this new kiln were just as good as the best brick burnt in a scove kiln, and the cost of burning was much smaller than before, the saving amounting to more than 75 per cent. It was natural that after the first test had been successful that other brick yards were induced to install this new style kiln. As the installation proceeded the advantages of the kiln were brought out more and more. The advantages were not only the lower cost of burning, but also that the continuous kiln produced a burnt material which was far more uniform than such as produced by the old style kilns known at that time.

The benefit of the large saving in burning materials can be traced to the fact, first, that the whole contents of the kiln furnishes again the heat which it has received in the burning for the burning of other bricks, and second, that the water smoking of a greater part of the kiln can be conducted with the heat from the already burnt bricks. In every continuous kiln we find all the processes and stages of the burning of bricks. In front of the bricks, which are just being set, we have brick which are in the period of water-smoking; then come the bricks which are in the heating up period before full fire; then follow the bricks which are in full fire, and following are those bricks which have passed the full fire, and these are divided again in such stages as red hot, warm, and cool enough to be taken out. The process of conducting the heat from the burnt bricks to those which are to be burnt is manipulated by a current of air, which enters the kiln where we find the cooling bricks. The current takes off the heat from these burnt bricks and passes over hotter brick, taking more and more heat along until it strikes the bricks which are in full fire, and the current has attained its highest temperature. In passing the hottest zone, it furnishes the heat now for the heating up of the brick which are to be burned, and the current of air loses its heat more and more until it comes to the last part of the kiln where the gasses combine with the water-smoke, and are drawn off in the chimney.

In order to explain properly the principle of this well-adopted kiln, it is necessary to reproduce the main part of the patent as first granted.

"The idea and the principle of such a kiln are very simple; they consist of a kiln canal, which is round in its ground plan, and oval in section, which has at different places on the outside openings which can be closed, and which had also corresponding openings in the chimney which stands in the center. The canal of kiln is otherwise free and undivided.

"To explain the matter, we find in Fig. 1 the ground plan of the kiln. Same is open at one place, and the corresponding canal in the chimney is open also. All other openings and canals are closed. The chimney, under this arrangement, will create a direct current of air, which will enter the kiln at the place where it is open on the outside, and enter the chimney at the place where it is open at its side. The burning place or canal is now filled with brick, and are set in such a way that the current of air passed first the already burnt material,

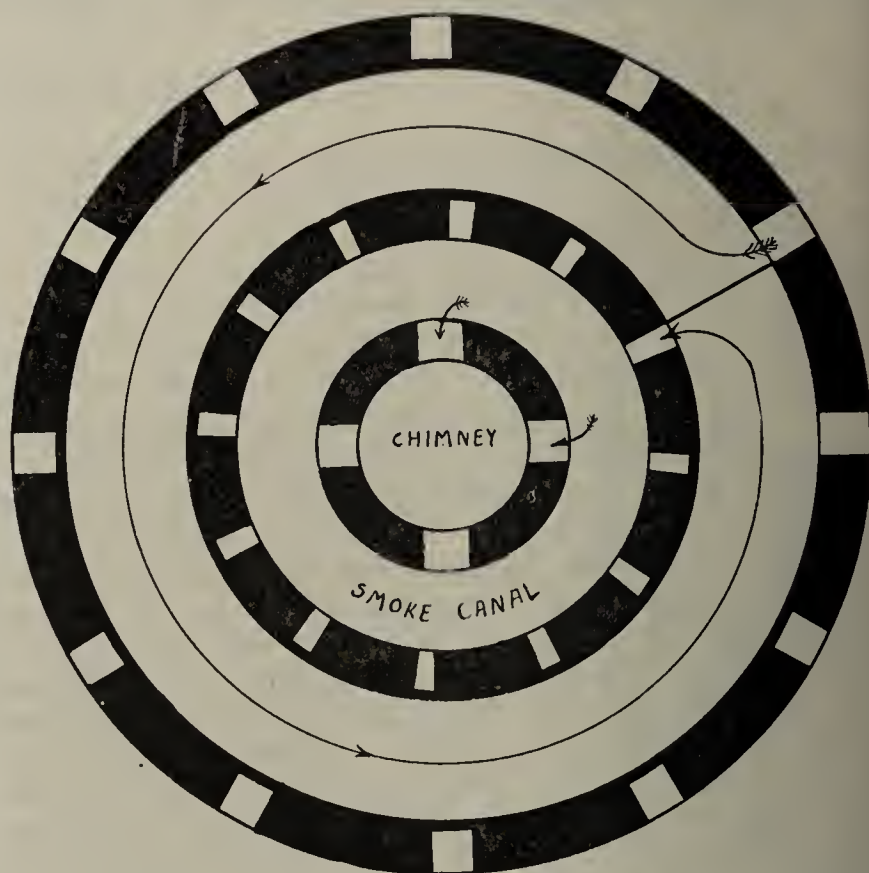
which is in the stage of cooling, then strikes the fire (which is kept going by throwing the burning materials on or among the glowing brick), and from there passes these bricks which are in the process of heating up and water-smoking, and finally passes out the chimney. The points raised are:

"1. The current of air which passes into the kiln through this opening—cooling the already burnt bricks—is heated up to a great heat.

"2. It is therefore able to produce better results in the next stages—where the burning materials are thrown into the kiln—to keep the burning going, while

"3. The excess of the air heated by the fire, and also gases produced by the process of combustion will heat up the brick which are yet to be burned, as the air and gases are traveling through the kiln to the chimney. These brick will be heated up to such an extent that it will take only a very short time and a corresponding small amount of fuel to burn these brick to the finishing point.

"The brick, which are close to the opening, are now cooled to such extent that they are ready to be drawn and taken out. They can then be replaced by green unburnt brick. The closing of the kiln with the damper can now take place on



the next chamber behind the bricks recently set. The next opening is now taken out, and the smoke canal opened, while the one which was open in the last chamber closed, and the fire has proceeded one place.

"Through continuous manipulation of this process the fire will move around the whole kiln in constant succession, while the setting and the emptying of the brick goes on without interruption. It is not necessary to emphasize the matter, but it will be stated that by this continuous process the two openings, the one for setting and other one for the emptying of the kiln, remain open."

The continuous kilns built at first were all constructed as shown in the accompanying plan, in circle formation. It is, however, not essential to hold to this circle in constructing the burning canal, so long as the starting and the finishing point are one. The canal can therefore be an ellipse, square, zigzag, or formed in any other manner. Next to the circle formation the square formation with rounded corners has mostly been built, as they permit an easy roof construction.

The continuous kiln is not only used for the burning of brick, but can also be used for the burning of cement and lime, and has proven very successful in these branches.

When we look back on the triumphal march of the continuous kiln, in the fifty years of its existence, we find that there is no country in the whole world which does not have

a continuous kiln in operation. In nearly all the states of Europe the continuous kiln is used for the burning of brick. In Germany, where the invention was patented, we find the largest number of kilns, then following are Austria, Hungary, France, England, Italy, Spain, Russia, the Balkan States and other small countries of Europe which are all in possession of continuous kilns. Outside of the European countries we find the continuous kiln well represented in Africa, where in Egypt and in Kapland there are quite a number of this type of kiln. China, Japan, East India, Australia, and South and North America have many continuous kilns. In the United States the continuous kiln has not been advanced as rapidly as in other countries on account of the large amount of cheap fuel, which is found in all States of the Union, and which has been a great drawback in the introduction of the continuous kiln principles. However, in the last few years the continuous kiln has found more and more application, especially where the beneficial results have been demonstrated.

In the course of these fifty years the technical firm of Friedrich Hoffman, of Berlin, has prepared and sent out over 3,000 drawings for continuous kilns. It can be safely stated that from such drawings sent out there have been at least half a dozen kilns constructed from each set, so that there has been built closely on to 20,000 continuous kilns directly from the plans and specifications of Hoffman.

In addition to this number we have those that are constructed according to the plans of other kiln builders. After the patent of Hoffman expired some twelve to fifteen different types of continuous kilns were put on the market. If we take that according to these changed plans there were also constructed some 20,000 kilns, so we have that over 40,000 continuous kilns built in these fifty years. The average capacity of each continuous kiln is about 5,000,000 bricks per year, so there are burnt about 200,000,000,000 bricks every year at present. The saving on coal by the burning of 1,000,000,000 brick over the old type of kiln is about 600,000 kilos of coal. So that the yearly saving on fuel distributed over the whole world is about 60,000,000,000 kilos of coal, or 60,000,000 tons of coal. We could go farther in pointing out the saving which can be traced in transporting this amount of coal, but enough to state that the saving produced by this invention has been tremendous.

The invention of the continuous kiln has also proven advantageous to other industries in which heat has been necessary to produce results. We will only mention the glass industry, where by the introduction of generative gas by Engineer Friederich Siemens, great saving has been made.

In the same way that the genius of mankind does not find any rest, so we will find that the burning process in the ceramic industry will be more and more completed. Much progress will be made in the arrangement of the burning process, but the application of the lost heat, even in the continuous kiln principle, will come in for large consideration. When improvements of such nature have been made it will then be possible to burn even the products, which are the most subject to change of temperature, as glazed ware, in continuous kiln without much loss.

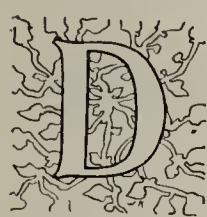
WHEN THE FIRST BRICK WAS MADE.

Brick were first made in Mesopotamia, many thousands of years ago. There were no stones to be found in all that great fertile plain, but there was an abundance of clay, and the primitive people discovered that if the moist clay were molded and then laid in the sun to dry, it would harden into durable building blocks. Samples of these early, shapeless, sun-dried brick have been recently found in the ruins of the very ancient city of Bismya in Mesopotamia. There, also, the first brick burned by fire have been found, dating back several thousand years. People had seen that the moist clay under their campfires had become hard and red, and they gave up sun-dried brick for burned ones. For a long while these crude burned brick were square in shape and very large.

But about five thousand years ago the Babylonian masons found that it was necessary to break these square brick in half, in order to build evenly, and from that time dates the oblong brick familiar to us today.—Exchange.

Written for THE CLAY-WORKER.

DETROIT BRICK AND BUILDING NEWS.



DETROIT BUILDING OPERATIONS for the past month of October fell behind the same period last year. Actual figures for October, 1908, as given out from the Fire Marshal's office are \$1,049,450 for 314 new buildings, and \$90,370 for sixty-two additions; for October, 1907, the figures were \$927,700 for 327 new buildings, and \$247,450 for additions. This makes a total of \$1,139,820 for October, 1908, as against \$1,202,150 for the same month last year, and shows a balance of \$62,330 in favor of 1907.

It is a rather peculiar fact that while the total in October, 1907, was greater than that of October this year, the value of new buildings erected was not so large. The difference in favor of last year is in the value of additions. The total figures for the ten months this year are \$8,612,270, as against \$14,226,300 for the entire year of 1907.

Detroit builders were both surprised and gratified when total figures for cost of building operations for the month of September were given out. September is the only month of the present year in which the value of permits taken out exceeded the corresponding month in 1907. The figures for September, 1908, amount to \$922,200 for 28 new buildings, and \$20,950 for fifty-one additions, making a total of \$1,193,150. This is \$1,650 in excess of the same month last year. Actual figures for September, 1907, are \$958,450 for 404 new buildings, and \$233,050 for sixty-two additions, this making a total of \$1,191,500. Among larger permits taken out are the following: Belle Isle Casino, \$63,000; Gratiot-avenue M. E. Church, \$30,000; Campbell-avenue M. E. Church, \$35,000, and Everitt-Flanders Auto Company factory, \$30,000.

It may be of interest to note that more than the usual amount of building work is reported out in the State of Michigan, generally. Building operations in Grand Rapids, second city of the State, are being rushed, and will be much larger than a year ago.

The building situation in Detroit and vicinity is, of course, much better this fall than it was in the spring and early summer, and brick men are all pretty well satisfied with business conditions. The price of common brick still remains comparatively low. But few of the local plants have shut down for the winter, and it is expected, now that the election is over, that the demand for brick will continue to be good for some time.

One of the important announcements in brick circles made this past month comes from the George H. Clippert & Brother Brick Co., who have decided to double their capitalization, and to increase their output to twice their present figures. This means a capitalization of \$100,000, the output being increased from 64,000 to 128,000 brick per day. Buildings of a permanent nature will be provided, and this company has purchased forty additional acres of good clay land. This concern is one of the oldest and best-established in the city, and is located at 1960 Michigan avenue. George H. Clippert is president of the company.

Paving brick men may be interested in the fact that the Detroit Real Estate Board has voted down the proposed wheel tax, used in some cities for the purpose of keeping the pavements in repair. This tax provides that every vehicle that uses the public streets shall take out an annual license. In Detroit, pavements are laid and cared for as follows: An entirely new pavement is paid for by the abutting property owners. One laid, the city takes care of repairs, and the expense is maintained by the general taxes.

Samuel J. Vail, who is well known in Detroit as a retailer of building supplies, was recently married to Mrs. Therese Monroe. Mr. Vail has many friends among the brick men in Detroit and vicinity.

One of the new companies recently incorporated here is the Detroit Brick and Tile Company. The company has a capital stock of \$50,000.

WOLVERINE.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

A South Africa Subscriber Who Thinks the Clay-Worker Cheap at Any Price.

Editor THE CLAY-WORKER:

By this mail I am sending you a copy of the Transvaal Weekly, by which you will see we know how to get out newspapers down here in the Transvaal. I get THE CLAY-WORKER regularly, but it is nearly two months old by the time it reaches me, and costs me 49 cents a copy, but I think it cheap at the price. The building trade in South Africa is very depressed at present, but we are living in hopes of better times in the near future.

Very truly yours,
South Africa. A. M. GOODFELLOW.

Has Actinolite a Commercial Value?

Editor THE CLAY-WORKER:

"I am interested in a tract of land upon which I have located asbestos. I find in conjunction with this asbestos considerable deposits of a mineral substance, somewhat similar to asbestos, but in denser formation. It has the appearance of light gray shale, but when scraped or crushed, breaks away into very short fibres. If rubbed in the palm of the hand, it appears and acts exactly like talcum powder. The asbestos is found in seams of about 18 inches in width running through bodies of the material referred to above. I have been informed that the correct name for this material is "Actinolite." Can any reader of the CLAY-WORKER enlighten me as to whether this material has any commercial value, and if so, for what purpose it is employed. "ACTINOLITE."

Blue Brickmaking from an English Brother.

Editor THE CLAY-WORKER:

Regarding blue brickmaking in America, I think that our American brothers are rather backward in this class of goods. What is the reason? I am sure this is not because there is no clay adapted for blue brick, as I understand there is plenty of bastard fire clay with iron in it, and also plenty of red burning clays in America. Of course, it does not need one kind of clay alone—say two-thirds of the bastard fire clay and one-third red clay would make a very good body for blue brick, and there are no brick made that beats them for engineering purposes and street and sidewalk and building goods. They are good, hard, imperishable, and splendid wearing goods. Concerning the making of this class of goods, if there is any red clay with a good percentage of iron and manganese in it, this would make the best body, but while clay can be made black, the body wants to stand 2,400 degrees of fire. But to get a good blue brick, the point most desired is a kiln of the right kind and a man who understands the burning of blue brick at all its stages, as blue brick wants burning in quite a different way from any other kind of clay ware. The kiln to burn these goods in to get the best results is the square kiln, 33 feet by 16 feet, with a hollow bottom underneath and a solid floor over it and a hole 18 inches in the center and bagging two courses above the arch of four holes; inside kiln baggings should be 18 inches by 12 inches inside. This gives plenty of facilities to the burner, so that he can

condense his body before he gets his goods red hot, so as to get the body center first. It is simply an impossibility to get a good blue by getting the face first. The best way for setting blue is to set the top thirteen courses damp or black hard, as steam is very beneficial during the smoking process. Now, any time that any of my American brother readers wish for more details in this branch of the clay trade, I shall be glad to give same, as I am sure that our American brothers have the material for making this class of goods, and of a quality, too. Now, it is also a good plan, if possible, to burn with a red ash coal, as red ash dust off the coal gives a good blue of itself, but if this kind of fuel can not be gotten, any kind of coal can be used. The kilns that blue brick are burnt in are also good for sanitary ware in giving very best results with small stick coal.

Hoping that this will enlighten my American brothers in this class of the clay trade, believe me to remain

Very truly yours,
H. W. HARDY.

Discoloration of Brick in Kilns—Its Cause and Cure.

Editor THE CLAY-WORKER:

Enclosed find check for \$5.00 for my subscription to THE CLAY-WORKER. I want to make sure of receiving the paper for some time to come.

I am very much interested in the letters written by Si Entific and published in the last two issues of THE CLAY-WORKER. He has described the peculiar workings of the down-draft kiln so true to life that we feel that probably he could give us some information in regard to the discoloration that sometimes occurs.

I am working down-draft kilns and burning red face brick; sometimes I get 95 per cent. face out of the kiln, and the very next burn, under the same conditions, I will get a whole kiln of what we call a dirty brown. Some burners here claim it is an excess of air in the kiln. Others say too soon a use of the dampers or too wide setting, which allows too much flame to pass through the brick.

Now, if Si Entific would give us his version of it, perhaps he could suggest a remedy and we would gratefully remember him.

JOHN LOGAN.

Si Entific Offers a Remedy for Discoloration Troubles.

Editor THE CLAY-WORKER:

Referring to the troubles of our brother at Toronto in the discoloration of red pressed brick, I should say that his results present a pretty plain case of "flashing." The color indicates that they have been "smoked" at high temperatures, or at least when the kiln was on what is ordinarily considered high fire. If he will have draw trials where he can get at them easily he can probably catch the process in the act. When the burners fire in such a way as to make the kiln look cloudy inside and the condition continues for some time, the effect of the smoke penetrates the clay and darkens the color. Subsequent clear firing will take out the very dark color, but will not restore the original red. The brick should, of course, be set "faced" in the kiln, so as to protect the faces as much as possible. Then fire without smoking. After the kiln gets red, it should be kept clear all the time. It is easier said than done, but it can be done, and it is up to the burner to do it.

As for dampering too soon, or too much, that may have something to do with it, as a low damper usually makes it harder to keep the kiln clear of smoky flame. Open setting would work the other way, if anything. A smoky atmosphere has less effect where the flame travels freely than where it hangs.

Trusting that these suggestions may be of service and that the troubles will disappear with the smoke,

Yours very truly, SI ENTIFIC.

P. S. In glancing over the above, I see that what I have

written might be interpreted as meaning that the burner must not smoke while firing. As a matter of fact, he need not fire without smoking, unless it be to set the kiln a good example. If he has a good understanding with his kiln, no privation of this sort should be necessary. In fact, the burner should do the smoking for both.

S. E.

A Fast Color for Use with Cements.

Editor THE CLAY-WORKER:

Often the question arises about using Venetian red for cement or concrete work of all kinds. In this respect we wish to say that Venetian red is not a desirable coloring product to be used in conjunction with cement, the principal objection being that most Venetian reds manufactured in this country especially, are of an acidulous composition. In coloring matter that is not of entirely a mineral nature we find it very undesirable, at least if used in any quantity for cement work, for the above named reason. We understand that it is used many times when it is desired to obtain a deeper

here are of wood. The only brick construction that is known here is the solid 8-inch or 12-inch wall, which they do not use much, as they claim it makes a damp house. We have built several hollow block houses with 8-inch block and plastered on the block on the inside. We found that the rain beat through. We plastered the outside with cement, but it was no improvement. Another fault we found was in the window frames, as the rain would get in or around them and drip down, so that the wall would be wet under the windows.

My idea of the future dwelling house is a 4-inch outside face wall of brick and an inner wall of hollow block, the walls to be independent of each other and braced by metal wall ties every six or eight courses. Then the rain that would get through the outside wall could not be carried to the inside wall by capillary attraction as in the solid wall. In the solid wall the moisture is carried through in this way a good many times, as you know capillary attraction is one of nature's laws that is always in working order. Anyone in doubt could just drop a blot of ink and put a



Hollow Block Dwelling Ready for Brick Veneer.

hue of color than is had by using iron oxide, which has an affinity for concrete, and adds rather than destroys. Any material that is greasy or acidulous is deleterious for concrete, as chemical action results that will eventually cause it to disintegrate more or less. That has been our observation in a practical way, having used many different kinds of coloring matter. We at all times when possible to be obtained, recommend oxides, purely mineral colorings for cement.

Yours very truly,

RICKETSON MINERAL PAINT WORKS.

Hollow Block Brick Veneered Residences.

Editor THE CLAY-WORKER:

We enclose money order for subscription to THE CLAY-WORKER. We have seen mention made several times of wire wall ties in THE CLAY-WORKER. We are not sure that we know how they are used, not having seen any used. Could you give us any information on their use, and where we could get them? Would also like to know if we could get a book on the construction of brick and hollow block buildings. Most of the buildings that are built in the small towns

corner of a blotter in it and see how long it takes it to work.

Perhaps some brother brickmaker could help us out if you would put our troubles in THE CLAY-WORKER. Would like to know if you would let us use some of the articles on draining in THE CLAY-WORKER in our local paper, if we mentioned where they were taken from.

Yours truly,

Haightstown, N. J.

B. H. REED & BROS.

Seventy Years in the Clay Business.

Editor THE CLAY-WORKER:

In the spring of 1838 I commenced working in clay, and have been at it ever since. Seventy years is a good apprenticeship, and I have decided to quit and do as I please what little time I have left to live. I have been taking THE CLAY-WORKER for over twenty years, and feel that I am fairly well acquainted with it. I have stacks of old CLAY-WORKERS, and in going over them the other day found some good reading in old numbers dated 1888. I wish you and THE CLAY-WORKER all the success possible.

Roseville, Ill.

Yours truly,

DANIEL BIRD.

Burned Clay Versus Concrete Construction.

IF CONCRETE IS GOOD IT ISN'T CHEAP.
IF ITS CHEAP IT ISN'T GOOD.

Written for THE CLAY-WORKER.

THE DANGERS OF CONCRETE CONSTRUCTION RECOGNIZED BY FEDERAL GOVERNMENT.

IN AN INTERVIEW given the Washington Herald. Mr. James Knox Taylor, Supervising Architect of the Treasury Department, said, referring to the dangers in the use of reinforced concrete construction: "I would favor the further use of reinforced concrete in the construction of Government buildings if it were possible for us to get a sufficient number of expert superintendents to take charge of the work. It requires careful and expert watching. I am afraid that we shall always encounter, or for a long time at least, the same difficulty that we find now in its use, namely, that while we can easily get superintendents, we can not get a large enough number of them who are highly trained in the use of concrete. There is too much danger in the indiscriminate use of concrete to permit us to try to make it a common material in the construction of Government buildings unless, or until, this danger can be in some way eliminated." Mr. Taylor is the highest functionary in the United States Government, as far as building construction is concerned, and his opinion is of great value. In this case, it is simply a reiteration of what so many experts have contended. Reinforced concrete is a most attractive mode of construction theoretically, and splendid results may be attained—from laboratory tests. But it is so variable a quantity and is so susceptible to tribulations in its handling that, spite of the arguments of its votaries, the gentlemen who have cement to sell, it is the most unsafe medium of construction known. All other materials are completed and can be subjected to tests, and are, to a degree, tested in handling before being brought upon a building, while reinforced concrete can only be tested after the structure is completed, when it is usually too late to remedy the defect. The large number of concrete collapses further illustrates this point. Another Government officer, Engineer Humphrey, of the Geological Survey (who, by the way, is also the president of a cement organization, which fact gives still greater force to his statement) adds that after an examination of most of these collapsed concrete buildings he is convinced that certain inherent troubles existed in them all, and he fears that similar troubles exist in many that have not yet collapsed, and avers that it seems a miracle to him that more concrete buildings have not collapsed.

Written for THE CLAY-WORKER.

REINFORCED CONCRETE.

OUR ESTEEMED contemporary, Concrete Engineering, in its October number, editorially goes into endless duckfits about an article in the September World's Work by "F. W. F.," the initials of Architect F. W. Fitzpatrick, of Washington, D. C. These editorial spasms are indulged in because Mr. Fitzpatrick did not wildly enthuse over reinforced concrete in that article. According to our Cleveland friend, all men who do not shout for concrete in buildings, railroad work, street paving, clothing, food, and everywhere else, immediately become "undesirable citizens," "mendacious falsifiers," "mollycoddles" and such. Amusing if not illuminating.

One point is made, however, that we have heard from other sources and it at least deserves comment. Many seem to

think that because there are '8,000 buildings in the country that are built of incombustible materials that these must necessarily be full-fledged "fireproof" affairs. Mr. Fitzpatrick fully elucidates this in that very article, but perhaps not clearly enough for some intelligences. The mere fact of using steel and brick or concrete in the making of the structural parts does not necessarily prevent fire from destroying the contents and even human life in such a building unless everything required to make the building really fireproof is done. The mere structure is but a part of the construction. That was proven at San Francisco and in Baltimore. The windows were left unprotected, and fire made a clean sweep of everything, though in the better examples of construction the structural parts themselves were but slightly damaged. His contention is—and it is perfectly right—that to deserve the name of "fireproof," a building must be so in all its parts, and in the assembling of its incombustible materials. What's the use of a chain with links as stout as your wrist if you make one of those links of quarter-inch metal?

Incidentally, there are a great number of people in the building trades and professions who would be greatly interested in having Concrete Engineering name the reinforced concrete buildings that withstood the fires of Baltimore and San Francisco "better than did the steel and tile construction." Further, they would also give a good deal to have the same journal name the "1,000 large reinforced concrete buildings" that have been built in the past six years and which "are equal to the best of any other kind of construction." When an editor makes such statements he ought to be willing and ready to produce the facts.

The editorial pages of that particular number of Concrete Engineering are really most interesting, they are so consistent. First is a liberal abuse of Mr. Fitzpatrick for not wildly clamoring for reinforced concrete everywhere. Then follows a lamentation that the City of Cleveland should be contemplating restricting the height of concrete buildings to eight stories. Frankly, we are rather inclined to agree with this criticism of the Cleveland code. At least it has never been quite clear to us why, with all its uncertainties and hazards, reinforced construction should be permitted in buildings up to that height. Indeed, if there is danger of collapse, etc., in anything over nine stories, why is not the danger as great in nine stories and under? We have seen poor fellows killed just as dead in a concrete collapse of three stories as others were in collapses of six and seven story concrete buildings. If the system is hazardous in one place, it is just as hazardous in the other.

Our editor friend goes on to say, "we believe that the antagonism of the architects to concrete is due to a lack of understanding of the method of design." That may be. There are so very many methods that it would puzzle a Philadelphia lawyer to keep track of them in the first place. But the hazard of the undertaking in any system is, we believe, the root and foundation of the opposition of the best architects to reinforced concrete. Said one the other day: "The reason I will never build another reinforced building concrete building? Why, life isn't worth living while you're doing it. During the time they were placing concrete I didn't dare be away from the building five minutes; one has to watch every shovelful and be sure of the mixing and the tamping, and none of those things are done unless you're right there watching it and praying that it will be all right. Then about the time we were ready to take down the forms and centers I turned three shades grayer, fearing that the whole thing would tumble about my ears. It is up and seems all right, but I wouldn't swear by it yet. No, sir, no more reinforced con-

crete buildings for me; I'll use something that we know something about, and that we can depend upon." And he put into words the sentiments of many another architect who had been beguiled into the new-fashioned, experimental modes of construction.

Our editor friend states that "the attitude of the United States Government toward concrete should have a strong influence on all who are opposed to it. * * * Perhaps he is right. Here is what Supervising Architect Taylor says about it. He is the chief officer in charge of Government construction, so we suppose he may be looked upon as the mouthpiece of the Government: "I would favor the further use of reinforced concrete in the construction of Government buildings if it were possible for us to get a sufficient number of expert superintendents to take charge of the work. It requires careful and expert watching. * * * There is too much danger in the indiscriminate use of concrete to permit us to try to make it a common material in the construction of Government buildings unless, or until, this danger can be in some way eliminated."

The English Government seems to be of about the same mind, for we find another lamentation in the editorials under consideration that bewails the fact that the British Local Government Board will only grant fifteen years for the repayment of loans on reinforced concrete buildings, while it grants thirty years on other forms of construction. Now, then, that same board is noted not only for its conservatism, but for the intelligence and keen discrimination its displays in just such matters. The board has undoubtedly seen the performance of reinforced concrete buildings, has kept tab upon all related matters, and has taken this means of keeping down the craze that has struck England almost as virulently as it has this country, a species of epidemic that has been carefully nurtured and spread by the liberal advertising, subsidizing and press work that has been carried on by the manufacturers of cement. The great thing with them is not the encouragement of an allegedly cheaper construction pro bono publico, not the elimination of combustible materials and the substitution of something that at least will not actually burn, but solely and only the sale of the maximum possible number of barrels of cement.

Naturally Concrete Engineering hates to see, read or hear anything that in any way interferes with the furtherance of its propaganda for "reinforced concrete at any price," but withal those two pages of editorials are interestingly and compellingly amusing, and their logic is edifying in the extreme.

T. SQUARE.

Written for THE CLAY-WORKER.

CONCRETE COLLAPSES, ETC.

A recent number of "Cement Age" prints a long diatribe anent the collapse recently of a reinforced concrete apartment house at Washington. It gives parallel columns of testimony to show that brick piers were undoubtedly at fault, rather than cement construction, and cites the "Washington Star" in support of that contention. It may not, therefore, be amiss to quote what the "Star" said, editorially, in reference to that collapse. "... concrete construction has been in vogue for several years. There is a building in this city composed wholly of concrete, and reinforced concrete is used locally in many ways as supplementary to the ordinary masonry work. Failures of concrete construction have been reported from other cities in a manner to direct attention pointedly to the fact that this mode of construction must be subjected to a rigid inspection. The Washington regulations should, long ago, have been made sufficiently stringent on this subject to insure at least reasonably safe concrete construction." The "Cement Age" avers that the brick piers collapsed and let down the concrete floors. The final wind-up of the case will prove that the concrete floor collapsed, and in its collapse destroyed the brick pier. Further, it may interest the "Cement Age" to learn that the coroner's jury held the owner of the building, the brick contractor, the foremen of the iron workers, and the building inspectors to the grand jury, for indictment for manslaughter in this collapse. This might show that the coroner's jury thought the brick man was at fault. But the grand jury indicted Thomas H. Pickford, the owner of that building, and Albert F. Reavis, the contractor for the concrete work on the building, as jointly responsible for the collapse, and dismissing action against

the brick and iron contractors, who had been held by the coroner. "Cement Age" will, perhaps, also be interested in noting that this concrete contractor was not held by the coroner's jury. His indictment originated with the grand jury and is based upon the latter's more thorough and searching investigation.

This man, Reavis, figured, we understand, in some concrete collapse or other building disaster in Philadelphia some time ago.

This Washington apartment house was, undoubtedly, most sloppily put together, but it is a species of construction that seems to be characteristic of nearly all the reinforced concrete apartment houses in the city. At least one would infer as much from a letter written by its owner to the daily press, in which he asks for clemency, because he did the same thing as was being done by so many others. He says that "it is a matter of common knowledge that accidents exactly similar to that which took place at the Toronto (his collapsed apartment house), happened in the Sherman, the Wyoming, the Brunswick, twice in the Cumberland, the Newberne, the Mendota, the Iroquois, and many others."

The current number of the "Concrete Age" is likewise not without interest. It tells us that in Cleveland it is proposed to change the classification of concrete buildings so as to take it out of the fifth class (buildings of five stories at most), and put it into the third class, permitting buildings to ten stories in height. But this new building regulation also calls for special inspection of all concrete work and that this inspection is to be done by the city, at the expense of the contractor. Certainly a wise move, and one that has often been recommended. Engineers and architects appreciate what a hazardous construction reinforced concrete is, and realize that only heroic efforts will ever prevent or stay the shoddy methods and collapses that have followed in its wake.

We are also indebted to the "Concrete Age" for the following bit of interesting information:

Coal Residue in Concrete.

"Owing to the very deleterious effect of cinder concrete on iron and steel, a law has recently been passed in Germany absolutely forbidding its use in certain forms of structures throughout the country. The law applies to reinforced concrete structures, generally, and floors and beams, where tensile stress is developed. It is true that some coal residues are very convenient, as regards fire resisting properties, but these considerations are quite outweighed by the fact that this material sets up rust and corrosion in the iron and steel. As coal residue concrete is still largely used for floors, and for covering structural steel work, it might be well if the example set by the German authorities were followed in the United States."

We agree perfectly with the "Concrete Age" that it would be well to bar cinder concrete in this country, too. But what's going to happen to the cinder concrete buildings that have been built? The great claim of concrete experts is that cinder concrete is so cheap and so good that it ought to be used, and it has been used in probably nine-tenths of the concrete apartment houses that have been built, and in probably four-fifths of all the concrete buildings that have been constructed. Are they all to decay and crumble by reason of the destruction of the iron and steel reinforcement? A pretty possibility to contemplate.

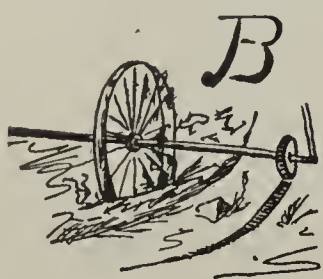
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We wonder sometimes what there is about concrete construction that makes its votaries at least seem so cold blooded and utterly regardless of human life. Awhile ago one of its American authorities, exulted over the fact that concrete collapses usually occurred before buildings were completed and occupied, thus exposing only the lives of the workmen. And now at the International Congress of Architects, at Vienna, a Mr. Emperger, speaking on the subject of failures of concrete, suggests, "that accidents have ever been the real instructors in all important matters of construction," and Mr. Sachs, of London, seconded the proposal for the immediate publication of accounts of accidents which occurred. He pointed out that actual experience gained from the building operations was for more instructive than that derived from experiments in the workshop.

Nice theories, and all sound enough if one has absolutely no regard for human life, but it would seem that the cities ought to have something to say about this experimenting on a large scale, and possibly the labor unions may also have some conscientious scruples about exposing their members to imminent danger of death while these concrete experts are acquiring the experience that is going to be so valuable to them.

Written for THE CLAY-WORKER.

CLEVELAND BRICK AND BUILDING NEWS.



BUSINESS IN THE brick line is holding out exceedingly well, according to the reports of most of the dealers in northern Ohio. Building is still in full blast, only a day or two of bad weather having held things up. It promises to continue just as long as the weather remains open enough to permit of construction work. The result of the election starched things up a bit, and the outlook is more optimistic than at any time this year. The material men anticipate a great business next year. Already a large number of big jobs have been announced, and the city is passing the necessary legislation to pave 200 streets. It is likely that a bond issue for paving purposes will be put up to the people of the city some time early next spring to secure sufficient money to press the work.

There is talk about the city of the establishment of a new common brick plant at Dover, just west of the city. It is said that it will be gone on with during the winter and an effort made to get it in operation early next spring. The plans, however, are not far enough advanced to be announced as yet. The city of Cleveland also contemplates the establishing of a paving and shale brick plant at its 1,900-acre farm at Warrensville, just outside of the city. There are some excellent shale banks there suitable for paving brick, and the workhouse prisoners would be employed in turning out brick, just as they are now employed in the various quarries on the farm. The brick plant would be made a city department, just as the water works department is, and no brick would be sold, the total output being used for municipal purposes only. Just what the outcome of the scheme will be is problematical.

Several fine specimens of terra cotta jobs are now under way in Cleveland. One of these is the new Sterling Welch store building, on Euclid avenue, which has granite for the first story, and Northwestern terra cotta for the four upper stories. The terra cotta is so similar to the stone that an expert only can detect the difference. Another job of the same character is being pushed forward at the Plain Dealer's new five-story building, which is of similar construction, the terra cotta being furnished by the Northwestern Terra Cotta Company, whose Cleveland agents are the Hydraulic Press Brick Company, of this city.

The same company is preparing to supply elaborate terra cotta designs for the entire Euclid avenue and Huron road fronts for the new Pope twelve-story building on Euclid avenue, opposite the Union Club building. This, it is declared by those who have seen the plans, will be absolutely the finest merchantile structure between New York and Chicago, and will cost \$1,000,000. Steel is erected already for about seven stories, and is being rushed to completion.

The Gardner Printing Company has leased a tract of ground on East Eighteenth street, near Prospect avenue, and is preparing to erect a new three-story brick structure 120 x 100 feet in size. The company prints several trade papers in the woodworking line.

Plans are being evolved for the erection of the new John Hay High School and the new Normal and Model Schools, which are to be built on adjoining sections of ground out near University Circle. Work on the structures will begin in the early spring. School authorities are busy deciding on the style of architecture to be used on same. Owing to the distinctly classical training which will be given, it is planned to follow out the spirit and have the building of classic architecture. An attractive gray pressed brick is to be employed on the Normal building, which will cost \$100,000. The new John Hay High School, which is to be built nearby, will probably be a similar colored brick. It will cost \$250,000, but will not be completed inside of eighteen months.

Hamilton & Leghorn, Cleveland contractors, have been

awarded the contract for the erection of a \$20,000 brick apartment house for W. L. Clements, on Ford Drive, from plans by Architect George H. Steffens. It will contain only four suites, and promises to be one of the most elaborate apartments of its size in Cleveland.

Baldwin Brothers & Graham bid the lowest for the paving with brick of five miles of country turnpike on Dunham road. Their bid was \$121,374, considerably lower than the engineer's estimate. Arrangements are also being made to pave four miles of the Lake Shore boulevard with brick from the county line toward the city, 18 feet wide.

At the office of Barkwell & Bradley, distributors for the common brick plants of this city, it was stated that business is holding on well for this time of the year, and that the common brick plants will not prepare to shut down until the middle of next month, and then only for necessary repairs. The brickmakers feel that next year will see a big demand for their product, and proposes to have a fair-sized supply on hand.

George Gynn, who operates a common brick plant here, is preparing to relocate a quarter of a mile from his present site, where he has secured a new clay bank. He will build practically a new plant, to be ready for occupancy next spring.

Despite the fact that the new eight-story building for M. A. Bradley, at East Second and Prospect avenue, has been heralded as a concrete structure, a considerable amount of brick is to be used. The Ohio Clay Company is furnishing 300,000 of its hollow brick, while the Mason's Supply Company is delivering about 75,000 buff Advance pressed brick on the job. The building is now up five stories, and an effort is being made to reach the full height of eight stories before the weather causes work to shut down.

The Cleveland Builders' Supply Company has been awarded the contract for the supplying of shale brick for the new twelve-story Pope building. Some 300,000 red shale brick will be used for the side walls.

The Masons' Supply Company has just captured a good order at Detroit, where it will furnish 2,000,000 Canton pressed brick for a new monastery being built for a catholic order there. Deliveries have been started and will continue most of the winter.

The Cleveland Builders' Supply Company has secured the contract for the pressed brick for the new ten-story Bailey Annex, on Ontario street, which is to be built by the Reaugh Construction Company, beginning January 1, when foundations and steel will be started. About 75,000 pressed brick will be used for the front of the structure.

The Ohio Clay Company, which makes a specialty of hollow pressed brick, has experienced an excellent season, according to its new manager, Bert J. Graham, who was formerly in charge of the brick department of the Masons' Supply Company. Among the real big orders filled during the past summer and fall have been 2,000,000 for the infirmary buildings at Warrensville; 1,500,000 for the new Sterling Welch store; 2,000,000 at the County Court House, and the 300,000 on the Bradley job, besides a large number of smaller orders. The plant of the company is to be overhauled this winter, and its capacity doubled, both as regards building and machinery. The company has but recently put out a new "Jumbo" hollow brick, having two compartments. It was tested at the Case School of Applied Science, where it stood a compressive test of 177,000 pounds without fracture. The company claims that the hollow brick is much stronger than the ordinary type, is one-fourth as cheap, and much lighter for the laborers to handle.

John F. Leonard has succeeded Bert J. Graham at the Masons' Supply Company, in charge of the company's brick department.

At the annual election of directors of the Builders' Exchange, on the evening of November 1, the following were chosen: George B. McMillan, Thomas E. Teare, R. R. Wills, T. S. Bagsby, Jacob Schade, George A. Rutherford, Henry A. Taylor, Ira S. Gifford, J. Wentworth Smith, and G. S. The-smacher. E. H. Towson, first-vice-president of the exchange, was made an honorary member, an honor only held by Andrew Carnegie.

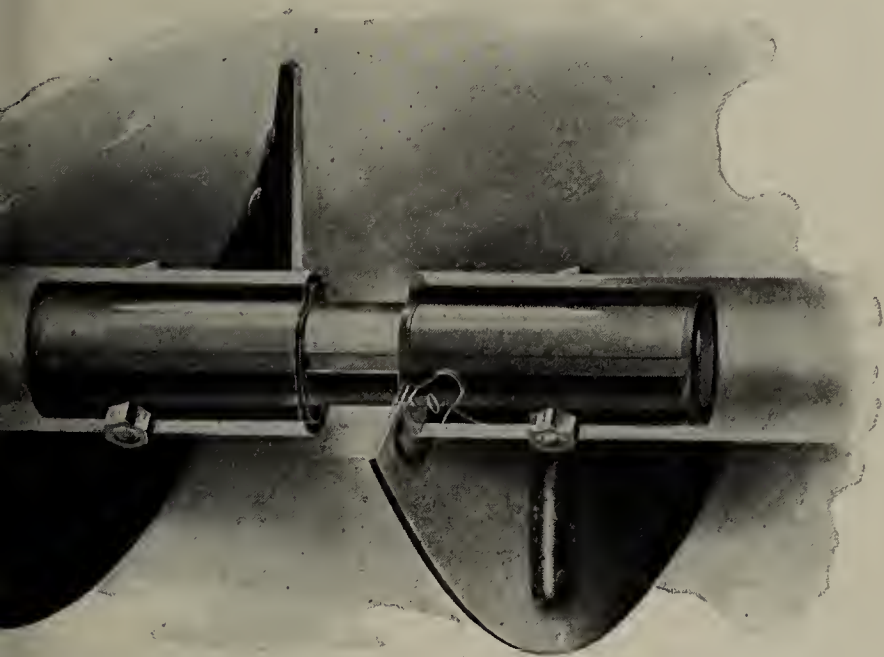
BUCKEYE.

THE CALDWELL PATENT CONVEYOR COUPLING.

A NEW COUPLING for spiral or screw conveyors has been recently patented by Mr. F. C. Caldwell, of the H. W. Caldwell & Son Co., Seventeenth street and Western avenue, Chicago, Ill. The coupling that has been standard for screw conveyors, and which was the invention of Mr. H. W. Caldwell, is the well-known four-bolt coupling, which consists of a solid coupling shaft in which are drilled bolt holes, corresponding bolt holes being drilled in the conveyor pipe, and machine bolts forming the connection between the coupling shaft and the hollow shaft of the conveyor pipe.

In manufacturing the four-bolt coupling it is endeavored, so far as possible, to make the bolts a tight fit in the holes to prevent loss of motion, but, in the course of time the bolts will become loose and gradually cut off, or the bolt holes in the pipe will wear out. Where the service of the conveyor is severe, this is apt to occasion more or less frequent repairs and loss of time, due to shutting down. The mechanical criticism of the four-bolt coupling is that the bearing surface and the surface to resist wear that is presented by the circumference of the machine bolt which presses against the wall of the pipe is comparatively small. The effectiveness of such a coupling might be compared with a set screw for fastening a pulley.

It will be readily recognized by practical men that anything that will improve this feature of the spiral conveyor will be a distinct advantage, and the Caldwell coupling shown by the illustration is designed for that purpose.



By referring to the cut above it will be seen that the conveyor pipe has an internal bushing, and that, as a part of this bushing, is formed a feather key which projects into a keyseat cut in the coupling shaft. The effect of this is to provide a bearing and wearing surface equal to the face of the key, and when this is calculated as compared with the coupling bolt surface, the increased surface of the key is so great that its strength as a power transmitting appliance and its durability is very much greater; in fact, it is doubtful whether in any use to which the conveyor is to be put this key will wear off or be broken off. The internal bushing is prevented from turning inside the conveyor shaft by having on its outer surface a groove, into which the pipe is forced while hot. The bolts shown are only intended for the purpose of preventing the coupling shaft from moving endwise, and these bolts are not intended for transmitting power.

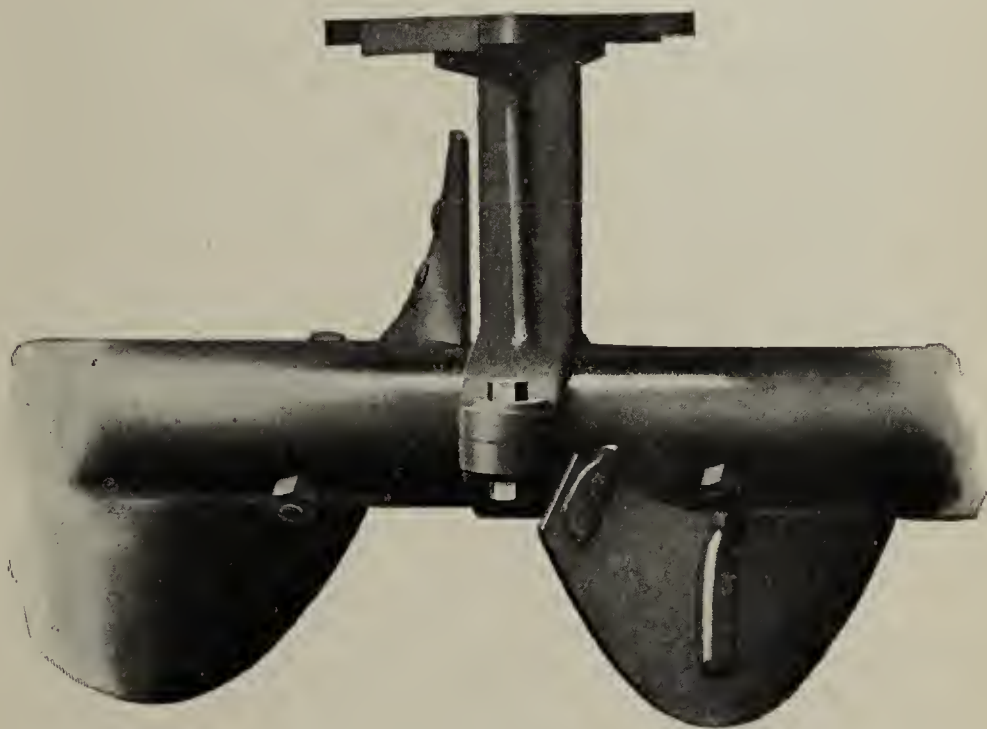
The coupling shown with the keyseat running the full length of the shaft is designed especially to be used where a chilled cast iron bushing is used as a sleeve on the coupling shaft, this sleeve running in the hanger bearing proper.

For ordinary purposes the shaft would be left round at the hanger space and run in a babbitted bearing, and in such case it would be practical to entirely discard the bolts shown, thus furnishing a coupling without any coupling bolts whatever.

The Caldwell Company offers this improvement to the trade as the latest of the many improvements in the spiral conveyor that they have brought before the users of this specialty. Having been in this line of manufacturing since 1875, they are, of course, fully conversant with the requirements of this special type of conveyor, and in fact claim that the commercial use of the spiral conveyor is entirely due to the attention they have given to the industry from the time they first undertook the manufacture of this specialty.

GOOD ROADS FOR JERSEY.

According to the latest information, a big piece of construction work will be undertaken in Ocean County (N. J.) in the spring in the shape of a shore boulevard. The road will run



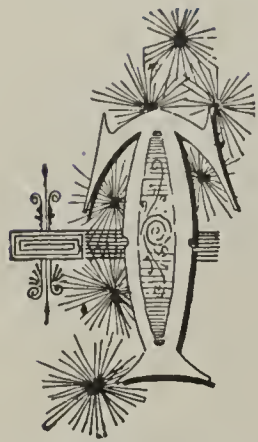
from Chadwick south to Seaside Park, and will be the completion of an important piece of road which has been constructed previously. The State authorities have interested themselves in it, and are working with the freeholders to make it a success. It is reported by the engineers that considerable brick will be used in construction, though details are not at hand so that all the facts can be given. It is worth looking into, however.

Along with this movement is the one in Bergen County, which has for its object the construction of a boulevard across the county from the Palisades to the Passaic River. This is enthusiastically endorsed by all the leading citizens and the officials of the municipalities through which it passes. The Bergen County freeholders have recently let the contracts for a new bridge over the Hackensack River from Hackensack to Ridgefield Park, to cost \$158,000. The bridge will be a part of the boulevard, and will connect two important municipalities when completed. These projects indicate the temper of the people of New Jersey. They fully intend to make the improvements herein described, regardless of expense, believing that in doing so they will attract a desirable class of residents and investors to the New Jersey side of the North River.

It is not always the man that has the least percentage of waste from his kilns that makes the most money, but if he can reduce the waste without extraordinary expense, he has a mighty good chance to make more money than the fellow who has lots of waste.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE BUILDING SITUATION in San Francisco, and particularly the position of the brick business, is highly encouraging. The October building record, as shown by the permits, is hardly as good as for September, which will probably stand as the best month in the year. The October permits amounted to a total valuation of \$3,403,897, about \$393,000 less than those for September, but more than for any other month so far. There has also been a similar falling off in contracts, the total contracts for the month amounting to \$2,893,122, against \$3,287,771 for September. Of the total contracts for October, \$1,368,216 represents the value of brick construction. The majority of the contracts continue to be for comparatively small buildings, but within the last few weeks work has been started on several rather large structures, and a great many more are planned for the immediate future. Altogether, the outlook for the winter is decidedly good, considerable improvement being noted in the feeling of local brick manufacturers since the last report. While the rainy weather during the winter may interfere somewhat with actual construction, no material reduction of the demand for brick is looked for, and next spring ought to bring a material increase. It is estimated that the population of the city has again reached the high point of 1906, and now contains over 500,000 inhabitants, notwithstanding the large numbers that have moved to suburban towns since that time. A decrease is noted in savings bank deposits, and much of the money drawn out is going into permanent improvements. Financial conditions throughout California are good, and considerable outside money is now coming in for investment in building and other enterprises.

During October good progress has been made on the buildings under way, and contractors are increasing rather than diminishing their crews. The workmen, also, are holding more firmly to the union scale of wages. At the same time there has been some improvement in the prices of materials, and the brick market at last promises to recover from the depression that has seemed to be growing worse ever since last fall. Large deliveries are now being made on contracts taken in the last two months, and the contracts now on hand will take up the output of most of the plants now running for several months to come. While a few of the soft mud plants have shut down for the winter, most of the stiff mud and pressed brick plants are now running to full capacity. The movement of common brick has increased somewhat, and with a slight reduction of stocks the price has been advanced by some of the manufacturers. Pressed brick are also in more demand, and more white glazed brick are being used than for a month or two past.

The advance in common brick is due less to the increased demand, however, than to a movement which is now under way among the manufacturers operating in the counties around the bay to effect a combination to stop the overproduction. A movement of this kind has been badly needed since the financial depression of last year, as the market has been flooded with red brick, for which, even under normal conditions, this city and its suburbs could hardly afford an outlet. Brick also has been shipped into San Francisco from various parts of the State and sold at a very low price, the quotation of a month ago being about \$7.50 per thousand delivered, while large lots were sold during the summer as low as \$6 on the cars. At such prices, many of the manufacturers claimed that they were selling their product at a loss. While it is said that the movement has not met with as much enthusiasm on the part of the large manufacturers as was expected, on account of the fear of conflict with the Cartwright "anti-trust" law, the project is very strongly supported, and it is understood that prices have been raised about \$1 per thousand.

The Hilton Brick and Tile Company, owning a plant at

Hilton, Cal., has been reorganized under new management, with a capital of \$199,900. The directors are: Thomas Thomson, F. W. Thomson, B. W. Rice, W. W. Barret, and E. Aigletinger, all of San Francisco. The company has taken offices in the Metropolis Bank building.

The United Materials Company, sales agent for a large number of brick manufacturing plants, has moved its offices from No. 10 Third street to Room 604 Balboa building, on Market street. All the plants represented by this company are now in full operation, producing many varieties of fancy pressed and glazed brick, as well as common brick. Its plant at Port Costa, which has been shut down for some time, has again started up with a full force. The Stockton Fire and Enamel Brick Company, which is also represented by the United Materials Company, is now manufacturing a fine straw-colored enameled brick, which sells in the local market at \$50 per thousand. As most material of this quality has formerly sold at considerably higher prices, it is taking a good hold on the market, and will be used in quite a number of large buildings. Deliveries are now being made on several jobs in the city.

The Municipal Paving Brick Company, which was organized last month to exploit deposits of shale in Solano County, has opened offices in the Metropolis Bank building.

The Ione Fire Brick Company, at Ione, Cal., is having great success in marketing its product, which has been introduced in all parts of the coast by D. W. Dennis, of the Holmes Lime Company. The product is of unusually excellent quality, and is well received wherever it has become known. F. T. Crowe & Co., of Seattle, Wash., now have the northern agency, and a large shipment has been consigned to them.

The litigation which has been going on for over two years between Dr. D. W. Vowinkel, of Alameda, Cal., and N. Clark & Sons, who operate a pressed brick plant adjoining his premises, has been concluded. The trouble arose over alleged damage caused by smoke from the kilns. An injunction has been issued requiring the smokestack to be restored to the same height as before the fire. The company has contemplated making these repairs for some time, but was deterred by the suit. The work will proceed at once. The plant is working about as usual, and the movement of the output is somewhat better than it was a month or two ago.

The City Treasurer has received \$875,162 in payment for the recent issue of sewer bonds, and the money is now available for a large amount of work that has been contemplated for some time. Bids have been called for on the Fulton-street sewer, the estimated cost of which is \$32,000.

The Enamel Brick and Concrete Company has been organized at Sedro-Woolley, Wash., for the purpose of manufacturing a patent brick. The parties interested are R. M. Moody, Warren Shea and S. F. Ellis, who have secured a site for a plant at Richmond Beach.

It is announced that a large pottery works is to be established near Sacramento, Cal. The site has already been secured.

The Pocatello Pressed Brick Company, of Pocatello, Idaho, will build an aerial tramway costing about \$8,000 to convey clay from the banks to the factory by gravity. Arrangements are also being made for five new modern down-draft kilns.

Late last month F. W. Tetley and his associates commenced the erection of a large terra cotta plant at Livermore, Cal. A spur track is being put in leading to the main line of the Southern Pacific Railroad. Both material and machinery for the plant is now on the ground, and the work will be rushed to completion. A portion of the machinery was purchased from the American Magnesite Company, which recently disposed of its plant in Oakland.

S. W. Winsor, manager of the California Pottery and Terra Cotta Works, in East Oakland, was badly injured October 31 in an automobile accident. He is suffering from a fractured hip and three broken ribs.

The Corona Pressed Brick and Tile Company has taken a number of large orders lately. F. Engstrom & Co., of San Diego, have ordered 100,000 cream-colored pressed brick, and the city of Los Angeles has ordered 15,000 feet of 30-inch and 25,000 feet of 24-inch, double-strength sewer pipe from the same concern.

The Southern California Brick Company, located in the Security building, Los Angeles, is offering to sell in advance for delivery between December 1, 1908, and August 31, 1909, six to seven million common brick at \$4.25 f. o. b. yard.

San Francisco, Cal., Nov. 5, 1908.

SUNSET.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

WITH THE ADVANCE of the rainy season, which has now set in properly, the building will decrease a little. The brick yards around Seattle have nearly all made preparations for their winter run. The demand for brick has not been very brisk, and most yards are well stocked with brick. The sewer pipe trade has been very good, and also the paving business. Firebrick has not been very much in demand, and the imported supply is still large. The total amount of building permits for the month of October for Seattle was \$1,705,190. This amount includes a permit for \$450,000 recently issued for the new addition to the Metropolitan building for an eleven-story building. The Laery building has now been started with the foundations, and the brick order was placed with the Hydraulic Press Brick Company, of Omaha.

What effect the reduction of the car minimum on fire brick, fire clay, drain tile and sewer pipe from 40,000 to 30,000 pounds will have on the local trade is not to be estimated. Some firms will have an advantage in localities in which competition will be strong.

The largest brick order placed this year was given to the Tacoma Trading Company, of Tacoma, for furnishing two million brick for the Federal building in Tacoma. Building has been good in Tacoma, and F. H. Goss, of the Goss Brick Company, has been quoted that the next year will be a very busy year for the brick manufacturers. Their plant is running at half capacity at present, giving employment to sixty men. If the city required 25,000,000 brick next year it would mean such a building boom as our city has never seen before. If only Tacoma-made bricks were used in this city, we would employ thirty more men. Our present capacity is large enough to take care of any demand for brick for some years to come.

The Garret Bros. Brick Company, of North Yakima, has the contract for furnishing brick for twelve five-room residences to be built entirely of brick. In spite of the fact that winter is near at hand, the building activity is more lively than it has been in months.

The Denny-Renton Clay Company had another serious accident at their Renton plant. Grossanni Borro, one of the oldest employes in the clay pit, was killed by a large piece of shale. Borro with the other men of the pit were eating their lunch under shelter of the clay conveyor. The blasts are set off at noon and after working hours in the evening, and just as Borro had set down to eat the blast went off and a heavy piece of shale crashed through the floor and killed him instantly.

The Astoria Clay Products Company, of Astoria, Oregon, of which concern Lew Ogan is manager, has now demonstrated that it can produce brick of high quality, both in regard to finish and color. They are figuring on several large jobs, and will furnish the brick for two new buildings in Astoria.

The Northern Clay Company, of Auburn, has purchased fifty acres of clay land on Green River. The company's clay mines are located in this tract of land. This will now be developed to its full extent, and contracts are let for new buildings and clay chutes.

The Kreiger Brick Company, of La Grande, Oregon, will furnish all the brick for the new Carnegie Library building at Baker City.

The Toppenish Brick and Tile Company has just closed a very successful season. They made four kilns of about 480,000 brick, and have very little stock left for the winter supply. They intend to improve the plant and make ready for an early run next season.

The Harding Brick Company, also of Toppenish, made a little over 400,000 brick this season, of which about one-third were face brick. Mr. W. F. Harding expressed himself well satisfied with this season's run and thinks that next year he will be able to make about 70,000 brick.

SIWASH.

Seattle, Wash., Nov. 2, 1908.

Written for THE CLAY-WORKER.

POTTERY TARIFF SCHEDULE.



HEARING WILL BE HAD the last part of this month in Washington, at which the Ways and Means Committee of the House of Representatives will give the potters an opportunity to be heard upon the tariff schedules, and to make suggestions for changes. The case for the potters has been left entirely in the

hands of the executive committee of the United States Potters' Association, which is composed of these gentlemen: William Burgess, Charles C. Cook, Daniel Willets and A. M. Maddocks, of Trenton, N. J.; W. E. Wells, John N. Taylor, W. A. Smith, H. A. McNichol and N. A. Frederick, of East Liverpool, Ohio, and Charles W. Franzheim, Wheeling, W. Va. This committee, or those members of it who are designated to do the work, will meet in Washington about three days before the date for the general meeting and prepare their arguments.

The present duty is a flat ad valorem schedule of 55 per cent. on undecorated goods, and 60 per cent. on decorated goods. Manufacturers at Trenton are divided in their views regarding the new duty. Most of them think it is high enough now, provided it could be enforced, but they point out that apparently this is impossible. They have had the assistance of the Treasury Department for many years in seeking to stop undervaluations, which is the cause of most of the trouble, and these undervaluations are chargeable chiefly to Germany, though Japanese manufacturers are not averse to doing the same thing.

Many manufacturers believe that a general increase in the scale will be necessary to protect American manufacturers against the competition of Japan, for example, where the labor cost is as low as 15 cents a day. The labor cost in Germany is much lower than it is here, and to compete with this and undervaluations an increase seems essential. American manufacturers have no difficulty under present schedules in competing with France and England. These goods in numerous instances command an exclusive patronage which does not threaten the industry here in any material degree.

The most notable increase in imports is from Japan. They have increased more than 100 per cent. in a little more than two years. Japan has gone ahead of France, and is approaching England in her total imports. The total for last year was more than \$2,000,000. When duty and other expenses are added, the cost is nearly, if not quite, \$5,000,000, one-third as much as the value of the total American manufacture.

A comparison of the industry for the past eight years is interesting as showing what has been done in America. The total value of production in 1900 was \$12,000,000, and this increased to only \$16,000,000 last year, while the total value of importations increased from \$13,689,649 in 1900 to \$21,542,731 in 1907. The following table shows the foreign valuation, the duty, total cost, and American production by years from 1900 to 1907 inclusive, and is an extremely illuminating document:

Foreign Valuation, Duty, Total Cost of Imports, and American Production from 1900 to 1907 Inclusive.

Date	Foreign Valuation	Duty	Total Cost of Imports	American Production
1907 ...	\$13,492,731	\$7,850,000	\$21,542,731	\$16,000,000
1906 ...	12,877,528	7,600,000	20,479,528	16,189,279
1905 ...	11,659,723	6,936,300	18,596,053	15,000,000
1904 ...	12,005,008	7,082,954	19,087,982	14,098,000
1903 ...	10,512,052	6,202,110	16,714,168	14,577,000
1902 ...	9,680,156	5,646,434	15,326,590	13,801,000
1901 ...	9,350,920	5,455,819	14,806,739	12,975,000
1900 ...	8,646,223	5,043,426	13,689,649	12,000,000

Notwithstanding the fact that Japanese crockery is largely manufactured in inland towns, has to be transported long distances by the most primitive means, and thence carried thousands of miles by water, it is laid down in America at a price which makes the competition dangerous. It has been said that increases would be asked only in the schedules of Germany and Japan, but that will probably develop at the hearing.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



WITH THE ELECTION over, business in all departments in which brick is an important feature is improving. Demand is larger than it has been for some months, and the outlook now is that it will be larger in the months to come than it is now. While many operations will shortly have to cease because of winter weather, there is still time enough to make some difference in the trade before freezing actually begins.

As one building operator pointed out, the fall has been an unusually good one for important operations, but unfortunately capitalists were too afraid of the possible outcome of the election to make any considerable investments. They did not care to increase their holdings in real estate, nor did they care to begin operations on any important developments until they knew what would come. Now that the policy of the Government is established upon the old conservative basis for the next four years, capitalists are ready to undertake new and important operations.

It is true that the improvement began in October, as was pointed out in the last issue. For example, the building permits in Manhattan in October exceeded those in any previous month, aggregating \$13,049,750. It far exceeds any month this year, and exceeds the permits in the month of October, 1907, by more than \$7,000,000. This vast sum embraces sixty buildings of various classifications, and compares with sixty-three buildings of various classifications planned in October, 1907, when the total cost was placed at \$5,692,650. It is interesting in this connection to compare the months of October for the past ten years. As given out at the Department of Buildings, the figures are as follows:

Year.	Buildings.	Value.
1898	336	\$5,794,240
1899	292	6,772,234
1900	204	5,147,540
1901	125	8,619,300
1902	59	4,051,695
1903	66	5,599,340
1904	152	7,392,500
1905	225	7,700,790
1906	64	3,121,750
1907	63	5,692,650
1908	60	13,049,750

The total investment for the ten months ending October 31, 1908, is \$72,005,071, representing 551 new buildings of different classes, as compared with \$89,915,510 for the ten months of 1907, which represented 879 new buildings, a gain of \$2,089,561. The better quality of the work is shown in the fact that the investment for 1907 represented 328 more buildings than the investment for 1908.

Much of the increase is due to the new Municipal building, which will cost \$8,000,000. The main building will have twenty-six stories, and will rise 371 feet over the street. The tower will carry the total height to 559 feet. Many old buildings have been condemned and torn down to make room for it, and it is intended that it will be in every way worthy of the great city whose executive offices will be housed within it.

Nineteen new tenement houses were provided for in October, at a cost of \$2,985,000, as compared with fourteen new buildings last year, at a total cost of \$1,651,000, projected in October last year. All the permits granted in October this year were for the highest type of apartment houses, embracing structures on Morningside Heights, Riverside Drive, and other equally expensive and exclusive neighborhoods.

Two new hotels were projected, to cost something like \$1,000,000, and there was a liberal sprinkling of store and factory construction, which will carry the total up far above last year.

It is needless to point out how important these operations will be for brick men. Without qualification the outlook was scarcely ever better in this vicinity. Construction upon a

scale of this magnitude must necessarily call for immense quantities of brick, and when demand once begins in this way it will be almost certain to continue. The conditions are favorable for it, and unless something untoward occurs in the future, nothing can stop the prosperity which is coming to the brick trade during the coming year.

The market in New York has not changed materially since the last report, though there has been considerably increased business done. Many brick are coming down the river, partly for immediate use and partly to have sufficient here, so that shipments by rail will not be so large in the spring before navigation opens. Holders are confident that their prices have touched the low point, and that business done in the future will be upon a more satisfactory and profitable basis. Buyers are acting conservatively as yet, but the tendency is toward more liberality in purchasing, and there is some expectation that before very long business will improve materially and buyers will be much more ready to take hold than they have been.

Operations up the river have about ceased for the season. The last burnings are now in the kilns, and when the fires go out it will be for the last time this season. The total number made can not be determined as yet, but unquestionably it has been far below the average. Perhaps, however, in the end the profits will be quite as large as they would have been had liberal quantities been manufactured, only to await a favorable market.

It was expected that the Passaic Valley sewer construction would begin in the spring. Paterson, as was stated some time ago, finally agreed to the proposition, and promised to do its part, but now the New York authorities have taken the matter up, have called the attention of the United States Government to the fact that immense quantities of sewage will be dumped into New York harbor, probably filling the channels which the Government has to keep open to accommodate shipping. One hearing has already been held, and others are to follow.

The contracts recently given out by the Pennsylvania Railroad will call for many millions of brick in the construction work. No specifications have been filed of the probable requirements of the improvements near and in New York, but unquestionably the limit will be extremely high. BURTON.

Written for THE CLAY-WORKER.

"FIRE—AN AMERICAN EXTRAVAGANCE."

THIS IS THE TITLE of a stirring article in the November McClure's, by Architect F. W. Fitzpatrick, of Washington, D. C. The author gives startling figures that certainly must not have been generally known, or there would have been greater activity on the part of our authorities in the direction of fire prevention by compelling builders to build better. He cites the losses and expenses caused by fire, and shows that the grand total is nearly \$600,000,000 a year of what might be called wasted expenditure. Compared with that figure, he states that all the building and repair work done in a year's time does not exceed \$615,000,000. In five years the total of fire losses alone, without their attendant expenses, amounted to \$1,257,716,000!

Further on he describes the remedy for this appalling state of affairs, and advises that nothing but first-class construction be permitted in cities. He advocates the enclosing of all stairways and elevators, the protection of outer windows with wire glass and metal sash, the minimizing of wooden finish and furniture, using in lieu thereof steel and other non-combustible materials, and believes that a steel frame structure, protected with hollow fireproofing tile and with outer walls of brick and terra cotta, constitutes the ideal building for the ordinary city commercial purpose.

The writer, who is the consulting architect of the International Society of Building Commissioners, also advocates the labeling of all public and semi-public buildings by the building departments, just as to their nature; "fireproof," "ordinary," or "dangerous," and believes that this official labeling would compel owners of inferior buildings to improve them, and would deter people from building more of the same kind.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICKMAKERS.

THE FIRM OF H. M. & C. B. Siner, K street, below Nicetown lane, are so sure of future good times and general prosperity that they are breaking ground for the building of a second plant in Frankford.

They are getting good prices uptown for brick, the demand for hard brick keeping the uptown men from going to the wall.

Hard brick are selling for \$8 and stretchers for \$11, an advance of \$2 on the downtown prices.

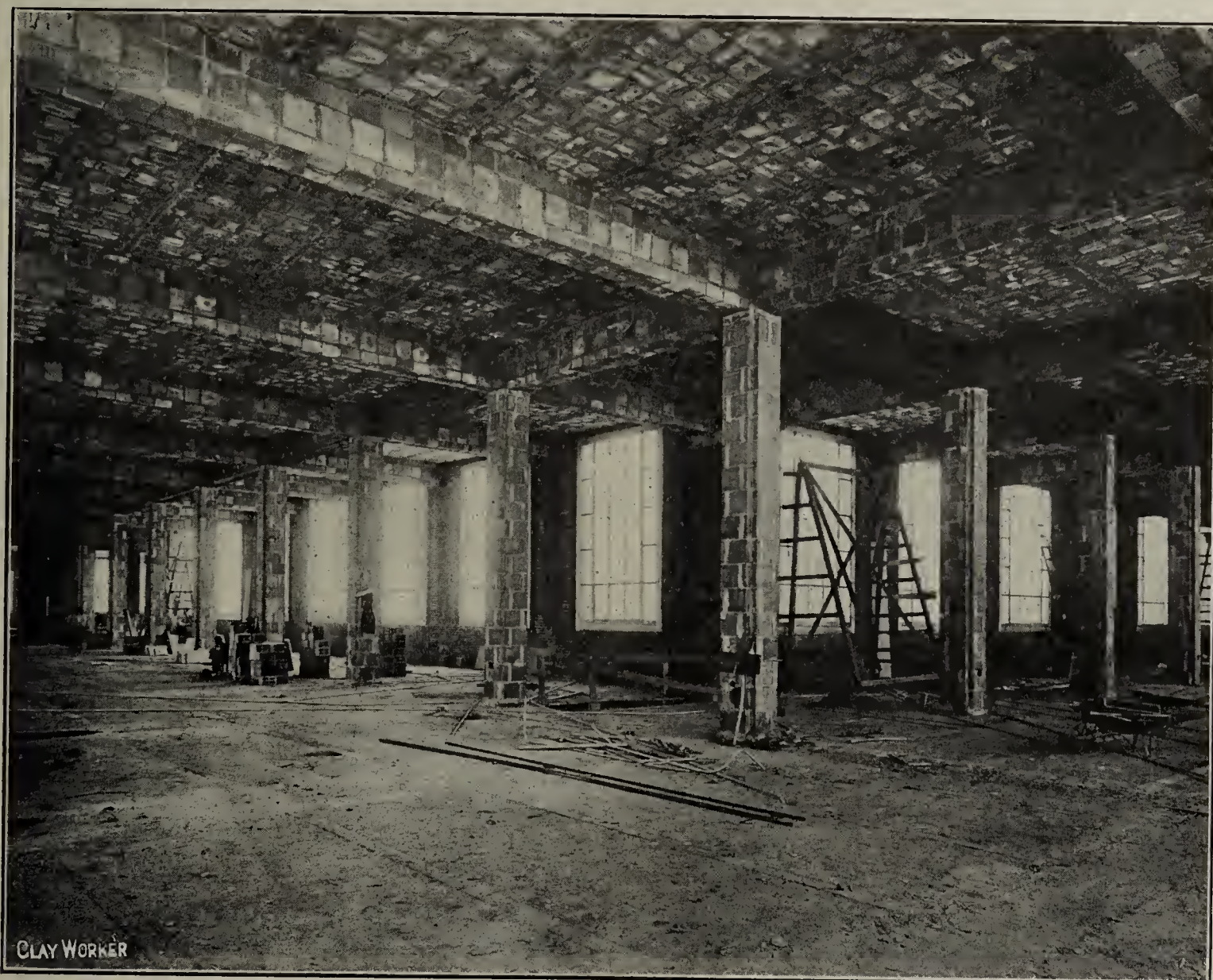
At Siner's present yard they have not a salmon or hard brick, and have been buying hard brick from every possible yard.

Their new plant will be completed and ready for manufacture of brick some time in January, and with the two

active in business. For twenty-five years he was secretary-treasurer of the Equitable Brick Manufacturing Company, and was a member of the Manufacturers' Club and the Master Builders' Exchange. He is survived by his widow and one daughter.

A Big Government Fireproofing Contract.

One of the busiest firms in Philadelphia is the O. W. Ketcham Company, manufacturers of terra cotta and fireproofing. They have but recently completed the fireproofing of the new National Museum building at Washington, D. C., which has kept them busy for many months. The job was a big one, and required over 10,000 tons of material. The Museum is of white granite, and is nearly 600 feet square. The fireproofing alone cost more than \$75,000. It is undoubtedly one of the most thoroughly fireproof buildings in the United States. The accompanying photographs will give the



Method of Fireproofing the National Museum.

wards running they will surely have enough to keep them busy.

F. Seitter's Sons, Nicetown lane and G streets, are keeping pace with the busiest brick manufacturers in town. They are serving 400,000 hard brick for the new Carnegie Library in Richmond, thirty-eight two-story houses at Third and Vissahocking streets, and four two-story houses at Frankford require 800,000 red building brick, and in two weeks' time they will serve brick for twenty-six houses at Eleventh and Fisher's lane. Besides these, they have the contract for a large mill which will require 650,000 rough hard brick.

It is with much regret that we announce the death of Charles H. Kimball, the well-known brick manufacturer, which occurred on Tuesday, November 3d. The funeral services were held at his home, 4808 Baltimore avenue, Philadelphia.

Mr. Kimball was sixty-seven years old, and had long been

reader a good idea of the application of the fireproofing materials. The beams in the ceiling are 3½ feet wide, and the girders are 22 feet long. Hornblow & Marshall are the architects, and Bernard R. Green superintended the construction.

The O. W. Ketcham Company has a number of similar contracts that will keep their plant at Cumberland, Pa., busy for months to come, including ornamental terra cotta for a residence in Washington, and for the Government Assembly Hall at Washington, Masonic Home, Tappan, N. Y., Douglas Memorial Hospital, Philadelphia, and a number of large buildings at Baltimore.

M. E. LOCKINGTON.

The Twin City Brick Company is erecting a new plant on Joy avenue, St. Paul. The plant will be completed before January 1st, and will be used in the manufacture of vitrified tile and brick. The company has recently increased its capital to \$300,000.

Written for THE CLAY-WORKER.

CINCINNATI BRICK AND CONSTRUCTION NEWS.

IN SPITE OF THE lateness of the season, the volume of contracts let for the past month is large, exceeding by a good margin any corresponding period for the last five years, and more than double the record for the same time last year. This showing speaks for itself as to changed conditions along building lines, and promises to give momentum to business which will extend through the ordinarily dull winter period. If there is any change in the general situation as it affects the trades, it is in the direction of uniformity in quotations, and a tendency to look upon the future market as likely to advance rather than to lower. Aside from the record of contracts actually let, an unusual amount of prospective work is taking shape in the hands of architects and builders throughout this territory.

Brick residences continue to go up at a rapid rate in Cincinnati's suburbs; a small boom is taking place in North College Hill. Norwood also reports a number of brick additions to her many factories, contracts being let since the election.

The brick trade of the Queen City is feeling considerable better over the impetus given trade since the uncertainties of election are over, and building is expected to keep up at a fairly steady rate all winter unless the weather becomes too severe and continues so.

With the eyes of the civilized world turned upon the Queen City during the past week, she is beside herself with pride over the triumph of her favorite son, William Howard Taft, who is to become President of the United States. The majority of business interests of the city are especially pleased over the outcome of the election.

The following statistical table, covering western Pennsylvania, West Virginia and Ohio, gives comparative figures on construction during the past four years:

Contracts Awarded.

January 1, 1908, to date.....	\$62,926,000
Corresponding period 1907.....	65,725,000
Corresponding period 1906.....	71,403,000
Corresponding period 1905.....	79,960,000
Corresponding period 1904.....	64,755,000
Week ending November 11, 1908.....	1,569,000
Corresponding period 1907.....	491,000
Corresponding period 1906.....	965,000
Corresponding period 1905.....	1,071,000
Corresponding period 1904.....	1,215,000
Corresponding period 1903.....	1,567,000
Week ending November 3, 1908.....	1,641,000

A merry war is on between residents of Ft. Thomas, a beautiful suburb of Cincinnati, situated in the Kentucky highlands, and the owners of a brickyard located there. The brick factory is owned by a local concern which desired to make brick from the clay found there. A location was found and the ground purchased. Then the residents made a "howl" about the kilns being located so near their homes, which were at least a block distant. When the owners heard of the protest they immediately bought a lot on one of the best corners on the highlands and built their kiln. The citizens were more than ever enraged, and threatened an injunction on the grounds that the smoke constituted a nuisance and should be forbidden. Lawyers were consulted and the protesters were advised that bond would have to be given for damages incurred to the brick people in case the injunction was granted and would not hold. Who would sign the bond? That was the question among the residents. Nobody wanted to take the risk of a few thousand dollars' damage suit, and they couldn't agree to club together, as some thought those nearest the kiln should stand the greater part of the expense, and as those happened to be renters, the owners of the property would not join the others. Then

a civil suit was threatened, but the inhabitants are, so far, still unable to get together about the expense of hiring lawyers to fight the thing to a finish. There is no question but that the kiln makes a terrible smoke when fired up, and the brick people are well aware that they could be made to remove the kiln were the citizens to make a determined effort. In the meantime, however, the citizens are kicking themselves for not keeping still when the kiln was about to be located a block away under a hill, and the brick manufacturers are going merrily ahead making brick and money every day.

President-elect Taft made the address at the laying of the cornerstone of the new Woodward High School, a brick building to cost over \$250,000. Mr. Taft graduated from this school when a student in Cincinnati, and it was but fitting that he should make the address at the laying of the cornerstone of the new structure. The ceremony was preceded by a parade of students and notables in the ranks of education in Cincinnati.

QUEEN CITY.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

ALONG THE HACKENSACK River, where the business is more largely influenced by New York conditions than anywhere else in the State, the outlook is considered better than it has been, and there has been during the past few weeks more demand for brick. Liberal shipments have been made for the New York market, and the situation presents numerous encouraging features. Until there is actual demand, however, for the surplus, or until makers can see that they have an opportunity to dispose of their present surplus and whatever they make next season, they will not be in position to make any important improvements nor will they develop their business any more liberally than they must. For example, some makers have held contracts at old prices for their entire make, and they have pursued the even tenor of the brick manufacturers' way, and have gone on from day to day making and delivering without reference to the conditions which have governed others less fortunately situated.

The building permits in Newark have been far ahead of last year at this time, and the outlook now is that they will continue so indefinitely. The possibilities for development there are so promising and the probabilities for increased business enterprises are so bright, that there is very little to warrant pessimism, and much to warrant optimism.

Paterson is issuing more building permits than ever before in its history, with the result that everything needed in construction work is stronger, and things have brightened perceptibly in the brick department.

Trenton potters are improving their opportunities for securing increased business. In interviews published shortly after the election, some of the most important potters in the city stated that orders were being received more liberally than for a year, and that they were busy filling those which had been placed to be filled if Taft was elected.

The Amboy section is about closing its brick business for the year, and, considering how depressed the business has been, they have done remarkably well. Conditions are much improved, however, and the outlook is now so promising that many makers are beginning to plan for improvements and enlargements.

Around Camden the situation has improved in sympathy with the building conditions in Philadelphia, which are much better, and the outlook is extremely promising for the coming months. It is well to consider that after a period of depression the rebound usually compensates for all the injury passed, and creates fresh business for the future. A. L. B.

Written for THE CLAY-WORKER.

AMONG THE POTTERS.



OCTOBER, NOVEMBER and December will prove to be the best months of the year, so far as the pottery business is concerned. In October, several potteries in the East Liverpool territory broke all of their business records, and the indications are that at least five more potteries will break all records when the business for November is computed. All of this goes to show that when a firm pushes hard for business it is bound to come. The manufacturers are getting a little better prices for their goods, and with this favorable condition existing, the trade is presenting a condition not experienced in recent years.

The annual meeting of the United States Potters' Association will be held at the Hotel Raleigh, Washington, D. C., December 8, and continue four days. There will be a shift of two officers. H. A. McNicol, president of the Potters' Cooperative Company, of East Liverpool, Ohio, will be elected president of the association, succeeding George C. Thompson, of the Thompson Pottery Company. Charles C. Ashbaugh, secretary of the West End Pottery Company, of East Liverpool, Ohio, will be elected secretary, vice Harry A. Keffer, of the Sevres China Company, who has resigned after being in office for twelve years. Mr. Ashbaugh is now treasurer of the association, and the offices of secretary-treasurer will be combined. T. A. McNicol, one of the brightest young men in the pottery business, will be selected President Thompson as chairman of the nominating committee. This meeting will be of vital importance to every pottery manufacturer in the business. The session will follow the hearing of the pottery tariff schedule, and whatever action taken by the Ways and Means Committee will receive general discussion by the members of the association. A special Pullman will be run from East Liverpool to Washington for the benefit of the manufacturers of the western pottery district.

The sale of the Derry (Pa.) pottery by President Higley, of the Sevres China Company, East Liverpool, Ohio, during the past month was the most interesting bit of news the trade has produced. This plant, which is worth over \$150,000, was bought by a new electric porcelain concern, which is composed of Pittsburg and Derry (Pa.) capitalists. The Derry plant has been manufacturing general ware for over a year, and the sale means that there will be one less plant in the general pottery business hereafter.

Texas capitalists are very much interested in the development of new clay fields, and with this end in view, the Star Pottery Company has been formed by business men of San Antonio, Texas. A pottery, to be called the Star Pottery Company, will operate a plant at Elmendorf, Texas, and soon after January 1 several additional kilns will be built. New machinery from East Liverpool will be installed.

The Wheeling Potteries Company, of Wheeling, W. Va., has asked for a receiver, but it is believed this is in keeping with the plans of the company toward a speedy reorganization of this firm's business. President Charles W. Franz has been laboring assiduously to arrange the business affairs of the company, so that the plants may resume at any date, and the application for a receiver may be a step in this direction.

Plans for the winter meetings of the Factory Managers' Association, composed of managers and superintendents of potteries of the East Liverpool and Wellsville (Ohio) pottery districts, are progressing rapidly, and the first lecture by a very ceramic will likely be booked for an early date.

The Pope-Gosser China Company, of Coshocton, Ohio, will have an American china dinner shape on the market in January. This is the first time a western pottery firm has attempted the like. The success of the first pieces exceeds expectations, and it is equal to any French, German or English dinner ware ever imported.

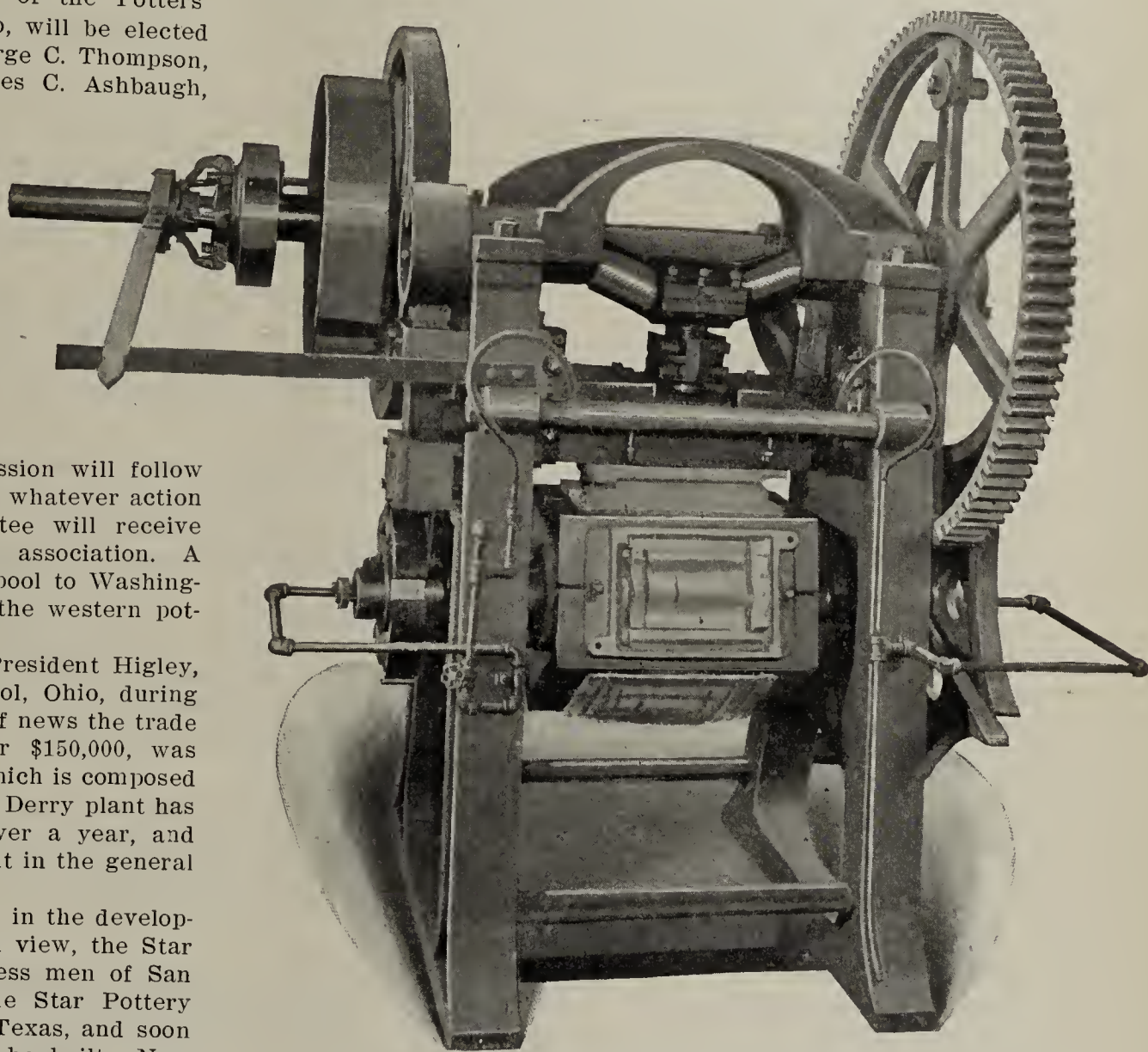
Charles C. Green, who has been elected State Treasurer

of Ohio, was for many years employed in a pottery, having been connected with the office department of the Knowles, Taylor & Knowles Pottery Co., at East Liverpool, Ohio. Mr. Green is a Republican, and did not know for three weeks after the election that he had been successful. A mistake in the counting of nearly 5,000 ballots in Cuyahoga County boosted him into office.

OMEGA.

THE GRATH IMPROVED ROOFING TILE PRESS.

THE READERS OF THE CLAY-WORKER will doubtless be interested in the latest improvement in roofing tile presses, as illustrated by the accompanying cut of the Grath improved revolving press. The cut was made from a photograph of a press as it stood on the floor of the shop ready for shipment. One feature of the press in which the inventor, Mr. Walter P. Grath, takes especial pride is a heavy disc, by means of which the die is held perfectly rigid. The disc is provided with five slots, and is keyed to the shaft on which the pentagon is keyed. When the top face of the



The Grath Roofing Tile Press.

pentagon is in horizontal position, a strong and heavy arm is forced into one of the slots of the disc. This arm is held firmly in position by boxes attached to the side frame, which prevents any lateral motion. This gives a double lock for the pentagon while the tile are being pressed, and holds it absolutely rigid. With this improvement and the strengthening of the crank shaft, Mr. Grath declares that he has a perfect roofing tile press, which is guaranteed to overcome all press troubles in a roofing tile factory. The wearing parts are all made adjustable, so that lost motion can be taken up. When using metal dies, both upper and lower dies are heated with steam, as a result of which the tile are more readily released from the dies. Further particulars in regard to this press and the full line of clayworking machinery invented by Mr. Grath, and illustrated on pages 464 and 465 of this issue can be had on application to the manufacturers, The Illinois Supply and Construction Company, Holland building, St. Louis, Mo.



OFFICIAL ANNOUNCEMENT.

**TWENTY-THIRD NATIONAL CONVENTION TO BE HELD
AT ROCHESTER, N. Y., FEBRUARY 1-6, 1909.**

The Eye of the Continent for the N. B. M. A.

AFTER A VERY careful survey of the entire field, and considering fully the points of vantage offered by the different cities to which the N. B. M. A. has been invited, it has been deemed best to select Rochester, N. Y., for our next place of meeting, so our Twenty-third Annual Convention will be held there February 1 to 6, 1909. In reaching this decision, we have been mindful of the fact that 1908 is an "off year," and on that account a city centrally located and easily accessible from all quarters is particularly desirable as a convention point. The geographical position of Rochester fills the bill. Nearly midway between New York and Chicago, it is the center of the best train service on the continent. Indeed, it is coming to be known as the "Eye of the Continent." It may be reached by a large majority of our members in a few hours, and with ease and comfort, too, regardless of winter weather.

The Seneca Hotel Headquarters.

Solid comfort awaits the visitor after arrival, for Rochester now boasts of the best hotel accommodations of any city of its size in the world. Two large hotels, elegantly furnished, have been built there within the past year. The newest, largest and best of these is Hotel Seneca; it is a fire-proof structure, splendid in every appointment, and will afford ample and cozy quarters for all sessions. Its beautiful banquet hall will accommodate our entire membership and enable us to have an associational dinner or banquet if that function is desired. Suitable assembly halls will be at the disposal of each and all of the auxiliary associations. The Seneca is exclusively European, and the rate will be from \$1.50 per day up, according to character and location of rooms.

Rochester's Convention Hall.

The city of Rochester is now the proud possessor of a great convention hall, which it offers free for convention purposes, and which affords unsurpassed facilities for the exhibition of machinery, etc. It is located but two blocks from Hotel Seneca, a very short walk. Street cars pass the doors of each so in case of very inclement weather or sleety, slippery pavements, those who choose may ride back and forth. If manufacturers desire to make elaborate exhibits, the opportunity is offered here. Otherwise, samples of clay ware and trade literature alone will be displayed, and the convention sessions will be held in the Hotel Seneca, which will be headquarters.

The American Ceramic Society will meet Monday, Tuesday and Wednesday forenoon, as in former years.

The National Paving Brick Manufacturers' Association will meet Monday and Tuesday, the 1st and 2nd, as will also the National Clay Machinery Association. The N. B. M. A. sessions will begin Wednesday afternoon at 2:00 o'clock.

Reduced Railroad Rates.

It is anticipated that reduced railroad rates will be granted as in former years, and in due time full particulars in regard to same will be announced, together with complete programme, and the arrangements for the entertainment of visitors. The latter will be under the auspices of the clayworkers of Rochester and vicinity. The clayworkers of western New York propose to form an association for the purpose of welcoming and entertaining those who attend the convention.

Those desiring to make any suggestions in regard to the programme, or who wish further information on any feature of the convention, requisite of membership, etc., are requested to communicate with the Secretary at Indianapolis.

THE EXECUTIVE COMMITTEE
M. E. GREGORY, Pres.
THEO. A. RANDALL, Sec.

CONVENTION NOTES.

The American Ceramic Society will meet in annual convention at Rochester, N. Y., Monday, Tuesday and Wednesday, February 1st, 2d and 3d.

For complete program, write Prof. Edward Orton, Jr., Secretary, Columbus, Ohio.

The National Paving Brick Manufacturers' Association will convene in one of the assembly halls at the Hotel Seneca, Rochester, N. Y., Monday afternoon, February 1st, 1909. Those desiring information as to requisite of membership, etc., are requested to communicate with W. P. Blair, Secretary, Indianapolis, Ind.

The National Clay Machinery Association will hold its formal sessions in one of the assembly halls of Hotel Seneca, Rochester, N. Y., beginning Tuesday morning, February 2nd, 1909. For further particulars, address W. N. Durbin, Secretary, Anderson, Ind.

Written for The Clay-Worker.

THANKSGIVING.

Thank God for life!

Death is a seeming thing—

*As birds rest, after many hours a-wing;
Rest, but to soar to some new, farther height,
Where safety, peace and happiness invite.*

Thank God for life!

All else is naught, to this.

*Itself is its own recompense and bliss.
It is the cosmic summary of thought,
Without which even eternity were naught!*

Thank God for life!

To our young souls, a span

*Of finite length! to Him, an endless plan;
An infinite and royal lineage
Writ out upon the great eternal page.*

Thank God for life!

'Tis all that is our own.

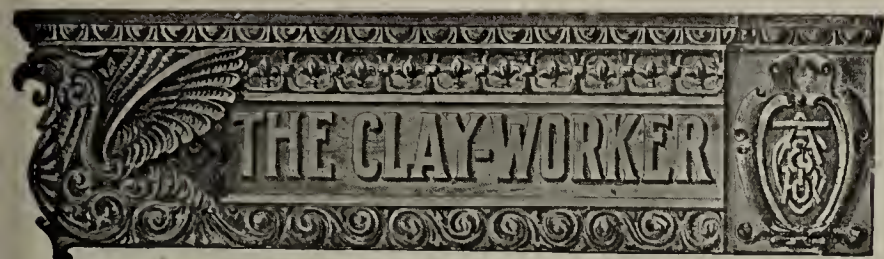
*It is the space in which the soul has grown
From infancy—that knows not Godship ties,
To years in which this recognition lies.*

Thank God for life!

*Immortal—tho' the sky and sea and earth,—
The universe numberless, and all
The battlements of Heaven, itself, should fall.*

Thank God for life!

—Margaret Andrews Oldham.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. L. NOVEMBER, 1908 No. 5.

CURRENT COMMENT.

Is everybody happy?

* * *

From all sections of the country comes the glad refrain: "Business is improving." Let us be thankful.

* * *

If any man doubts the prosperity of the agricultural districts he undoubtedly is the man who didn't attend any of the numerous county or state fairs held this fall.

* * *

The new President-elect of this great country has assured the business people that they need not fear governmental interference with those who conform to the laws in their business. What more could we ask?

* * *

Many of you who have made election bets, freak or otherwise, will likely promise yourselves about now that you won't do it again, but all such promises will be forgotten when the next campaign warms up again four years from now.

* * *

Sentiment is rolling up pretty strong for the radical improvement of our inland waterways, and it looks like there is to be something else doing besides talk when Congress meets again, and that that something will look a whole lot like increasing our inland merchant marines.

* * *

It doesn't seem to matter where it happens, when a colored brother or the white man commits an unusually wicked crime he is the victim of mob law, unless the mobs can be controlled, and sometimes this is a mighty hard job. There have been several deplorable instances lately, some in the South and some in the North, which suggest that we had better quit quarreling about the negro and all work together for better methods of controlling at least the worse element; also, of administering justice through the courts, so there

may be no excuse for mob work, and safeguarding the country against that class of lawlessness known as mobbing.

* * *

A good theory, like a good man, is hard to keep down, but then there are both men and theories which appear to be good, but prove to be not.

* * *

The man who asked Mr. Taft while he was a candidate where and how he could find a job, or something to that effect, now has his answer, given in a very effective way by reports from all parts of the country of jobs being open and men being employed on all sides.

* * *

If all that water that runs wild and ruins waste land and thus worries the Forest Service could be harnessed up and be made to do a little digging around the brickyards, it would help out considerably. It might lose a steam shovel or two its job, but hydraulic appliances would be furnished in their place.

* * *

And so the Government has actually proven that the tobacco trust is really a trust, and tobacco stock has fallen off a few points in consequence at a time when practically all other stock is going up? Well, the prices it had been selling at were high enough that it could lose a few points and still be a pretty good investment.

THE CHIEF ELEMENT OF COST OF BRICK BUILDINGS.

If the advocates of fireproof construction who point out persistently the old country as furnishing worthy examples in this line will also point the way by which we may get brick work done at the same rate it is done in some of the old countries, it will help the cause along a whole lot. For example, one of our consular reports from Bohemia states that the women of that country help mix mortar and help carry brick and mortar to the workman on the buildings, for which they receive from 32 to 37 cents a day. This is just about what the average American hod carrier receives per hour, and about half what the average American bricklayer gets per hour. In other words, something like one-twentieth of what he gets in a day, and the days over there are from 6 to 6, with an hour for lunch, instead of involving a matter of eight or nine hours work. With such conditions, it is easy to understand how they build brick houses, and while we naturally don't want the same conditions here, it would be some relief if we could find a way to reduce materially the cost of American brick house building.

STUFFING FOR THE TURKEY.

There might have been a few pessimists before the election who didn't feel enthusiastic about the Thanksgiving feast this year, or particularly thankful for the many good things that came to us each year, though there is some variation in the amount. But since the election the stuffing for the turkey is coming in so rapidly that what few pessimists are left are having to take to the tall timber to escape from the prosperity wagon. It was but a few days after the election until we heard about preparations on all sides of the industries to start up, and before a week had gone by orders for everything from peanuts to pig iron were coming forward at a rate that gives evidence that old Hard Times has been left entirely behind. He was given the "23" sign at the November election, and is not likely to return again soon.

Not only that—not only have we evidence of renewed activity in all industrial lines that actually partakes of the nature of a general boom, but even the late returns from the crop figures indicate that it is one of the biggest, if not the biggest year on record. It was for the crops primarily that Thanks-

giving day was set apart, and this year the exceedingly dry weather the last part of the season brought apprehension to the minds of many and the papers were full of corn shortage talk. On the heels of this comes an estimate from the Department of Agriculture at Washington, giving the average yield at 26.2 bushels per acre, against a ten-year average of 25.6; also an estimated production of 2,642,689,000 as compared with 2,592,320,000 bushels last year. This is not only a larger yield per acre and a larger total, but also gives 86.9 per cent. as compared with 82.8 per cent. in 1907 and 84.3 per cent. for a ten-year average. In other words, while the drouth undoubtedly cut a lot of the late corn short, there has been in spite of all this enough more corn raised this year, and better corn, to furnish excellent stuffing for the Thanksgiving turkey out of the surplus crop. The same is true of many other crops, and while from some cause or other the price of both wheat and corn remains rather high and seemingly makes it rather burdensome on some industries, it all adds prosperity to the great agricultural population. They apparently didn't suffer from the panic as much as the manufacturing industries, and now that the manufacturing industries have recovered and have shaken off the drag, there certainly should be great rejoicing when the annual Thanksgiving rolls around. There are all the materials necessary for feasting on all sides, and practically all the people in Uncle Sam's domain have by this time gotten over whatever depressed feeling there might have been; so let us forget what's past and remember only the lessons for future guidance, give unstinted thanks, and face forward for not only a better but more firmly built prosperity.

FLUE AND FLUE LINING

Defective flues are such a prolific cause of fires that cities with what might be termed first-class building ordinances cover this subject in their restrictions, and specify that all flues must be properly lined with fire clay lining, not just thrown in anyway, but built in properly. There is no objection to be found with these ordinances, and we probably need more of them, yet, there is a question that arises out of this of whether or not the manufacturers and handlers of flue linings have been as industriously educating the people to the benefits as they might have been. It would seem if the general public were properly informed on the dangers of a defective flue, and the benefits to be had from the cause of good brick flues, with linings, it wouldn't be necessary to make ordinances forcing them to do these things. Probably the ordinances are necessary for the reason that some wouldn't give proper attention to such things, even if well informed on it, but there are evidently more people who would use more flue linings without being forced to it by ordinances if they were just reminded of it in the right way, and kept awakened up to the advantages to be obtained from better flue construction. Also, aside from the cities which are of such magnitude as to create or maintain building inspector departments, there are lots of smaller towns and country dwellings where the only restrictions are the man's abilities and his inclinations. The aggregate of building done in these unrestricted districts is enormous, but the amount of flue lining sold in the same territory is probably very insignificant as compared to the volume of building done.

This leaves a big field in which the manufacturers and handlers of flue lining might do an excellent lot of cultivating, and reap therefrom the fruits of increased business. Just how to go about it, how to best cultivate or educate builders in unrestricted territory is an open question, offering opportunities for bright ideas. Some of the work can probably come from the manufacturers of products of this through the dealers in building material throughout the country, some of which handle lumber as the main line and clay products as a side line, some who handle hardware as

the main line and clay products on the side, and some who have local brickyards and handle other clay products in addition thereto. These dealers, one and all, are interested in anything that would help to make business better for themselves, and, while some of them may take the initiative in work of this kind, the initiative in the main would probably come from the manufacturers or products of this class. They, through advertising or literature, or through personal visits by salesmen, might interest the dealers in building material, and arouse them to the point of pushing these products more industriously than they might have done before. It is likely, too, that the latter idea is the better, and that more good work could be done through the employment of bright salesmen than through any other method, as then the salesmen at least could get attention and could understand whether or not he was arousing interest, whereas, if the circular method is resorted to, the attention given the circulars or the thoughts they arouse is an uncertain and frequently unknown quantity. The present purpose, however, is not so much to suggest ways and means as to suggest the main idea, that of more attention being given to pushing flue linings and similar products where it looks like there is a splendid field for more extensive development in this class of clay work.

A CHRONIC AILMENT.

If anybody can find any condition under which some of the railroads will not urge higher freight rates they are entitled to the chromo. When times were hard and business slow the railroads tried to shirk their share of the hard times load by insisting on having freight rates increased so that they might have their dividends even when there wasn't much freight moving. They did this all through the hard times, and no sooner than the prosperity wave begins to rise again they turn around and start urging higher rates as a result of the business revival. Almost on the heels of the election returns New York newspaper reports say that there will be a remarkable revival of business activities, and now the heads of the railroads are considering the advisability of revising and carrying into effect a 10 per cent. increase of freight rates. Really this thing is getting to be chronic with the railroads, and every turn of the tide and everything else that happens seems to furnish them an excuse to ask for higher rates. Their persistence in jumping at every opportunity in this way also becomes amusing, too, in a way, and at times we wonder if they seriously mean it or if they are simply making a great bluff by continuing to ask for more to keep the people from making a plea for a reduction of the rates already in force. To listen to the appeals it would sound like the railroads were things that not only need the most kindly consideration on the part of the public, but are almost ready to be asking for charity. There is no doubt but what if some legislation and attempts at legislation were carried out to the letter it would work some hardships on the railroads, but on the other hand if the railroads were left alone what would they do to the people? And, really, isn't it time for us to shake off a lot of this useless red tape and leave behind a lot of the hot air talk for and against the railroad side, along with the campaign speeches that are now over and forgotten, and get down to business in a rational, straightforward, square, out-and-out manner?

PORCELAIN BRICK FOR THE NEW SENATE BUILDING.

The United Porcelain Faced Brick Company, of Newark, has been awarded the contract for supplying the brick for some of the interior of the new Senate building at Washington. The material is known as the Haakon brick, and was invented by William P. Meeker, C. E. The peculiarity of the brick is that it has a porcelain face about one-fourth of an inch thick, which, it is said, will not check or craze. It is by reason of its peculiar construction both nonabsorbent and

extremely tough, and of greater crushing and tensile strength than other varieties.

The particular feature which commended this brick to the Government experts was that corners are made with a 2 or 3-inch radius, permitting perfect cleansing, no matter what dirt or litter may have accumulated. It can be flushed perfectly clean with a stream of water, and no cracks or other obstructions remain to create breeding places for dangerous microbes. Another feature is that only the faces are shipped. The main portion is made in the building by a process which was also invented by Mr. Meeker, doing away with heavy freight charges, and, it is said, making a brick quite as strong and as cheap as that made at the yards in the ordinary way. The contract calls for the completion of the rooms in time for the next session of Congress in December.

CONVENTION DATES.

The Iowa Brick and Tile Association will hold its Twenty-Eighth Annual Convention at Mason City, Iowa, Wednesday and Thursday, January 13th and 14th. Those wishing complete information should write the Secretary, Mr. C. B. Platt, Van Meter, Iowa.

The Wisconsin Clayworkers' Association will hold its next annual convention the second week in February at Milwaukee, Wis. Secretary Oscar Wilson, of Menomonie, Wis., will gladly give all information requested in regard to the convention.

The Canadian Clay Products Manufacturers' Association will meet in annual convention at Brantford, Ont., Tuesday, Wednesday and Thursday, January 12, 13 and 14, 1909. Brantford is so centrally located that the attendance at this convention is expected to break all records.

The Illinois Clay Manufacturers' Association's convention dates have not yet been fully decided upon, but it is probable that they will convene at Champaign, Ill., the first or third week in January.

A REPRESENTATIVE OF GERMAN FIRE BRICK MANUFACTURERS TO INVESTIGATE AMERICAN METHODS.

Among last week's arrivals from Europe was F. A. W. Joly, of Wittenberg, Halle, Germany, president of the Association of German Manufacturers of Fire Brick (Wirtschaftliche Vereinigung Deutscher Chamotte Fabrikanten), which he organized with the object of improving methods of manufacturing.

The association has established standards of quality and shape, reducing the number of latter, and has studied the requirements of customers with reference to tensile strength, refractory qualities, and uniformity of product.

Mr. Joly is about to spend some weeks in this country to study American conditions, with a view of drawing therefrom applications for the industry of his country.

He is in a position to offer to American manufacturers suggestions growing out of the experience of German makers which may prove of value to American manufacturers.

He is making the Hotel Astor, New York City, his headquarters.

AN ATTRACTIVE CATALOG.

"BRICKYARD SUPPLIES," is the title of the Anderson Foundry and Machine Works' latest catalog, which consists of thirty pages of illustrations of their various brickyard supplies, printed on a high-grade enameled paper. In this catalog they illustrate and describe their many different types of barrows, trucks, cars, turn-tables, winding drums, automatic cutting tables, pulverizers, disintegrators, clay mixers, clay feeder, screens, conveyors, clay or shale plows and gatherers, molds, mold sanders, revolving dump tables, kiln doors and frames, grate bars, etc.

The Anderson Foundry and Machine Works have made quite a name for themselves in the clayworking industries through their manufacture of high-grade supplies, and the well-known Berg brick press. They manufacture clayworking machinery of every description, and furnish supplies and power for complete clayworking plants. Every clayworker should have one of these catalogs on his desk for ready reference. Same will be mailed promptly to anyone writing the Anderson Foundry and Machine Works, Anderson, Ind.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 548.]

FOR SALE, WANTED, ETC.

FOR SALE.

Brickyard in a town of 2,000 inhabitants in the State of Maryland. About four acres of land, two open top kilns, boiler, engine, Old Reliable soft mud brick machine, and about 45,000 pallets. Brick sheds, molds, barrows, trucks, etc. About 100 yards from railroad station, and one-fourth of a mile from navigable salt water river. About 200,000 brick sold at kilns from \$7.00 to \$10.00 per thousand. Plenty of demand for surplus stock. Price, \$1,700; one-half cash or all cash. The ground alone ought to retail for more than this amount for building lots after clay has been taken off. Address C. H., 10 1 cm Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on Pages 545, 546 and 547.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF THE TWIN CITIES.



BUILDING SEASON IN THIS section of the country is about over, and about all the active construction work which will be done this year consists in finishing those jobs already on hand and in laying foundations preparatory to next season's work. Owing to the rigorous winters in the northwest, there are very few projects which are pushed during the winter months, and the enforced vacation is utilized mainly in laying plans for the coming year and in making preparations for carrying them through. There is, of course, some five or six weeks remaining that outside work can be done, but this is too short a time to accomplish anything in work which is not already fairly well advanced. At this time there seems to be about the usual amount of work being carried on, although it does not, as usual, run largely to large buildings, but a much larger proportion than usual of dwellings are being erected this fall. Generally, this work is done in the spring and summer, but this year there has been no appreciable let-up to date. On the other hand, there seems to be an inclination to postpone starting work on the larger structures for the present, and only a few have been started. The principal reason why so many residences are going up seems to be the low price of building materials and the plentiful supply of labor. While this reason should have some effect on encouraging the building of large structures, the unsettled condition of financial affairs and the uneasiness caused by the presidential campaign has proved more than enough to over-balance the favorable influences, and there has been a quite general delay in perfecting plans until the future could be more certainly foretold.

The season has showed quite a falling off from the totals for 1907 to date, and the same percentage of decrease will doubtless be maintained. Nevertheless, the year has not been a bad one, and there has been considerable more building than was anticipated early in the season, and when the lower cost is also considered, it is probable that the actual work accomplished has not fallen far short of the preceding year. The prospects for the coming year are considered fairly bright, and, unless there is an unexpected set-back in business, it seems likely that this year's totals, at least, will be exceeded easily. The bottom seems to have been reached in prices, and a slight reaction is already noticed. This will have a healthy effect in convincing prospective builders that steps must be taken at once to secure full advantage of the cheapness of materials and labor.

Although the total of building permits issued in St. Paul for the first nine months of the year show a falling off of nearly \$300,000, the month of September gives an increase of \$356,380, or 86 per cent., and it seems barely possible that the totals may reach those of 1907.

Buechner & Orth, architects, have announced that the contract for the erection of the superstructure of the new Masonic Temple has been let to Chas. Krueglin at \$110,000.

The work of razing the old Windsor Hotel to make way for the new million-dollar hotel has been completed, and the foundation will be put in this fall. The building is to be completed by December 1, 1909. Reed & Stem, architects.

The foundation for a new building for Bethesda Hospital will be built before winter sets in, and the superstructure started early in the spring. It will be four stories, 40x115 feet, fireproof throughout, and of pressed brick and stone.

Among the larger brick residences planned is one for E. C. Forest, on plans by J. H. Coxhead, architect, of Buffalo, N. Y. It will be 40x40 feet, and will cost about \$35,000. Harry Dranger will also erect a brick dwelling on Summit avenue at a cost of \$18,000. E. A. Moeller will build a brick family hotel in the Merriam Park district, costing in the neighborhood of \$30,000.

The largest item of interest to the building trade of Minne-

apolis during the past month is the announcement that the People's Gas Light and Fuel Company will construct a plant costing in the neighborhood of a million dollars. Jager & Straus, architects and engineers, have prepared preliminary plans for the system.

The Samuel H. Chute Company has let the contract to F. G. McMillan for the erection at Fifth street and Central avenue of a brick and tile theater building, the foundation for which is to be completed this fall. Harry G. Carter is the architect. Cost, \$50,000.

Plans are being prepared by E. S. Stebbins, architect, for a \$50,000-brick addition to the South High School. It will be three stories high.

Preston King has let the contract for the erection of a modern brick residence to R. J. Cheney & Co. It will be 50x60, and will cost \$25,000. Among other residence buildings contemplated is a four-story brick flat building, to be erected at Twenty-sixth street and Hennepin avenue for Mr. Hantz, on plans by O. K. Westphal. C. B. Chapman, architect, also reports that he has completed plans for a modern pressed brick residence costing \$25,000, to be erected at James and Summit avenues for L. Rouchleau.

The Minneapolis building permit totals for September were the largest for that month in twenty-one years, the total being \$861,200, as against \$753,770 for September, 1907. For the first nine months permits for \$7,457,360 were issued, this being \$600,000 short of those for the same portion of the preceding year.

There were 15,000 yards of brick paving laid in Minneapolis during the past season. T. WIN.

Written for THE CLAY-WORKER.

BUFFALO BRICK AND BUILDING NOTES.

A FEELING OF confidence seems to pervade the brick trade and the construction field in general in Buffalo and vicinity, and it is expected that 1909 will be a banner year, so far as building operations are concerned. There has been an unusual amount of high-class residential work being done here during the past two months, and while the individual orders received by brick men have been small, the aggregate amount has been satisfactory.

The John H. Black Company, Builders' Exchange, Buffalo, recently closed the brick and terra cotta contracts for the Buffalo Seminary, which will be erected on Bidwell Parkway in this city. The structure will cost \$95,000. Metz Bros., Buffalo, have the general contract, and George F. Newton, Boston, is the architect. The John H. Black Company also furnished the brick for a new high school in Springville, N. Y. Nixon & Lamont, of Titusville, Pa., were the general contractors, and the architect was E. E. Joralemon, of Niagara Falls.

Miss Esther M. Byers, Rochester, N. Y., nineteen years old, recently won the first two prizes in the Chamber of Commerce competition in that city in connection with plans for workmen's houses, to cost \$1,500, \$1,250, and \$1,000 respectively.

Another eighteen-family apartment house will be built on the West Side, Buffalo, at a cost of \$100,000, by Park Commissioner Charles Mosier. The details of his plans have not been announced.

W. G. Smith was the lowest bidder for the construction of a 12-inch tile sewer in Goemle street, Buffalo. Spriess & Fanning were the lowest bidders for a sewer in Hedley street.

Work on the approach to the highway bridge near Court street, Owego, N. Y., was recently delayed for a time because the supply of brick was exhausted.

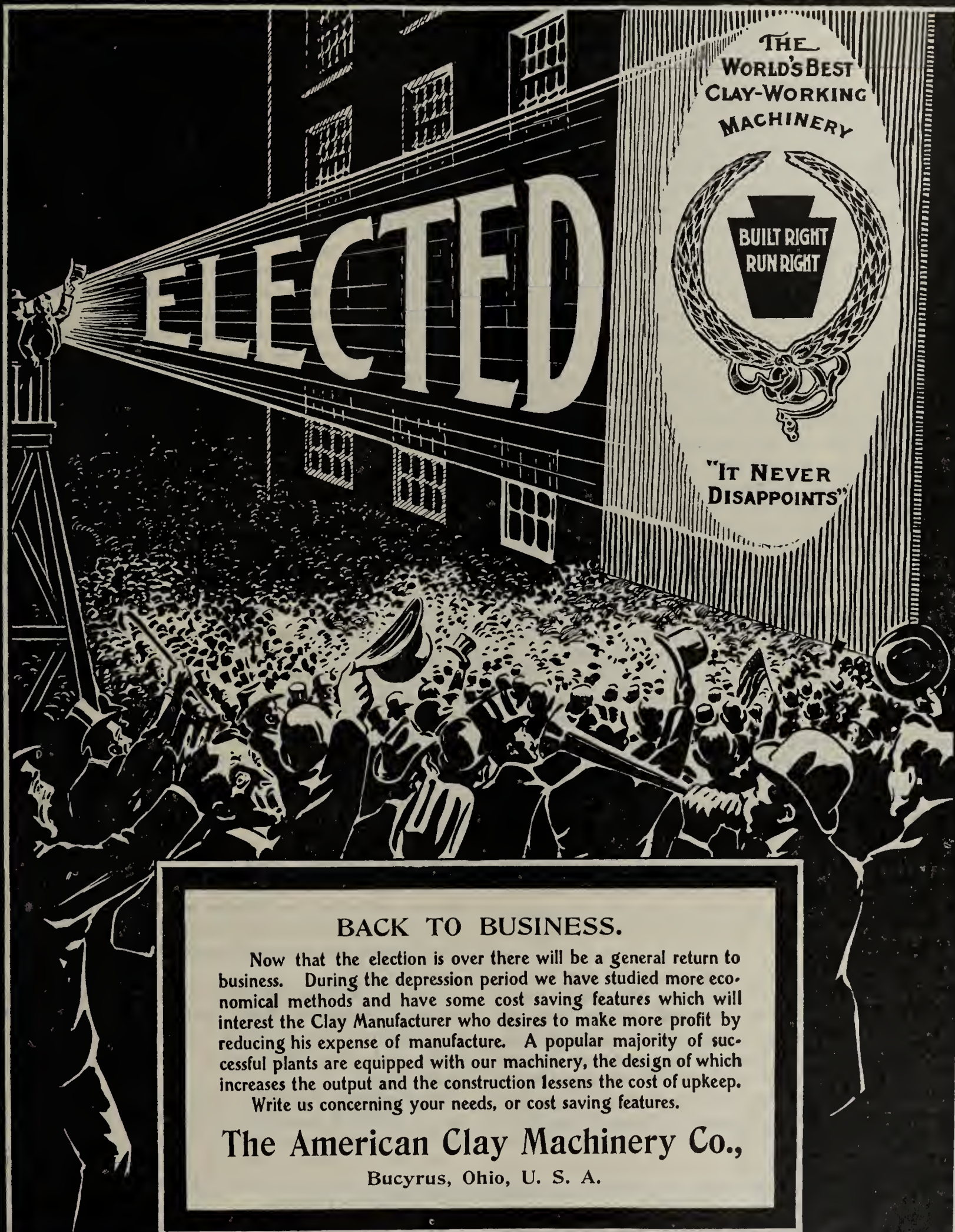
The Erie Railroad Company will build a commodious passenger station at Collins, Erie County, N. Y.

E. F. Benson & Co., of Falconer, N. Y., have secured the contract for the construction of the Sherman (N. Y.) village water works system, for which E. A. Wilder, of Fredonia, N. Y., is supervising and construction engineer.

Buffalonians are considering a plan to spend \$250,000 for a municipal hospital for contagious diseases.

A plan to build a reservoir to supply Binghamton, N. Y., with an improved water pressure is being advocated.

BUFFALO.



ELECTED

THE
WORLD'S BEST
CLAY-WORKING
MACHINERY

BUILT RIGHT
RUN RIGHT

"IT NEVER
DISAPPOINTS"

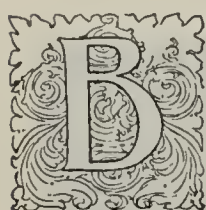
BACK TO BUSINESS.

Now that the election is over there will be a general return to business. During the depression period we have studied more economical methods and have some cost saving features which will interest the Clay Manufacturer who desires to make more profit by reducing his expense of manufacture. A popular majority of successful plants are equipped with our machinery, the design of which increases the output and the construction lessens the cost of upkeep. Write us concerning your needs, or cost saving features.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



BUILDING OPERATIONS continue to be very brisk in this city, the only thing to hold them back during the past month being the big rain which flooded so much of the Kansas brick belt, and thus stopped the arrival of brick. While all the brick plants in the Kansas gas belt were not put out of commission by the flood caused by the rains of the first part of October, a good many of them were, and then the railroads were hampered to such an extent that they could not get the brick from the yards to this city, or the empties back to be loaded. This big fall rain was something entirely out of the usual course of events, and, of course, neither the railroads nor the brick people had made any preparation for it. The fact that brick failed to arrive as usual hampered a good many of the builders, and held things back considerably, but that was apparently the only thing which held them back. There was no slacking up on account of the approach of the election, and skilled workmen have been having regular employment in the building lines here right along.

In looking over the field for a reason for this continued activity in the building line here, even at times when building operations were slow in other cities, it becomes apparent that the fact that Kansas City has for a number of years been the center of a great crop producing area, with no failure, is the main reason. People with money to invest have felt like it was better to invest in a city surrounded by such a territory, recognizing the fact that farm production was the great wealth bringer. Then, another factor is the building up of Oklahoma. Since the two territories became a State, and it was made possible for the cities already established to create a bonded indebtedness, there has been a very heavy demand for everything in the building line down there, and many in other sections of the country have recognized Kansas City as the natural distributing point, and have located here while turning their attention to the building up of the new State.

Across the State line in Kansas City, Kans., the building record shows a steady growth along with the city on this side of the line. The increase in October over the corresponding month of last year being about \$40,000, the total being \$163,420.

There has been no advance in the price of brick, but the market has been firm, and in some grades the demand could not be supplied at any price. As a rule, however, with the exception of the week when common brick were so scarce on account of high waters, there has been a good supply of everything.

The death of Charles N. Hammond, sales manager for the Pittsburg Vitri-fied Paving Brick Company, the latter part of October, was a severe blow to his many friends, being so sudden, having died at the breakfast table of heart disease. Mr. Hammond was fifty-one years of age, and was born in Oneida, Ill., and became connected with the Pittsburg Brick Company some four years ago, since which time he has disposed of their product, and has been a director of the company. While a large man, he was very active of brain, and had the faculty of selling things in large quantities. Like most large men, he was proverbially good natured. He has been troubled with his heart for a considerable time, and not able to stand much exertion, but nothing was further from the mind of his associates than that death was near at hand. He lived in Kansas City, Kans., and leaves a wife and three boys to mourn his departure from this life. The oldest son is just about of age, and the other boys are well up into the age of usefulness.

Word comes from Coffeyville, Kans., that both the plants

of the Standard Vitri-fied Brick Company and the Yoke Vitri-fied Brick Company were put out of commission for about a week by the flood of last month. As they were both well sold ahead, this delay will be felt by the customers.

The brick manufacturers and jobbers of the city, along with others who are shipping a great deal of freight to this point, and shifting their product from one part of the city to another by means of the railroads, seem to be agreed that they would rather do without a new union depot here, in spite of all it would mean to the city in the way of improvement, rather than give a franchise without a switching clause therein which would protect the shippers from rate advances, which would force them to pay for the depot in a few years by excess charges. The railroads declare that they can not sell bonds and can not build the depot if such a clause is inserted in the franchise, so there will probably not be a new depot for some time to come, in spite of the fact that it is needed so badly.

The Pittsburg Vitri-fied Paving Brick Company has shut down its plant in Sycamore, Kans., but the Pittsburg (Kans.) plant is being operated on full time, and its product is not nearly large enough to supply the demands made upon it.

H. L. Miles, who has landed the contract for paving Douglas street in Wichita, Kans., is to make use of Pittsburg brick, and the order which was recently placed calls for 1,250,000 of their paving blocks.

The Eadie Building Supply Company has just booked the order of the Atchison, Topeka & Santa Fe Railroad for a large number of brick, to be shipped to Amarillo, Tex., Clovis, N. M., Canadian, Tex., Wayne, Okla., and Argentine, Kans., to be used in the construction of new roundhouses, shops, depots, etc. This is the first large order for brick placed by this railroad in some time, and the starting to build with this material is made at the same time work in other departments in the development line are opening up, showing that the company is going to continue improving its property. Other railroads are also beginning to buy brick and other building material, and it is evident that a considerable business is to be expected from that source from this time forward.

W. R. Petty has just been awarded a paving contract in Van Buren, Ark., in which 480,000 Pittsburg paving blocks are to be used.

L. Crosby & Son have just made a contract with the Pittsburg Vitri-fied Paving Brick Company for 450,000 vitri-fied face brick, to be used in the construction of the Physical Culture building at Emporia, Kans.

The Eadie Building Supply Company reports having its business cut short for October by its inability to get brick out of the Kansas gas belt for nearly a quarter of a month. At the same time, their deliveries for the month ran about 2,000,000 brick.

The United States Government is installing a brick plant at Fort Leavenworth, Kans., with a capacity of 80,000 brick in ten hours. The machinery passed through this city recently, and came from the C. W. Raymond Company in Dayton, Ohio.

The Pittsburg Vitri-fied Paving Brick Company reports having just received a contract for 400,000 of their paving blocks for the Memphis Street Railway Company, of Memphis, Tenn.

Word comes to this city that the Muskogee Vitri-fied Brick Company, of Muskogee, Okla., has increased its capital stock from \$30,000 to \$100,000.

P. E. Schultz, G. W. Turner and others of Cottonwood, Okla., are organizing a company to put in a brick plant there.

K. A. W.

The machine which does not answer your purpose may be just what some one else needs. Tell the "needee" about it in a card in the "For Sale" columns of THE CLAY-WORKER.

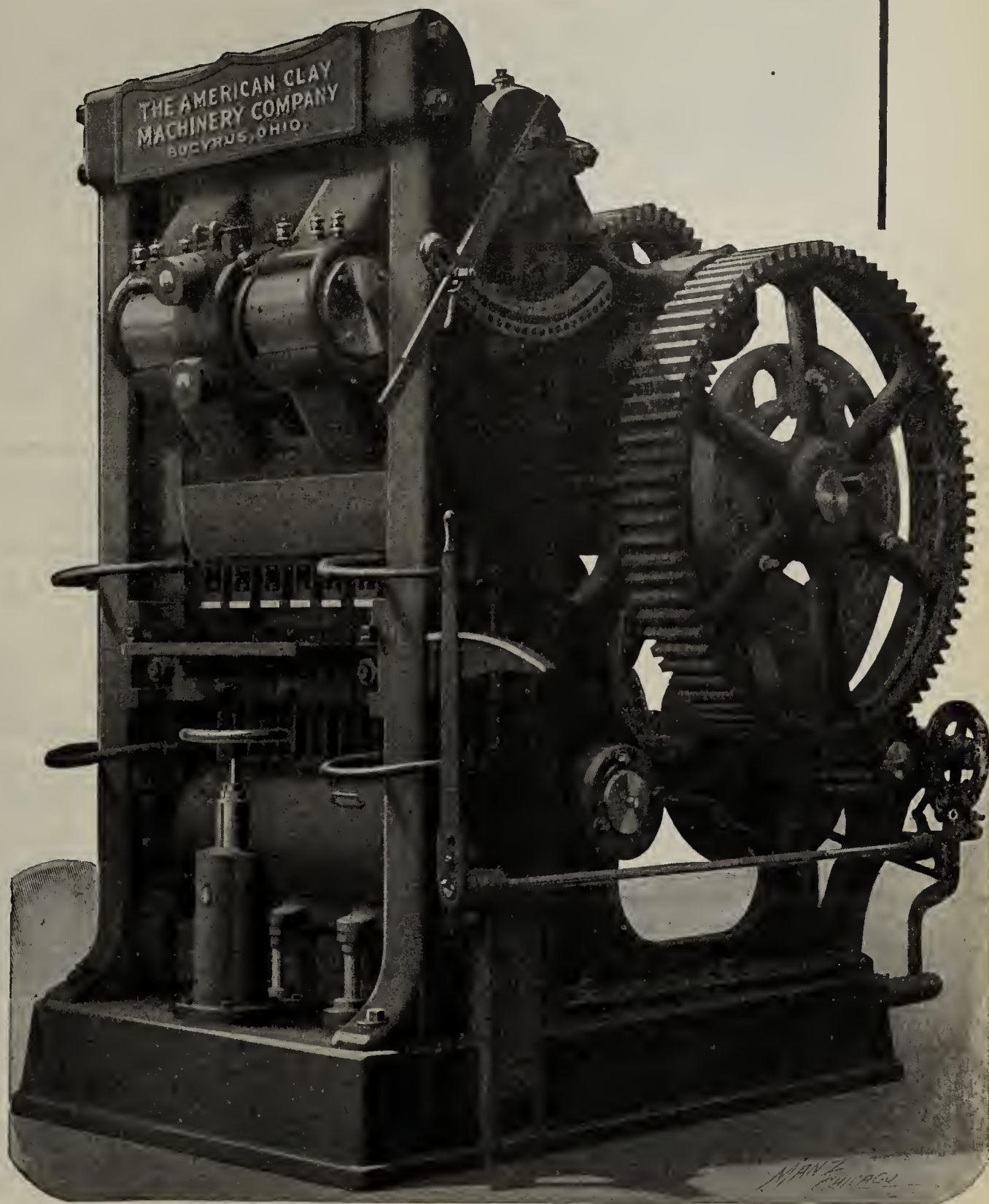
Six-Mold Dry Press Machine.

We Build the Most Extensive and Complete Line of Presses on the Market.

So complete is this line that we can exactly meet the needs of any plant without the necessity of overloading a press or without unnecessary investment in a capacity not needed.

Write for our New Catalogue describing and illustrating our complete line of Presses and other "Built Right Run Right" Clayworking Machinery.

Presses range from one mold to six.

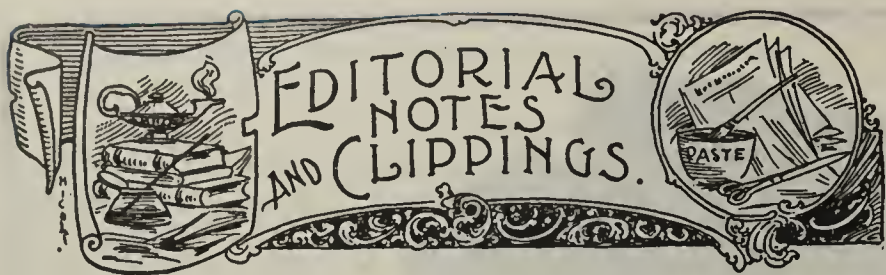


The above illustration shows our **No. 515 Six Mold Dry Press**. In this press we have the highest type of Strength, Durability and Capacity. Although very heavy and massive in all its parts, nevertheless the 51,500 pounds of iron, steel and other metals entering into its construction, have been so proportionately distributed that none of the details are unnecessarily heavy, all have an ample factor of safety, and all movements are smooth and in good balance. All shafting and tension bars are made of high grade steel forgings of our own make, and all other parts which sustain the great strains of pressing the brick are of open hearth steel castings. Full description for the asking.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.





The new brickyard at Hollandale, Wis., is nearing completion.

The brick and tile plant at Redfield, Iowa, was damaged by fire recently to the extent of \$20,000.

The St. Paul (Minn.) Council is talking of setting aside \$10,000 to be used in investigating the various preparations used in making roads.

Homer P. Frisch, who has been operating a brick and tile plant at Mt. Pulaski, Ill., for some time, is building a large new factory on a site adjoining the old factory.

The Trumbull Brick Company, Warren, Ohio, has certified to a change of name, and will hereafter do business under the name of the Portage Silica, Sand and Gravel Company.

Harry Blackwell, superintendent of the Robinson Clay Products Company, Akron, Ohio, well-known in manufacturing circles of eastern Ohio, died at his home November 6. A widow and one son survive.

Orders have been given by the management of the Edwin M. Knowles China Company, of Chester, W. Va., to operate the plant to its capacity. This is one of the most successful potteries in the Ohio Valley.

C. J. Holman & Bro., of Sergeant Bluff, Iowa, were compelled to shut down their plant in September owing to excessive freight rates. They will add several improvements to the plant, however, and be ready to reopen in the spring.

At Newell, W. Va., the North American Manufacturing Company is working its thirty-two kiln plant night and day in order to keep up with orders. The company also owns several plants in East Liverpool, Ohio, but these are only working on a gradual schedule.

F. B. Dunn, formerly manager of the Harper-Norton Shale Brick Company, Conneaut, Ohio, has just been granted a patent on a device to put a projection or lug on wire-cut brick, so as to make space between the blocks in a pavement in order to allow the filler to get in between the brick.

H. Purinton & Co., of Waterville, Me., the largest manufacturers of brick in the Pine Tree State, have had a very successful year. They operate four plants, and turned out, all told, close to 7,000,000 brick last season. They contemplate making a number of improvements while the plants are shut down for the winter.

W. E. Wells, secretary-treasurer of the Homer Laughlin China Company, at Newell, W. Va., and William Burgess, of Trenton, N. J., were the only representatives of the United States Potters' Association to appear before the Ways and Means Committee of Congress when the committee took up the position of revising the tariff schedule on pottery.

Mr. J. Salmen, the secretary and treasurer of the Salmen Brick and Lumber Company, Slidell, La., was very seriously injured in a bad railroad wreck at Little Woods, La. We are in receipt of advice from Mr. Fritz Salmen to the effect that his brother, while not wholly out of danger at the time of writing, was much improved, and had fair hopes for complete recovery.

The C. W. Raymond Company, Dayton, Ohio, who recently shipped for the Government a special train loaded with brick machinery for Ft. Leavenworth, Kans., rejoice in the fact that, notwithstanding the contract for the machinery called for sixty days' time payments, so well pleased with the outfit were the Government inspectors that the entire amount of \$21,000 was paid within ten days after arrival.

The plant of the Hot Springs Brick Company, Hot Springs, Ark., is to be sold at public sale the 28th of November. The plant is first-class in every particular, being equipped with modern machinery and appliances from the shops of E. M. Freese & Co., Galion, Ohio, and has turned out a good quality of building brick, but the original owners lacked both experience and sufficient capital to enable them to operate the plant profitably. Parties interested in same should address C. Floyd Huff, attorney, Hot Springs, Ark., who will be pleased

to give any information desired. The plant has been operated less than two years.

Payne & Hartong, of Bertha, Minn., propose to establish a brick plant at Walker, Minn.

Greiner & Corning, the Chaska (Minn.) brickmakers, have sold one of their two plants there to Klein Brothers.

R. A. Chrissinger has sold his half interest in the Mount Pleasant Tile Factory, at Mount Pleasant, Iowa, to his partner, Howard W. Wilt.

The Gold Brothers Brick Company, of Big Stone, S. D., will build to new kilns, which will give them a capacity of two and one-half millions.

S. A. Weller, a pottery manufacturer of Zanesville, Ohio, is testing the clays of Colorado with a view of building an immense pottery in the vicinity of Denver.

The Macon Brick Company, of Macon, Ga., write that they are in the market for a second-hand steam shovel. They prefer a Thew shovel, but of whatever make, it must be in good condition.

The Hilton Brick and Tile Company, of San Francisco, Cal., has been incorporated with \$199,900 capital stock by Thomas and F. W. Thomson, B. W. Rice, W. W. Barrett and E. Aigeltinger, all of San Francisco.

The Pennsylvania Pressed Brick Company, Altoona, Pa., are moving their plant to Grazierville, Pa., where there is a fine deposit of clay. The plant will be greatly improved by the addition of new machinery and appliances.

Samuel N. Brightbill, general manager of the Harrisburg Brick Company, Harrisburg, Pa., died at his home in Steelton, Pa., November 12, after a short illness brought on by heart trouble. He was sixty-four years old, and leaves a widow and two daughters.

The plant of the Ft. Dodge Brick and Tile Company, Ft. Dodge, Iowa, was almost completely destroyed by fire the morning of October 30th, which started in the boiler room and spread so quickly that it was with difficulty it was subdued. The loss is estimated at \$20,000, partly covered by insurance. The plant will be rebuilt.

David Haeger, the manager of the Haeger Tile Company, at Dundee, Ill., has purchased a farm adjoining the Haeger land, on which there is a fine deposit of clay land. He will make a number of improvements in the plant, in order to increase the capacity and enable them to manufacture drain tile up to 8-inch and larger. The improvements will include a large dryer.

A charter has been applied for by the Royalty Brick Company, Connellsville, Pa. The company is to be capitalized at \$75,000. Among the men who compose it are: F. M. Richey, Jr., of Pennsville; C. O. LaClair, Uniontown; Thomas Jones, Mt. Pleasant, and E. L. Sherrick, Ewing P. Richey and George Hatfield, Connellsville. It is expected to have the plant in operation by next spring.

The new plant of the Pocatello Brick Company, Pocatello, Idaho, has now passed the experimental stage, and is turning out a fine grade of face brick, and Mr. C. W. Gray, the general manager of the plant, says the outlook for next year is splendid, as they have inquiries from a number of towns in that vicinity, and he thinks in a short time they will have to enlarge the plant in order to meet the demand for their product.

The Claremore Vitrified Brick Company, Claremore, Okla., with a capital stock of \$50,000, has been organized by James McBirney, Oscar Howard and John M. Hall, as stockholders and directors. The company will take the plant of the old Claremore Brick Company and put it in first-class shape. Mr. Hall will act as secretary and treasurer of the new company. It is understood that the company will go into the brick-making business on a large scale.

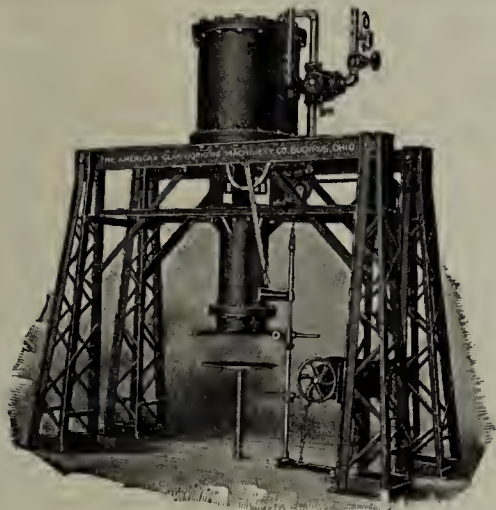
The brickyard property known as the Sheldon property, at St. Clair, Mich., has been sold by Lambert Recor to K. J. Sundstrom, of Detroit, who proposes to rebuild the sheds, overhaul the machinery, add what more is needed, construct six new dryers, each 140 feet long, of cement and brick, install a bucket system for carrying the clay from the clay banks to the machines, and otherwise equip the yard for the manufacture of press and repressed brick, tile, etc. He has associated with him, Sherman Callender and C. H. Lord. Articles of association have been prepared and a company

(Continued on page 540.)

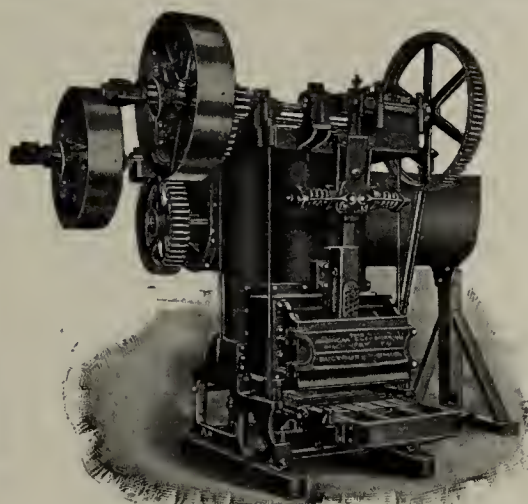
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

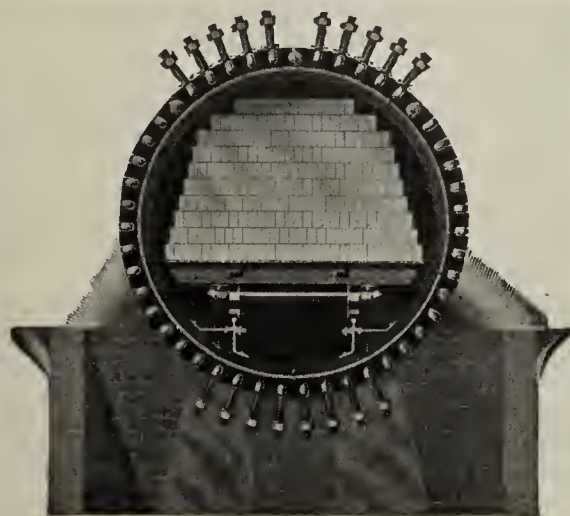
BUILT RIGHT RUN RIGHT



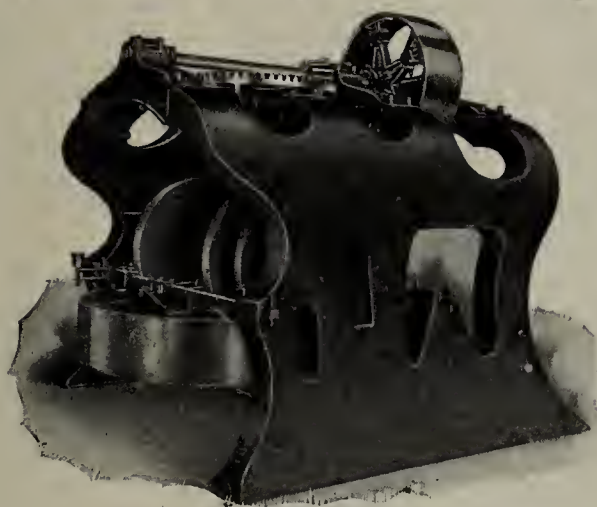
Sewer Pipe Machinery



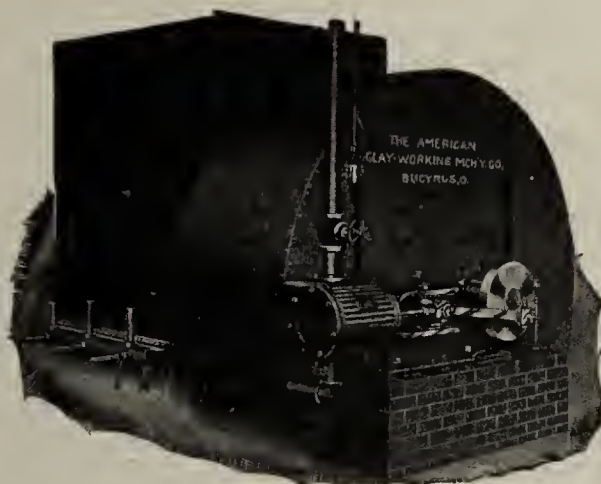
Upright Stock Brick Machine



Sand-Lime Brick Machinery



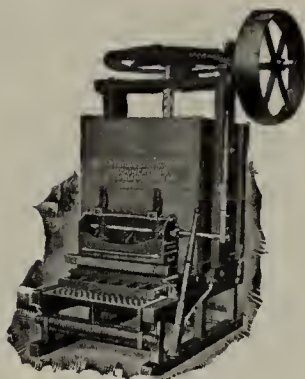
No. 64-9 Foot Wet Pan



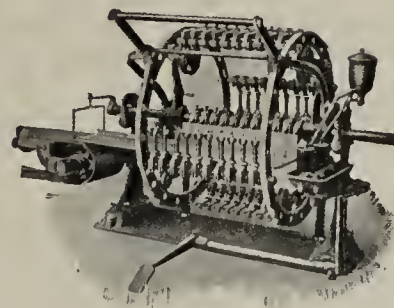
Blower Dryer Apparatus



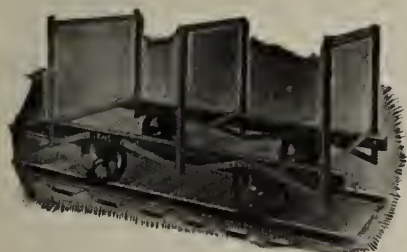
Mold Sander



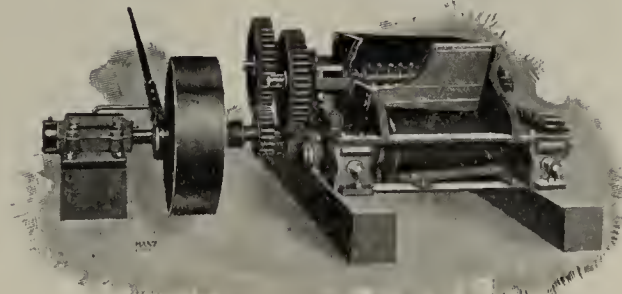
H. P. Brick Machine



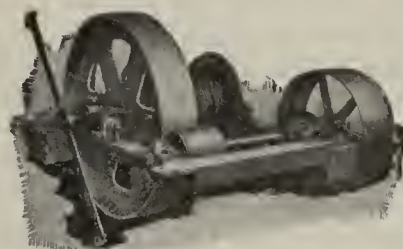
No. 62 Hand Power Cutter



Dry Cars



No. 25 Smooth Roll Crusher



Winding Drums

We Are Much the Largest and Much the Most Extensive Manufacturers of Much the Best Clay-working Machinery in the World.

EDITORIAL NOTES AND CLIPPINGS—Continued.

formed, to be known as the Detroit Brick and Tile Company. The finished product will be taken to Detroit by scows.

The city of St. Paul (Minn.) constructed about 25 miles of sewer during the past year, at a cost of about \$500,000.

Alhorn & Waller, of Morganfield, Ky., have just completed the installation of an American Blower Company's dryer at their brick plant.

The stable and granary of F. P. Gould & Son, brick manufacturers, Omaha, Neb., was destroyed by fire the first of the month, causing a loss of \$3,000.

The plant of the Merrimac Pottery Company at Newburyport, Mass., was badly damaged by fire the latter part of October. The loss is estimated at about \$5,000.

The Oak Hill (Ohio) Fire Brick Plant, which has been idle for one year, has resumed operations, furnishing employment to a large number of workmen, with plenty of orders booked ahead.

Articles of incorporation have been filed by the Comachee Brick Company, of Willoughby, Ohio. The incorporators are: Charles J. Hobart, Willoughby, Ohio; T. B. Daniels, Pittsburg, Pa., and H. C. Mead, Bessemer, Ala. Capital stock, \$100,000.

Frank Knutsen, an employe of the Purington Paving Brick Company, Galesburg, Ill., was instantly killed by being crushed between a car bed and the revolving machinery of a shovel used for unloading coal and clay at the brickyards.

Baird & Collins' tile yard at Peotone, Ill., was completely destroyed by fire recently. The plant, which had been in operation almost continuously for nearly a quarter of a century, had but a short time ago been equipped with modern machinery. The loss is estimated at \$10,000.

Plans for the building of the plant for the Stanton Brick Company, Stanton, Del., are fast nearing completion. Orders have been given to E. M. Freese & Co., Gallion, Ohio, for the machinery equipment for a plant of 50,000 daily capacity. It is expected to have the plant ready for operation by early spring.

A company has been organized with \$75,000 capital stock to be known as the Tifton Pressed Brick Company, for the purpose of developing a clay deposit on the land of Col. John Murrow, at Tifton, Ga., which has been tested and found well adapted to the manufacture of dry press brick. Those interested are: John Murrow, J. L. Brooks, J. S. Taylor, L. M. Garrett, J. B. Murrow, E. A. Buck, George Baker, C. C. Guest, and C. W. Fulwood.

A large amount of building is projected at Duluth and Superior for the coming year. Among the larger buildings proposed are the Soo Line terminals and depots, a \$40,000-brick building for B. A. McDonald, and one for A. L. Ordean costing \$35,000 at Duluth, and a \$50,000 dormitory at the State Normal School, Superior. Bray & Nystrom, architects, have also prepared plans for a seven-story hotel to be erected in Duluth on West Superior street. N. WEST.

The Alliance Clay Product Company, Alliance, Ohio, has begun work on two new kilns, which, when completed, will increase the capacity of the plant one-third. At present the output is 36,000 brick per day. The company is also installing its own electric plant, and will put in about 200 lights. A night force will then be put at work. Another new improvement is a waste heat dryer. The plant is now running at full capacity, but is unable to supply the demand for the product, which is great.

Articles of incorporation of the Superior Brick, Tile and Milling Company, of Ogden, were filed with the Secretary of State recently. The capital stock is \$200,000, divided into as many shares of the par value of \$1 each. The new concern takes over a plant and the premises upon which it is situated at Ogden, Utah. It will engage in a general brick and tile manufacturing business. The officers are: F. P. Johnson, president; P. E. Lamar, vice-president; D. C. Lawson, secretary and treasurer; A. M. Stephens, assistant secretary.

Theo. C. Jacoby and John Keefner have formed a partnership known as The Jacoby Building Material Company, for the purpose of handling all kinds of building material, acting as manufacturers' agents. Both gentlemen have had extensive experience in the sales end of the brick business, Mr. Jacoby having been in the employ of the Hydraulic Press Brick Company, St. Louis, Mo., for the past seventeen years, and Mr. Keefner has been general manager and sales agent

for the Granite Brick Company, Des Moines, Iowa, for the last twelve years. Their main office will be at 427 Fleming building, Des Moines, Iowa.

The Farmers' Co-Operative Brick and Tile Company, of Mason City, Iowa, has completed its new plant. The twelve kilns have a total capacity of over 100 cars.

The Detroit Brick and Tile Company is the latest addition to the industries of St. Clair, Mich. K. J. Sundstrom, C. H. Lord and Sherman Callendar are interested in the company.

A new enterprise at Live Oak, Florida, is the Florida Brick Company. The daily capacity of the plant is 12,000 sand-lime brick per day. D. G. Hardin and F. W. Butler are interested.

William M. Ebaugh, superintendent of the Potomac Brick Company, Washington, D. C., since its organization in 1901, died recently at his home at Addison, Va. A wife and three children survive.

E. H. Reiter, chief engineer of the Purington Brick Company, Galesburg, Ill., has patented a boiler-cleaning machine, and a company has been organized to manufacture the same. Mr. Reiter got up the device originally for use on the Purington plants, and it worked so satisfactorily that he has decided to offer it to the trade.

The Burnwood Brick and Tile Company, Trenton, N. J., has been incorporated in the office of the Secretary of State. The capital is \$150,000, and the incorporators are: Homer Nicholson, Will C. Moulton and J. B. R. Smith. The new company will deal in clay and mineral lands, as well as manufacture brick, tile and similar materials.

The plant of the Illinois Brick Company, located at One Hundred and Seventeenth street and Lake Calumet, Chicago, Ill., was recently damaged by a stubborn fire which burned for several hours, and threatened the destruction of the plant. The blaze was the result of the caving in of a drying kiln, the roof over the kilns being ignited by the burst of flame following the collapse of the baking brick. A large oil pipe was burst by the avalanche of material, and burning oil flooded the ground.

M. E. Gregory, Corning, N. Y., president of the N. B. M. A., has had a busy and prosperous season. In a recent letter he says: "Now that Taft is elected, we have commenced the erection of three new kilns and a four-track addition to our fireproof dryer, and are also installing two engines, one 250 h. p. Corliss engine, and another 150 h. p. tandem compound engine. We have also purchased another shale bank, which lies to the south of our plant, and when we get the same opened up, will be able to run all through the year."

The George H. Clippert & Brother Brick Co., Detroit, Mich., has decided to double its capitalization and increase its output to twice its present capacity. This will give the company a capitalization of \$100,000, while the output per day will be increased from 64,000 brick to 128,000. Buildings of a permanent nature will be erected to provide for the raw material which will be necessary in the increased activities of the company, and the company has purchased forty additional acres of good clay land. The Clippert concern is one of the best-known and oldest established institutions in Detroit.

Trained men are in demand.

Give the boy a technical education.

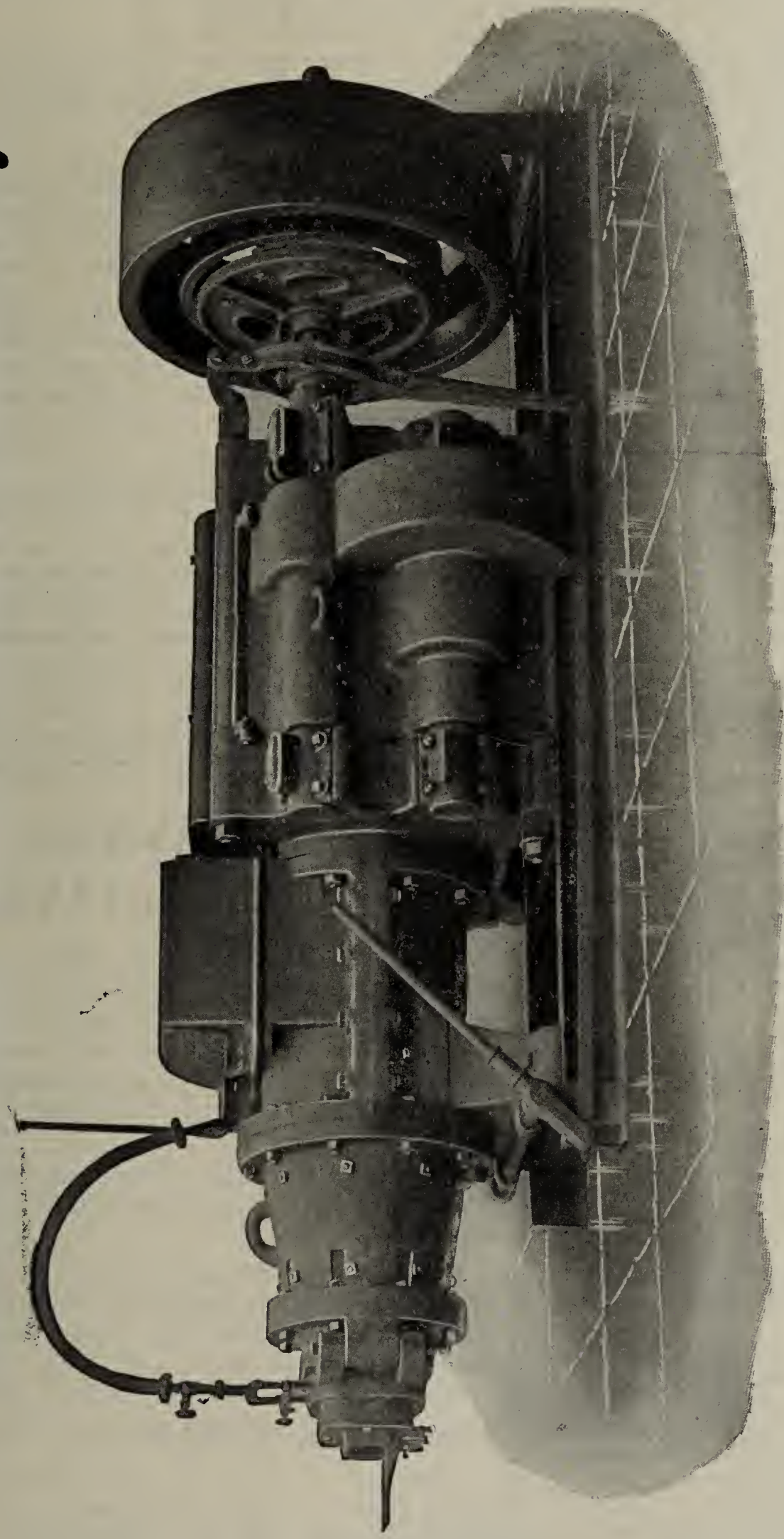
STATE COLLEGE of CERAMICS.

ALFRED, NEW YORK.

Charles F. Binns, Director.

Catalog mailed on application.

Modern Stiff Mud Brick Machinery.



We've been building Brick Machinery a good many years and have naturally been brought into contact with a variety of clays and conditions and have been able to produce machinery more and more nearly adapted to the requirements of our customers. Our motto in this work has been "Prove all things and hold fast to that which is good." Consequently the features in our products which have not been found good have been discarded and improvements from time to time have been substituted.

Let us get acquainted with your troubles or your wants, and if we cannot do you good we will tell you so. We build Brick Machines in many sizes and patterns.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

(See ads on pages 570 and 571.)

Written for THE CLAY-WORKER.

ST. LOUIS BRICK AND BUILDING NEWS.



FROM ALL REPORTS the brick market is in a very satisfactory condition, and, in comparison with other lines, it could be pronounced excellent. The new cathedral, the cornerstone of which was laid last Sunday, princes and potentates of the Catholic church participating, will require about twelve million brick. The brick contract was secured by the Progress Pressed Brick Co. The new St. Louis Library, which is located between Thirteenth and Fourteenth streets, Olive and St. Charles, to the fund of which Andrew Carnegie contributed half a million dollars, will take seven million brick. The new postoffice, it is estimated, will require eight million brick. The new LaSalle building, located at the corner of Broadway and Olive street, the new foundry for the American Car and Foundry Company, in South St. Louis, and other contracts of less importance, all told, will require about thirty millions of brick, contracts for which have not yet been placed.

The Ittner Brick Company have closed contracts for about six million in the last few weeks at satisfactory prices.

It is reported that notwithstanding the Hydraulic Press Brick Company has enlarged their paving brick plant, converting their No. 3 yard on the Manchester road into a paving brick plant with a capacity now of thirty million per annum, they are still unable to supply the demand, and about six million have been shipped in from outside sources. At this writing there are contracts waiting for brick which the local supply cannot fill. Contracts are being made for 81 cents per square yard delivered at the job. This is figured on a basis of 54 bricks to the square yard. The Laclede-Christie Company started making paving brick and burned about six kilns, but it is reported that the shale which they use was not satisfactory.

The Evens & Howard people have organized a real estate company, presumably to sell lots at their new plant located in St. Louis county for the benefit of their employes.

The Illinois Supply and Construction Company report the sale of an entire outfit for a brick plant with a capacity of 10,000 per day, including two-mold Little Giant brick press, pulverizer, elevator, screen, mixer, belting, pulleys, brick trucks and clay gatherer. They also state that the outlook is bright and negotiations are on for brick presses, roofing tile presses and kilns.

Owing to the demand for sand mold brick, the Hydraulic Press Brick Company have put in an equipment for this purpose on their No. 4 yard located at Manchester road and Grand avenue.

The Superior Press Brick people are equipping their yard with a stiff mud outfit, on which they propose to make fire-proofing, shale face brick and shale builders. They will top out their kilns with shale brick in order to do away with dry clay salmon.

Notwithstanding the demand for fancy colored face brick, made from fire clay and mixtures, the demand for red stock brick is reported good.

The Mound City Roofing Tile Company is very busy getting out tile for orders which it is constantly receiving. It is making a better grade of tile than it has ever made before. Oil is now being used for fuel, and the use of coal has been abandoned. The manager of this plant is Mr. August Gallant, formerly with the Ludowici Roofing Tile Company, of Chicago. He is using the Shure oil burner on his kilns.

The Enterprise Brick Company is experimenting with oil for burning pressed brick in up-draft kilns. Mr. Oehler, the president, states that so far the experiments have been favorable and that by next spring he will equip the entire plant for burning oil, claiming that the cost will not exceed the cost

of wood and coal under the old process. In addition to this, he claims that the quality of the brick will be much improved and so far as his plant is concerned the smoke nuisance incidental to a city yard will be entirely eliminated. In their experiments the best results were obtained by the use of the Shure oil burners, which were furnished by the Illinois Supply and Construction Company.

Ryan's plant, out on the Belt Line, in West St. Louis, is supplying that section of the city with good brick, but Ed can make brick, they say, without clay; at least, some years ago he sold out with the privilege of using up the clay in the sheds before shutting down. He had a leased yard on the Wabash railroad, and the way he plowed up the clay in the bottom of those clay sheds and the amount of brick he made and sold from that clay was something phenomenal. It was all perfectly straight, however, but it did not cost the owner of the ground very much for cellars when he improved the property.

McEwing & Thomas have added a shale brick plant to their yard up the river. They will make a shale building brick. Samples shown at their St. Louis office are very fine.

As a rule, the general opinion among the brick men is that the year will close with a very satisfactory showing all around.

OBSERVER.

SUPERIORITY OF BRICK OVER STONE IN A FIRE TEST.

The recent \$35,000 school building fire, at Springfield, Minn., offers convincing evidence of the stability of brick under the severe fire tests. The standing walls are all that is left of a once handsome structure. These walls are of brick and an examination of the ruins shows that the intense heat did not cause the walls to crumble nor the brick to crack. All the stone in the building which came in contact with the heat were badly cracked or entirely disintegrated.

Wilful Waste Makes Woeful Want

If you should like to know how we can save you money by re-vitalizing your set plaster-of-paris, drop us a line, or, if you should like to know how to make money by operating a territory on a royalty basis we will be glad to furnish full particulars upon request.

We operate under U. S. patents and have patents in all of the principal foreign countries.

All of the by-products of gypsum familiar to the trades are manufactured by us, and we are supplying a large demand for special materials.

Eastwick Plaster Co.,

Works:
East Falls,
Philadelphia, Pa.

New York City.

Trenton, N. J.

City Office:
Builders' Exchange,
Philadelphia, Pa.

Washington, D. C.

NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.

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Written for THE CLAY-WORKER.

BRICK NEWS OF KENTUCKY'S METROPOLIS.



ACCORDING TO THE reports that are now in circulation, there is reason for the brick and clay industries to look forward to a better demand within the next few months. It is true that this is at a time of the year when there is not very much revival hoped for in some lines, but the fact that the general conditions seem to favor a business revival, there is real reason to look for a better demand in clay works.

There are a number of buildings now being erected here, and there are reports that there will be more activity in this line within a short time than has been the case in some months. A new \$15,000 theater is among the latest buildings to be started, and there will be considerable fancy brick and terra cotta used in its construction. Plans for making this city more attractive in the way of beautiful buildings are under consideration, and there will be a considerable amount of construction work done here soon.

With the settlement of the election there is more hope expressed in the future of all the industries, and there will no doubt be at least a normal demand by the time the early spring months arrive. The local brick and clay plants are well pleased with the indications, and there is a feeling that betokens a return of the good old times again.

The Hydraulic Brick Company say that there is some improvement with them, and that the outlook is more favorable than they have found it lately. They are not doing anything like as much business as they did a year ago, but the advent of the winter season has been one of the causes to hold up the demand that they would naturally look for with the situation now more favorable all around.

The Southern Brick and Tile Company find that there is an increasing call for tile with them, and say that the farmers are taking advantage of the dry weather to tile their ground. This is a wise move, and one that will be found to pay in the long run. There is also a more active demand for brick with them, and they feel that there will soon be a return to the better days that were in evidence a year ago.

The Kentucky Vitrified Brick Company feel very well pleased over the indications for the next year. They are at this time doing a very nice business, and expect a better demand through the South before very long. The settlement of the election has made the country get down to business again, and there is a real live indication for renewed activity in this industry. Their present output is large, and they are not inclined to complain about the prospects for the future.

The Kentucky Fire Brick Company, Haldeman, Ky., are still active at their plant, and note a gradual improvement in the demand for the class of brick they are turning out. Everything points to a better demand in the year 1909, and they are satisfied that there will be orders for many fire brick.

The Louisville Brick Company say that there is a very nice demand for building brick now with them, and that the indications are no less hopeful. There has been a better demand lately than has been noted in the past several months, and there is reason for a still greater business in the next few months.

C. O. Smith, who represents a number of brick concerns here, says that there is reason now to expect a better brick demand, and that he is very well pleased with the outlook for the next year.

The P. Bannon Sewer Pipe Company are getting ready to close down for the winter months, as there will be little call for his class of material for at least several months. They believe, however, that the spring will be full of hope for their industry, and that there will be about all the business that they can well care for at that time.

The Burrell & Walker Clay Manufacturing Co. find that

there is not very much activity in the general business at this time, but they are feeling more sanguine as to the future than they have for a number of months. In fact, they look for a better demand from this time forward than has been the case in months.

The Louisville Fire Brick Works feel very hopeful as to the future in their line. They are about as busy as they could hope to be at the present time, and there has been a gradual improvement in the situation in the past few months. They are finding a ready sale for their output.

The Louisville Pottery Company feel very much pleased at the indications for the pottery industry, and say that the demand for jugs is quite active now. They are operating on full time, and have no complaints to make.

The Falls City Brick Manufacturing Company say that there is no great demand for brick with them now, but that the situation looks pleasant enough for the coming months. There is real reason for a better business, and they expect to get their share of the same when the situation has become more normal, as it will be bound to do soon.

COLONEL.

The Modern Press Brick Company, of Shenandoah, Iowa, are making rapid progress in their venture to handle face and ornamental brick and other building materials. They are just closing their first year, and business has been greater than had been expected by the management. They have a large display room, with a fine display of brick in all shades, and prices are always right. In the display room we find nearly all the panels filled, but they say they have a few panels which they hope to find something for yet, and if some brick manufacturers wish to avail themselves of the opportunity they must act quick. This concern also deals in mantels of all kinds, and tile for all purposes, and have a good line of fireplace grates and trimmings. They are also acting as manufacturers' agents for all kinds of building materials. It will pay the contractor and builder to get in touch with them.

For the National Convention
at Rochester,

Feb. 1st to 6th, 1909,

The New York Central Lines

offer to the members of the

National Brick Manufacturers' Ass'n

and their friends

Unexcelled Service

Perfect Equipment

A Comfortable Journey "AMERICA'S GREATEST RAILWAY SYSTEM"



From New York, Boston, Chicago, St. Louis, Cincinnati and all principal points East and West.

Ask your local ticket agent for full information.

WARREN J. LYNCH,
Passenger Traffic Manager,
Chicago.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—Second-hand automatic tile cut-off. Must be in good condition. Address S. H. RECORD, Charleston, Ill.

FOR SALE—Modern dry press brick plant in city of 100,000. Market conditions excellent. Richardson-Lovejoy down-draft kilns. Located in central Iowa. Owner has other business. Address G. E., Care Clay-Worker.

FOR SALE—Eighty acres of farm land in clay locality, free from incumbrances. Cash or trade. Improved. Near Indianapolis. Address Z. JOHNSTON, 709 Park ave., Indianapolis, Ind.

WANTED—Position as machinery salesman, by one with years of experience as salesman and designer of new plants. Wide personal acquaintance with brick manufacturers in all parts of the country. Address "Z," Care Clay-Worker.

WANTED—Position as superintendent of first-class brick plant. Advertiser has good experience with machinery and men. Stiff mud and dry press plants considered. Best of references furnished. Address H. D. J., Care Clay-Worker.

CASH FOR YOUR PLANT OR BUSINESS. No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address FRANK P. CLEVELAND, 965 Adams Express bldg., Chicago, Ill.

WANTED—Position by graduate of New Jersey Ceramic School, as ceramic chemist in some clayworking plant. Have had experience as glazemaker with an architectural terra cotta company. Address W. H. W., Care Clay-Worker.

WANTED. Clayworkers who are having troubles of any sort in the operating features of their plant, whether in the making, drying or firing, to know that my experience of twenty-five years enables me to give valuable practical advice that will prevent further loss and trouble, if skill and knowledge as a practical worker and chemist can accomplish that purpose. Terms reasonable and contracts made contingent upon success. Address J. J. KOCH, 3325 Caroline st., St. Louis, Mo.

WANTED—ENGINEER. We manufacture high-grade face and fire brick, use Erie City engine, Ross Keller presses, dry pans, and use oil for fuel. We want a man that understands the business, look after this department and keep things moving, one not afraid of work and to deliver the goods. Locality healthy, in the South. If you are looking for a map we have none, but if you are looking for a good steady position with good pay we have it. Give references and reply wanted in first letter. Address "SOUTH," Care Clay-Worker.

BRICK MACHINE FOR SALE. A Penfield end-cut; capacity about 30,000 per day. Good condition. Apply to WINFIELD FREEMAN, 650 Minnesota ave., Kansas City, Kans.

FOR SALE—A well-equipped soft mud brick plant at Princeton, Ind. Daily capacity, 25,000. A bargain. Present owner recently stricken with paralysis. Address CHAS. READ, Oakland City, Ind.

FOR SALE—Two hundred and twenty cast iron flat cars for brick dryer. Cars are roller-bearing, and have been used but a short time. Address SOUTHERN BRICK AND TILE CO., Louisville, Ky.

FOR SALE—Brick manufacturing plant at Athens, Pa., one mile from the large Lehigh shops at Sayer. An abundance of good shale. Railroad siding, machinery and some buildings. Address 119 East Second st., Corning, N. Y.

WANTED. Position by first class man as head burner or assistant superintendent on a dry clay, press brick, down-draft kiln plant. Can guarantee results if proposition is not fundamentally wrong. Address RESULTS, Care Clay-Worker.

FOR SALE. Matthews gravity 12-inch brick carrier, nineteen 8-foot sections, one 6-foot, five 4-foot, three 7-foot, curves, seventeen adjustable jacks, two aprons, eighteen extra rollers. Good reason for selling cheap. THE HEIDECKER BRICK CO., Sharonville, Ohio.

FOR SALE. I am interested in a very valuable mine of Fuller's earth and kaolin, recently discovered in one of the southern States, and would like to sell a controlling interest to some party who would develop it and place the product on the market, which can be done very cheaply. Samples of material will be sent on application. Address T. E. FLOURNOY, Monroe, La.

FOR SALE—Kaolin tract in Alabama, suitable for pottery, terra cotta, fibre and dental plaster. Address FIFE, 111 50p Care Clay-Worker.

FOR SALE. One No. 25 American Automatic cutting table and one American Clay Machinery Co.'s disintegrator. Both of these pieces of machinery are in good running order and will be sold at snap price. Address PRESSED BRICK, Care Clay-Worker.

WANTED—Position as salesman of machinery with up-to-date American clay-working machinery manufacturer. Advertiser has good practical experience, mechanical knowledge, and is thoroughly acquainted with Canadian trade. Apply ONTARIO, Care Clay-Worker.

FOR SALE—Seventy acres, half mile of county seat, 8,000 population. Twenty-five feet of shale with from 3 to 15 feet of stripping; plenty of water. Railroad through property. No brickyard here. For price and terms, apply owner. Address SAM VAIL, Clinton, Mo.

WANTED—Position as superintendent of brickyard, by one who has had years of experience in designing and erecting new plants. Also modeling and putting old yards on a paying basis. Thoroughly familiar with all clays and processes. Address "A," Care Clay-Worker.

FOR SALE—Second-hand machinery cheap, including 25-ton Ref. Wolf ice machine. Chambers brick machines, pug mills, drying cars, repress, line shafting, boilers, engines, fan pumps, feed water heater, electric locomotive, etc. Address ANTHONY & BUCHANAN, Kewanee, Ill.

FOR SALE CHEAP. One American steam boiler feed pump No. 1. One wood split pulley, 12x30; 4 15-16 bore. One cast pulley, double belt, 12x32; 5-inch bore. Two hundred car wheels, 6 inches in diameter, for 1-inch axles, never used. Address F. J. BOOHER, New Ross, Ind.

Continued on page 546.

An Opportunity of a Life Time.

Will Sell at a Low Figure and on Easy Terms.

An up-to-date brick plant located on the James River, Va., and in easy touch by water with eight rapidly growing cities.

Brick bring \$7.00 at kiln and future outlook is excellent.

The outfit consists of Henry Martin soft mud machine, 50,000 per day capacity, with latest patent steam drier. Also J. D. Fate Co.'s stiff mud outfit 25,000 per day capacity, with Scott's patent cars. All practically new.

New and commodious dwellings for manager and laborers. Not a better equipped yard in the state. Twenty or more acres of finest plastic clay, average depth fifteen feet and burns cherry red in five days. Cheap fuel and labor, with low freight rates and a mild climate offer a combination seldom met with. The improvements have cost \$16,000. Reason for selling, am not myself a brickmaker; bought to protect my own interest. Write for full particulars. Address BOX 5, Care Clay-Worker.

WANTED.

To interest a practical man in our brick and tile plant. Well-established business. Correspondence solicited. Address

9 4 cm "BELL,"
Care Clay-Worker.

FOR SALE.

Three-quarter yard traction type Vulcan Little Giant steam shovel in thorough repair. Price reasonable, terms easy. Address H. D. COOPER & SONS,
First National Bank bldg.,
9 3 dm Nashville, Tenn.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CON-
TRACTING CO.,
10 tf d Zanesville, Ohio.

SPLENDID LOCATION FOR BRICK PLANT.

Inexhaustible supply of clay suitable for high grade paving, red and buff pressed building brick and tiling. Our city located in middle west, on two transcontinental railroads, with excellent shipping facilities. Will offer substantial inducement for erection of brick plant. Another city in North Carolina also will offer interesting proposition. For full particulars, address
EDWARD M. DEANE & CO., Bankers,
9 3 dm Grand Rapids, Mich.

FOR SALE.

One three-mold Boyd dry press.
One three-mold Andrus dry press.
One two-mold United States dry press.
One Freese stiff mud machine, A Special.
One Standard board delivery cutting table.
One Freese 8-foot pug mill.
One "Centennial" stiff mud brick machine.
One Fernholtz 42-inch pulverizer.
One 6-foot iron frame mixer.
One Chandler-Taylor 10x12 steam engine.
Good as new. Has developed 40 h. p.
One 8x12 steam engine. Good condition.
SCOTT MANUFACTURING CO.,
Third National Bank bldg.,
8 tf dL St. Louis, Mo.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick, and gives valuable recipes. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. "Vitrified Paving Brick," \$1.00; tells all about the best materials for and methods of manufacturing paving brick. All or any of these books mailed postage prepaid, on receipt of price. Write for list of other valuable books for clayworkers. Address.
T. A. RANDALL & CO.,
Indianapolis, Ind.

FOR SALE—ENGINES AND BOILERS.

—Engines—

Corliss and Automatic—20x42 Allis, 18x42 Hamilton, 18x36 Wright, 16x32 Buckeye, 14x24 Atlas; also 12x30, 10x30, 13x16, 13½x15, 12x18, 12x14, 12½x12, 10x10, etc., etc.
Throttling—18x26 H. S. & G., 18x24 Erie City, 16x20 Chandler & Taylor, 14x24 Atlas, 14x14 Vertical, 12x18, 11x16, 10x16, 10x12, 10x10 Vertical, 9x12, 8x16, 8x12, etc., etc.

—Boilers—

Horizontal Tubular—84x18, 78x16, 72x18, 72x16, 66x16, 60x16, 60x14, 54x16, 54x15, 48x14, etc., etc.
Fire Box—60, 50, 40, 35, 30, 25, 20, 16, 14, 12 and 10 horse power, etc., etc.
Vertical—55, 35, 30, 20, and 15 horse power, etc., etc. Pumps, heaters, tanks, saw mill and general machinery.
THE RANDLE MACHINERY CO.,
1735 Powers st.,
10 tf d Cincinnati, Ohio.

HUDSON RIVER BRICK PLANT.

WILL LEASE on easy terms a fully equipped, two machine, soft mud, open yard, brick plant. Immense banks of clay, shale and sand. Dock frontage on deep water adjoining railroad. Houses, barn, kiln shed, engine and boiler, etc., etc. Address
11 1 d RICK, Care Clay-Worker.

BRICK PLANT FOR SALE.

One of the best equipped in the State, all machinery and Steam Dryer having been newly installed about two years ago, and in A1 condition. Capacity ten millions yearly. Located at Mountain View, N. J., with switch into property from main line of the D. L. & W. R. R. About thirty-two acres with all necessary buildings.

The brick have had high reputation for fifteen years and in steady demand.

Can be purchased for less than cost of improvements. A splendid opportunity for some one. Further particulars obtained by addressing

11 1 d

STANDARD, Care Clay-Worker.

TO BE SOLD AT PUBLIC SALE

November 28th.

The entire plant of the Hot Springs Brick Co., consisting of E. M. Freese & Co. brick machine, automatic side cutter, disintegrator, dry pan elevator, winding drum, dump cars, line shafting with supports, pulleys, belting, etc. Philips & McLaren dry pan, Houston, Stanwood & Gamble boiler and engine. Good drying outfit and first-class kilns. Plant has been in operation since 1906. Owners inexperienced. Clay makes excellent building brick, and a good market for output.

For further particulars, address

11 1 L

C. FLOYD HUFF, Attorney,
Hot Springs, Ark.

NOTICE AND WARNING.

We observe that one A. O. Jones of St. Louis, Mo., is advertising that he has invented and is on the market with a brick setting machine. We have notified him that his whole scheme is a copy and infringement of our patents, inventions, and machines, and that he must not use his alleged patent or permit any one else to do so without authority from the undersigned.

This will be direct notice to the public that the use of his machine is an infringement upon our patents, and we will legally protect our rights by prosecuting any users of his machine.

WM. H. FRANCIS,
CHAS. FRANCIS,
Coffeyville, Kansas.

Uniform Wires

Loops Double Twisted
Wires Straight—Ready for Use



Cutting Wires For Brick Machines



Chambers Bros. Co., Philadelphia, Pa.

ANY GAUGE, ANY LENGTH OF WIRE MADE TO ORDER
Send us your specifications for our quotations

DOVER FIRE BRICK CO.,

509 Cuyahoga Building, Cleveland, Ohio.

Operating plants at North Bend, Clinton County, Pa., and Strasburgh, Ohio.

"NORTH BEND." "DOVER." "BUCKEYE."

We have have been furnishing fire brick for kilns for over forty years.

WRITE US FOR PRICES.

THE SOUTH DEMANDS!

The Best

FIRE BRICK

FOR KILN CROWN AND LININGS.

WE MAKE THEM!

SOUTHERN CLAY PRODUCTS CO.,

Chattanooga, Tennessee.

The Improved Flue System.

The most profitable kiln on the market for burning any clay product.

Absolute Draft Control. Economy of Fuel and Time.
All Hard Brick.

Kiln and Yard Rights, with Plans, Specifications, etc., sold at very reasonable rates. Booklet, estimates and full information cheerfully furnished.

GEO. E. SNOWDEN & CO.,

[Formerly J. P. Bradley & Co.]

New Cumberland, W. Va.

FOR SALE—Two hundred and seventy dryer car pallets, 85 inches long, 37 inches wide. Eight 2½-inch channels to the pallet, riveted to four ¼-inch cross pieces. Cheap. Address

9 3 d

THE BARR CLAY CO.,
Streator, Ill.

FOR SALE.

One two-mold Simpson dry press machine.

One E. M. Freese & Co. board delivery cutting table. Address

10 tf d

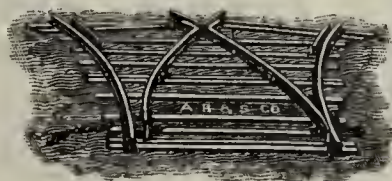
DUNLAP MFG. CO.,
Bloomington, Ill.

FOR SALE.

6 "Little Giant" Traction Shovels.
Dredges for clay swamp, ½ yd. to 2½ yd.
Locomotives, cars and rails for up-to-date clayworkers.

We buy and sell.

THE MALES CO.,
26 Cortland Street, New York, N. Y.,
1508 First Nat'l Bank Bldg., Cincinnati, O.



SWITCHES FOR SALE.

Right and left-hand one, two and three way switches of various gauges, radius and weight rails at special prices.

THE ATLAS CAR AND MFG. CO.,
Cleveland, Ohio.

DO YOU NEED MODELS or MOULDS?

We can furnish you with them for any line of clay products, ornamental or plain. Plaster-blocks and cases made to order. First class work guaranteed.

IRONTON CLAY SPECIALTY CO.,
Ironton, Ohio.

See additional ads under Table of Contents.



They Never Fade

Twenty Long Years

of time and weather have tried out Ricketson's famous Red Brick brand

COLOR

For Mortar, Brick, Cement, Stone, etc. Proved to be absolutely permanent. Red, Brown, Buff, Purple and Black.

Ricketson's Mineral Paint Works,
MILWAUKEE, WIS.

Terms
reasonable.

First-class
references.

If you have trouble with Clay, Machinery
or Kilns, then consult

THE BRICKMAKERS' ADVISOR,

Julius J. Koch,

(25 years practical experience)

3325 Caroline Street, St. Louis, Mo.

Special attention paid to dry clay press
processes and down-draft kilns.

Contracts made contingent upon suc-
cess.

60 YEARS'
EXPERIENCE
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Send model, drawing, rough sketch or
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Loan and Trust Building,
Washington, D. C.

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Mention The Clay-Worker.

Conveying, Elevating and Power-Transmitting Machinery.



The only perfect spiral conveyor. Continuous flight—no laps or rivets.
A Complete Line of the Best Supplies.

Belt, Chain and Cable Conveyors.

Ask for General Catalogue.

H. W. CALDWELL & SON CO., Chicago.

Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

CHICAGO RETORT AND FIRE BRICK CO.

**Fire Brick for
Building Kilns.**

Factories:

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Brickton No. 1

Brickton No. 2

Ottawa, Ill.

General Office:

45th St., Clark to LaSalle Sts.

CHICAGO, ILL.

'Phone Yards 525

Evans & Howard Fire Brick Co.

ST. LOUIS, U. S. A.

Sewer and Culvert Pipe. Locomotive Tile.
Furnace and Boiler Tile. Fire Brick and Cupola Blocks.
Flue Lining and Chimney Pipe.
Sanitary Earthenware. All kinds of Fire Clay Products.

"Mitchell St. Louis No. 1"

Brand of

FIRE BRICK

Awarded Gold Medal at St. Louis for
Kiln Construction.

— Made by —

MITCHELL CLAY MFG. CO.,

5627 Manchester Avenue.

ST. LOUIS, MO.

The Richardson-Lovejoy Engineering Company

Manufacturing Propositions Investigated. Clayworking Plants Designed and Construction Superintended.
Dryers and Kilns of every type, adapted to the special conditions and purposes.

Pamphlets, "Ceramic Engineering" and "Brick Kilns," free.

SCHULTZ BUILDING, 232½ North High Street, COLUMBUS, OHIO.

THE WEBB WIRE WORKS

MANUFACTURERS OF
MUSIC WIRE NEEDLE WIRE
NEW BRUNSWICK, N. J.

We manufacture BRICK AND TILE CUTTING WIRE, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.



C. A. SHOOP, Pres.

N. R. WITHERS, Sec. and Treas.

H. L. JACOBS, Gen. Mgr.

SUFFOLK CLAY COMPANY,

MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

Marion Machine, Foundry & Supply Co., Marion, Indiana:
Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

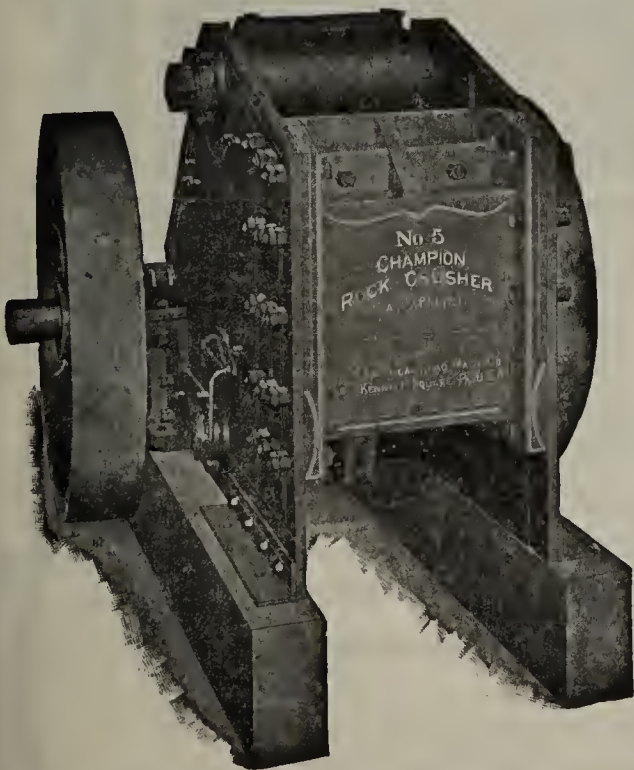
Very truly yours,

SUFFOLK CLAY CO.,

For further information address

H. L. Jacobs, Gen. Mgr.

MARION MACHINE, FOUNDRY AND SUPPLY CO., MARION, IND.



NO. 5, 11x26 CHAMPION CRUSHER.

It Looks Good

on paper.

It Looks Better

crushing shale, fire clay, rock and other hard material.

THE CHAMPION CRUSHER

is expensive, to do without, because it saves you money.

Catalogue is free on application. Address

AMERICAN ROAD MACHINE CO.

KENNETT SQUARE, PA.

The Department of Clayworking and Ceramics

Established by the Legislature in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.
W. H. S. DEMAREST, D.D.

Department of Ceramic Engineering Ohio State University.

THE OHIO STATE UNIVERSITY offers complete courses in all of the usual engineering branches. It is prepared to offer especially fine facilities for the study of the clay industry in its department of Ceramic Engineering.

This department, located in a large new building, is entering upon its 15th year. Substantial additions to its equipment are now in process. Its laboratories and equipment are the most complete in the country. It offers regular courses in the technology of clayworking, glass and cement manufacture, and an opportunity for a limited amount of special study in these and similar fields.

Tuition is free. Laboratory fees are low. Living expenses moderate. The corps of instructors is composed of specialists who have had good practical experience.

For information or catalog address
PROFESSOR EDWARD ORTON, JR.,
Director of Department of Ceramic Engineering,
Columbus, Ohio.

Brick Expert.

Thirteen years' practical experience. Graduate of German technical school of brick manufacture.

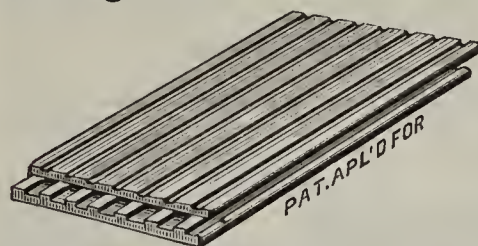
Will test clays and other materials and superintend the re-adjustment of old or installation of new machinery, etc.

Specialty: Removal of difficulties or obstacles of operation.

Builder and operator of continuous kilns.

H. O. POMMER,
1017 Dillon St. St. Louis, Mo.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

MUELLER BROS.,
2935 Clark Avenue. St. Louis, Mo.

G. K. WILLIAMS & CO.,
EASTON, PA.

Largest Manufacturers in
United States of

Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
on application.

Chattanooga Paint Co.,
Chattanooga, Tenn.

Manufacturers of

**Red Oxides for Brick-
makers' Use.**

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

COLORING

All Mineralogists Know

Clinton Hematite Red
is the highest grade
Oxide of Iron.

Be sure you get the genuine, with the "Little
Yellow Side Label" on each package.

MADE ONLY BY

Clinton Metallic Paint Co.,
CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712.

205 Pearl Street.

NEW YORK.

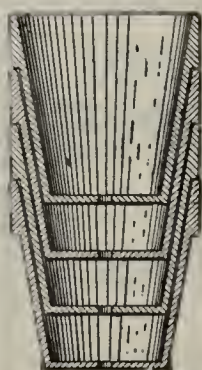
Sole Importers in the United States of the

Precipitated  Carbonate
of Barytes

The only preventative for scum and discolor-
ation on Facing Brick and Terra Cotta, neu-
tralizing the Sulphate of Lime in the Clay and
Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1501 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

Some Claims Made for the Dennis Double Cham-
ber Down Draft Brick Kilns.

Some New Features About This Kiln.

No buck stays, rods, or braces of any kind are used, the only metal used being furnace doors, grate bars, and sheet iron for chimney dampers, and as outside walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation when in use, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except the very costly and complicated continuous kilns, and by chimney dampering, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent, of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

I can surely improve the quality of your brick. Write me for information.

Wood burning up draft kilns changed to down draft coal burners. Brick plants installed and put into operation. Write for printed matter.

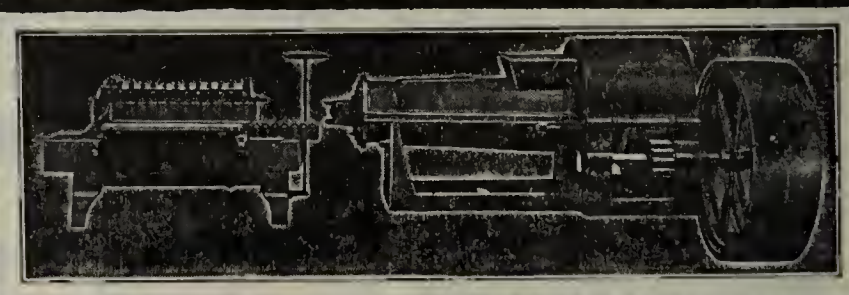


Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

145 Water St.,
NORFOLK, VA.



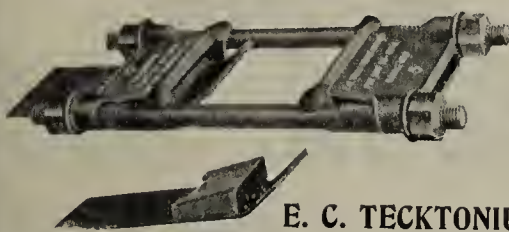
THE PIONEER.

Kells Brick and Tile Machine

has been the synonym of excellence in the Brick and Clay-working industry for the past thirty years.
It has had few rivals and no superiors. Improved from year to year to gain increased

Strength, Simplicity, Durability, Efficiency and Quality
of finished product, until it has reached the highest state of the Mechanical Arts in Brickmaking.
Our new handbook will give you the detailed information desired.

The Kells Foundry and Machine Co.
ADRIAN, MICH.



The Best and Cheapest
BAND LUG
on the market.
Write us for price.



E. C. TECKTONIUS MFG. CO., Racine, Wis.

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

White Pine Pallets

For Brick, Roofing Tile,
And Sewer Pipe Boards.

The Best Are the Cheapest.

Send Specifications and Get Prices.

Mershon, Schuette, Parker & Co.,
Saginaw, Mich.

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Saves the beginner time when learning.

Saves the learned time when beginning.



New
Number
Six
Visible
Writer

Saves time, energy,
worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.

Old machines of any make taken in trade.

The Williams is sold under a positive guarantee and on easy terms.

If you want the best value in a typewriter ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.

\$2.00

THE CLAY-WORKER
ONE YEAR (IN ADVANCE)

\$2.00

MANGANESE

FOR ALL USES.

LUMP, GRAIN AND GROUND

60-70% 70-80% 80-90% OXIDE.

CLAY WORKERS GOODS A SPECIALTY.

SAMPLES AND PRICES ON INQUIRY.

METALLIC ALLOYS CO.

99 JOHN ST NEW YORK, N.Y.

SUCCESSORS TO KENDALL & FLICK.

TAPLIN, RICE & CO.,
AKRON, OHIO.

Sewer Pipe and Clay-
Working Machinery.

ESTABLISHED 1862.

The Anton Vogt
Down Draft Kiln

and the

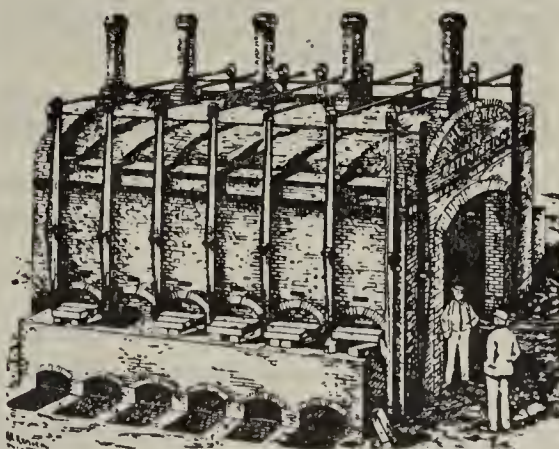
QUESTION OF THE HOUR.

Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,

Ada, Okla., U. S. A.



The Yates Patent Down-draft Kiln.
Also Continuous.

References: Kane Brick Co., Kane, Pa.; Kushequa Brick Co., Kushequa, Pa.; Queen City Brick & Tile Co., Cumberland, Md.; Shawmut Brick Works, Shawmut, Pa.; Corry Brick & Tile Co., Corry, Pa.; and the Johnsonburg Vitrified Brick Co., Johnsonburg, Pa.

ALFRED YATES,

SHAWMUT, PA.



If...

**You Want
to Sell
or Buy...**

Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

**If...
You Want
a Man**

for any position or a position in any connection with the Clayworking Trades use the

**For Sale
and Want
Columns
of...**

**The...
Clay-Worker.**

RATES

For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.

**The Best, Quickest, Cheapest
Method of Securing Results.**

MADDEN & CO., Rushville, Ind.

Full Line of

CLAYWORKING MACHINERY.

See two-page ad in April No. Clay-Worker.

New Specially Designed Machine for Large Drain Tile and Hollow Ware now ready.

New automatic attachment for any hand cutting table.

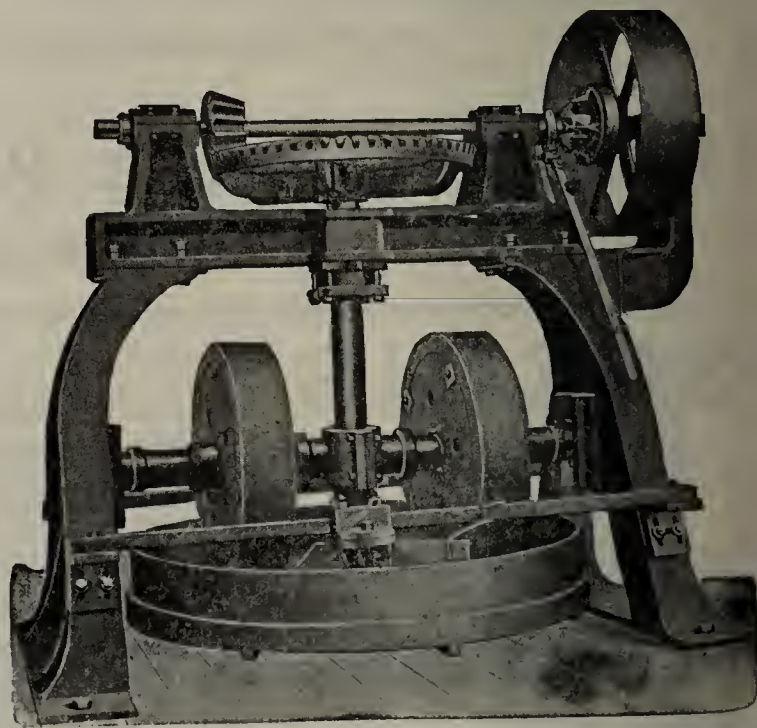
Send for circulars and catalogues

PHILLIPS & McLAREN CO. PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



To the Man Who Don't Know It All

THE MAN WHO KNOWS IT ALL can hardly be interested in what we have to offer. We are brick plant consultants, planning and building complete brick plants, and remodeling old ones, with but one object in view—and that is: THE BEST POSSIBLE RESULTS FOR THE LEAST AMOUNT OF MONEY.

¶ We inspect and appraise properties, issue complete prospectuses on clay propositions, and advise as to the feasibility of any proposed undertaking which may involve the investment of money in new plants or old ones.

¶ We are not salesmen or sales agents, have nothing to sell in the way of patent dryers, kilns, testing instruments or equipment, and we can therefore advise with absolute impartiality.

¶ Our engineers are just plain, practical brick plant consultants, who want your patronage.

LUCE ENGINEERING COMPANY 1815 THIRD NATIONAL BANK BUILDING St. Louis, Mo.

The

ROESSLER-HASSLACHER
CHEMICAL COMPANY,

100 William Street,
NEW YORK.

As a Preventative of Scums Use

CARBONATE OF BARYTES

R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese and
all Chemicals used by the Clay Trades.

ANDRUS BRICK PRESS MAKES REAL MONEY

Send for proof; also details about our Hand Presses, Dry Pans, Pulverizers, Mixers, Crushers, Elevators, Screens, Clay Plows, Clay Gatherers, Shafting, Hangers, Pulleys, Belting, Trucks, Barrows, Kiln Irons, Dryer Cars, etc. SCOTT MANUFACTURING CO., 3rd National Bank Building, ST. LOUIS, MO.

YOU CAN'T BEAT IT



RED GEM INK WRITING PENCIL.

The only satisfactory fountain pencil that writes like a lead pencil and may be carried in the vest pocket, being leak proof.

A perfect writing, ever ready Ink Pencil, dwarf size, beautiful terra cotta finish, that always writes at first touch at any angle, and retails at	\$2.50
The best of all trade papers, The Clay-Worker, for the following twelve months	\$2.00
This total value of	\$4.50

WE NOW OFFER FOR THIRTY DAYS BOTH
THIS RED, DWARF SIZE, INK WRITING
PENCIL AND THE CLAY-WORKER FOR

\$3.00

DON'T DELAY BUT SEND CHECK TODAY and get the handiest and most perfect ink writing pencil and a whole year's good reading. Address

T. A. RANDALL & CO.,

211 North Hudson Street, Indianapolis, Ind.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)

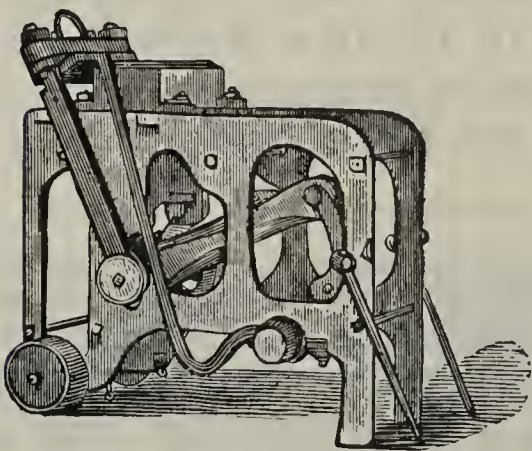


Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

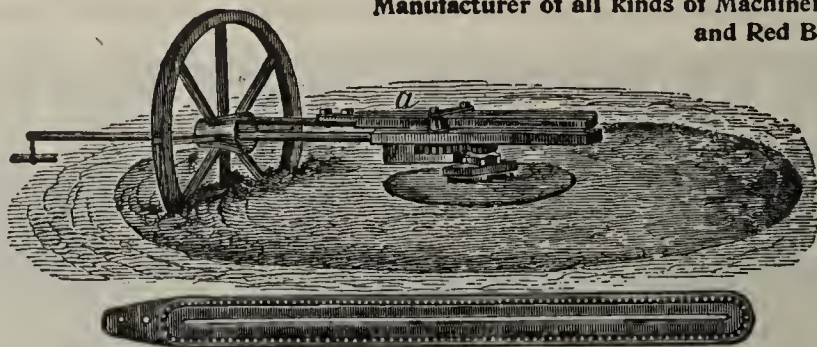
THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.



RED BRICK PRESS.

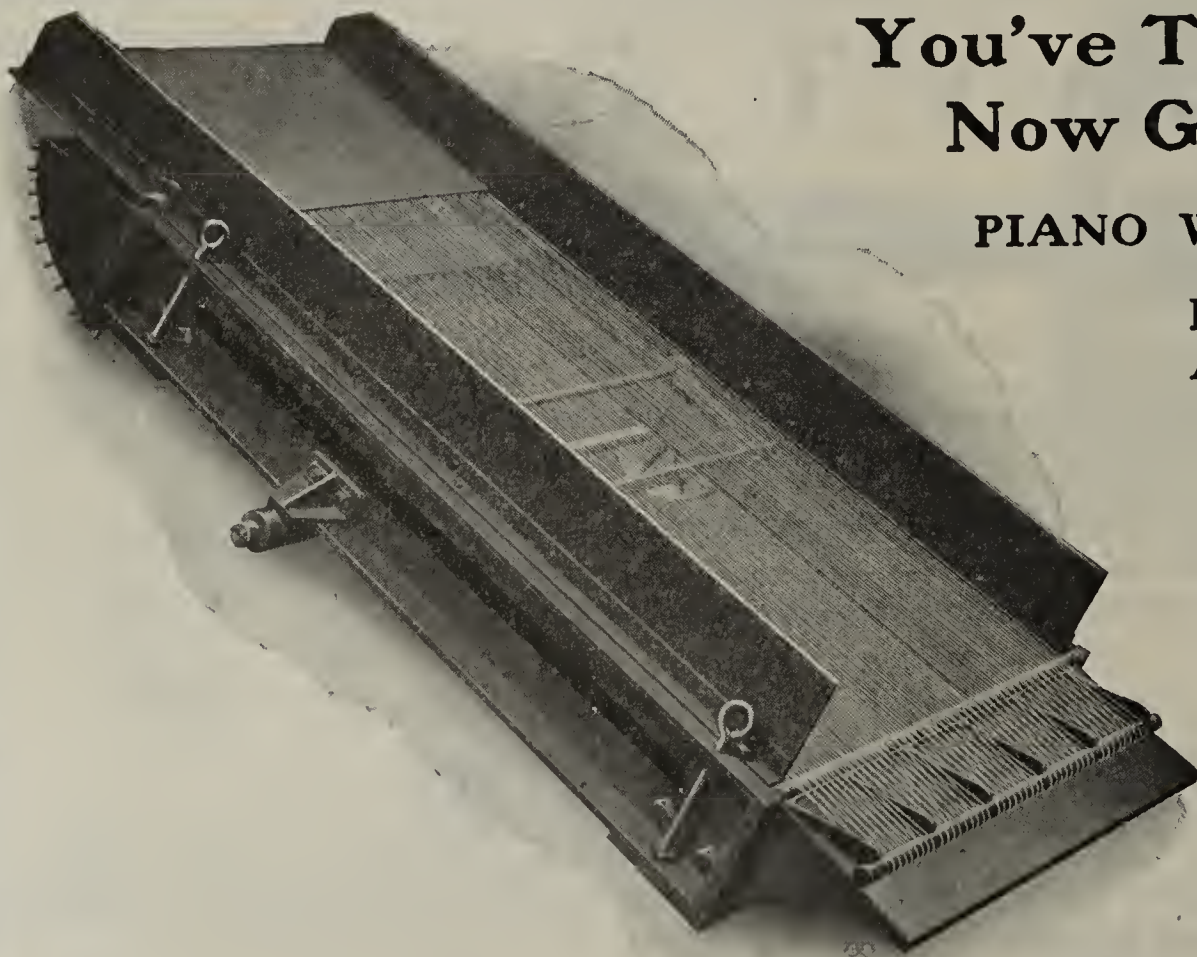


Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.

These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.



You've Tried the Rest
Now Get the Best

PIANO WIRE SCREEN

Five Sizes
Any Mesh

Watch this space for
Our Other
Specialties.

Send for Catalog.

Patented

The Ceramic Supply and Construction Co.,
Contracting Engineers and Machinists. 280 North Front Street, Columbus, Ohio.

HAIGH'S NEW SYSTEM OF CONTINUOUS KILN.

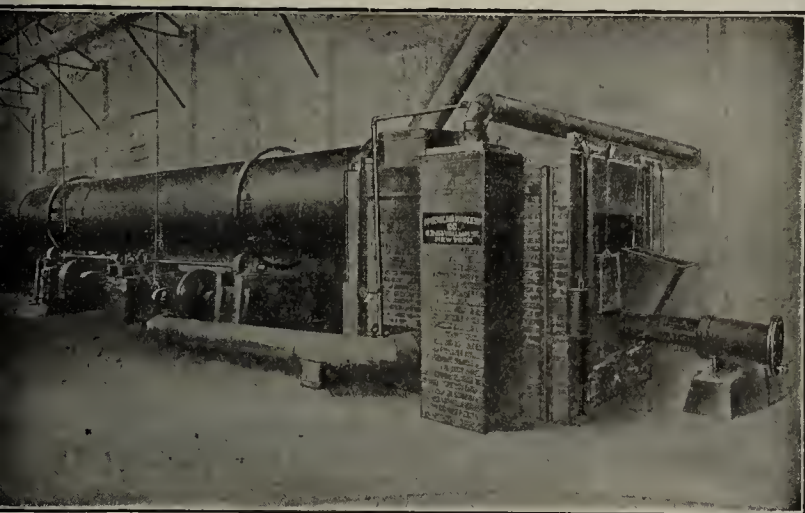
Arranged to Suit All Locations. These Kilns Can be Seen Burning

ROOFING TILE, DRY PRESSED, FACING, FIRE, PAVING AND COMMON BUILDING BRICK, and Burning from 5,000 to 100,000 Brick per Day.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

THIS KILN CAN BE FIRED WITH COAL, WOOD, OIL, NATURAL OR PRODUCER GAS.

For further particulars address **H. HAIGH, Brick Works Engineer, Catskill, N. Y.**



Automatic Improved DRYERS

ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

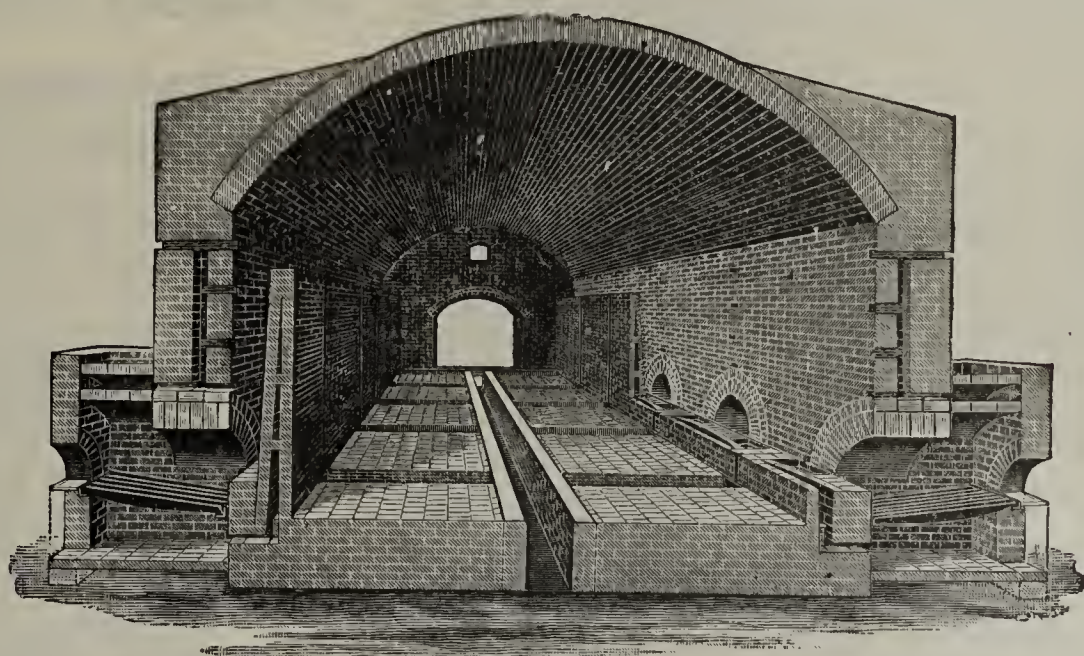
Send for Catalog "C. B."

AMERICAN PROCESS CO.,

68 William Street, New York.

The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Turns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of oil or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

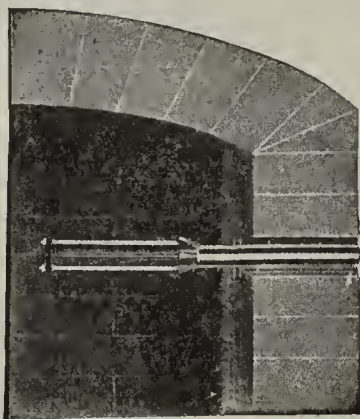
Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

Pittsburgh Kiln Construction Co.,
1251 Morse St., N. E., Washington, D. C.

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

**EDWARD
BROWN
& SON,
311
Walnut St.,
Philadelphia,
Pa.**

Triple Pressure BRICK PRESS

The strongest and most efficient Brick Machine made, and the only Press that gives three distinct pressures to the brick.

**We Build and Equip
Complete**

**SAND-LIME BRICK PLANTS,
SHALE AND CLAY
BRICK PLANTS.**

**Ross-Keller Triple Pressure
Brick Machine Co.**

**Offices
Fullerton Bldg., ST. LOUIS, MO.**



Steam Shovels,

**Railroad and
Traction Trucks,**

all sizes and suitable for all
classes of work.

**Placer Mining Dredges,
River, Harbor and
Ditching Dredges.**

For information write

**The Marion
Steam Shovel Co.,**

671 West Center St., MARION, OHIO.

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.
F. H. HOPKINS & CO., Agents,
Montreal, P. Q.



"If you have not used a Leviathan Belt you have no right to pass judgment upon it."

That's just to the point, and we are always responsible for its proving worth more, dollar for dollar, than any other belt.

Name a belt and ask our proposition.

MAIN BELTING COMPANY,

1224 Carpenter Street, Philadelphia.
59 Market Street, Chicago.

THE BOSS SYSTEM Of Burning Brick.

We Are the Originators of the
Modern Way

Applying

**AIR UNDER PRESSURE,
THE PRINCIPLE of which is
CORRECT.**

**BURNS WITH ALL SLACK OR LIGNITE
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME AND LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS ANY KIND OF CLAY WARE.**

Write for Catalogue.

JOHN C. BOSS,
Monger Bldg. ELKHART, IND.

**Handle Your Clay
With One Man and**

The Thew Steam Shovel.



Type No. 2—For Shales and Fire Clays.

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

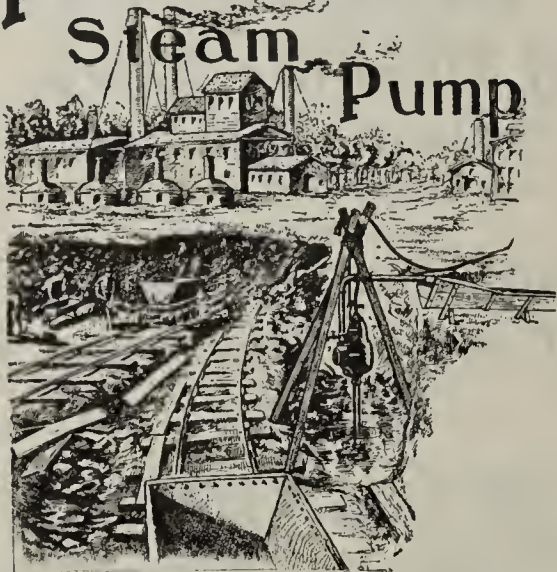
Made in four sizes.
Mounted on Car Wheels
or Traction Wheels.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

WRITE US FOR CATALOGUES OR INFORMATION.

THE THEW AUTOMATIC SHOVEL CO., LORAIN, OHIO.

Pulsometer Steam Pump



DRAINING CLAY PITS.

For this **rough-service** you need a pump that is simplicity itself—one that will handle any kind of dirty, muddy, gritty liquids without suffering the least injury, in short, a

PULSOMETER STEAM PUMP.

No engine, belt, oil, packing or special foundation required; just a steam pipe from boiler—that's all. Operates as well suspended as stationary.

Simple to Install.

Simple to Operate.

PULSOMETER STEAM PUMP CO.,

Illustrated, descriptive catalogue gratis

14 Battery Place, New York.

Chicago Agency, 61-69 No. Jefferson St.

Minimize Your Burning Grievances by Drying Your Bricks Properly.

The Bechtel Drier will do this for you. Cheapest Drier to install, to operate and to maintain. No cars, no trouble.

A Straight Cut in the Clay Column.

Cuts Out the Cuts in the Selling Price.

The Bechtel Automatic Cutter will do this for you. Every cut true and a true cut every time. No stoppage for broken wires.

Write for full information to

Bechtels Limited,
Waterloo, Ont., Canada.

Record of a Six-Track King Radiated Heat Dryer.

"This dryer has tunnels 110 feet long, and is in operation on the brickyard of W. Benj. Davis, Manchester, Va. Dryer has been in use 17 months with no expense for repairs on dryer or cars; present condition of each is excellent. Use three men to move cars from machine into dryer, attend furnaces night and day and take cars out of tunnel ready for the setters. Consumes $2\frac{1}{2}$ tons of coal each twenty-four hours. Highest temperature in tunnels 136 degrees. Number of brick dried as taken from Mr. Davis's books:

1908—June 8, 44,520. June 9, 48,230. June 10, 42,930. June 11, 37,100. June 12, 42,400. June 13, 32,330. Brick dried in six consecutive days 247,510, an average of 41,251 each day."

The above are extracts from a letter written Sept. 26, by Mr. J. W. Holt, manager of Mr Davis's brickyard.

THE KING ENGINEERING CO.,

309 American National Bank Bldg., Richmond, Va.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.



These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Sqaure Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.

ARTHUR **KOPPEL** COMPANY

The Koppel System Of Handling Materials.

Koppel Portable and Permanent Railways are practically imperishable—Easily laid—Economically operated—Adapted to all conditions.

Invaluable for handling all kinds of materials in brick plants or other manufacturing establishments.

ARTHUR KOPPEL COMPANY

Offices and Warehouses

NEW YORK 136 Morris Bldg.	CHICAGO 339c Monadnock Blk.	BOSTON 53 Oliver St.	PITTSBURG 1607 Machesney Bldg.
SAN FRANCISCO 1515 Chronicle Bldg.	BALTIMORE 449 Equitable Bldg.	WASHINGTON, D. C. 11 Fleming Bldg.	

WORKS AT KOPPEL, PA.

The Original ^{EXHAUST STEAM} Dryer is the National.

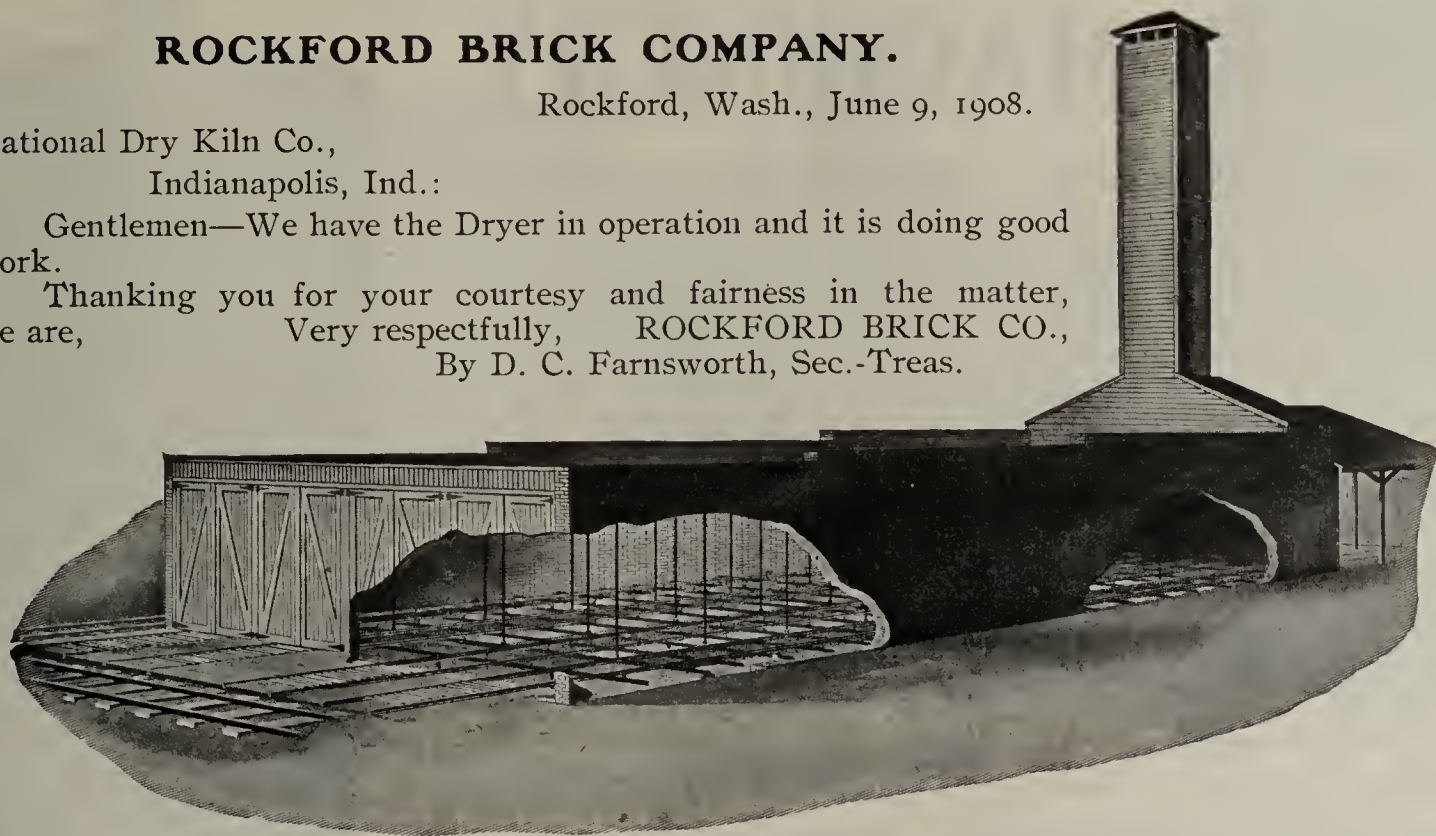
ROCKFORD BRICK COMPANY.

Rockford, Wash., June 9, 1908.

National Dry Kiln Co.,
Indianapolis, Ind.:

Gentlemen—We have the Dryer in operation and it is doing good work.

Thanking you for your courtesy and fairness in the matter,
we are, Very respectfully, ROCKFORD BRICK CO.,
By D. C. Farnsworth, Sec.-Treas.



No Fan.
Steel Roof Supports.

No Engine.

Steel Roller Bearing Cars, etc.

No Fire Danger.

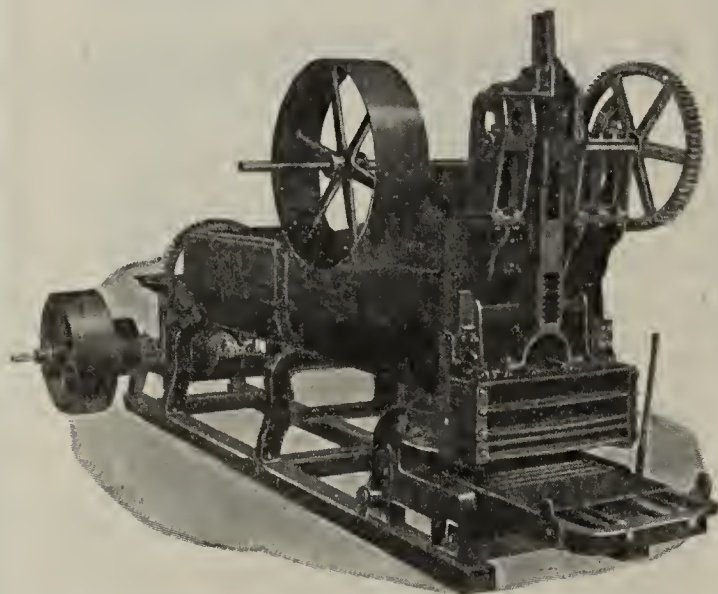
Steel Foundations.
Ask for Cat. 200

C. H. BEALE, Southern Manager,
Montgomery, Ala.

The National Dry Kiln Co., Indianapolis, Ind.

Mention The Clay-Worker.

The Potts Horizontal All Steel and Iron Sand Mould Brick Machine,



DISINTEGRATOR

having Chilled Rolls, Adjustable Steel Cutting Bars and Ring Oiling Bearings, and

MOULD SANDER

makes the Best and most complete outfit for making sand mould brick.

Cost of repairs reduced to minimum.

Quantity and Quality of brick made can not be equaled by any other outfit, no matter what you may pay for it.

The best Drying proposition ever offered.

DONT FAIL TO WRITE FOR CATALOG.

C. & A. Potts & Co. Indianapolis, Ind.

We manufacture a complete line of

BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BARROWS.

The best built. Price \$6.50 each.

Stock size wheel, 20 inches diameter.

(If wanted, 18 inches.)



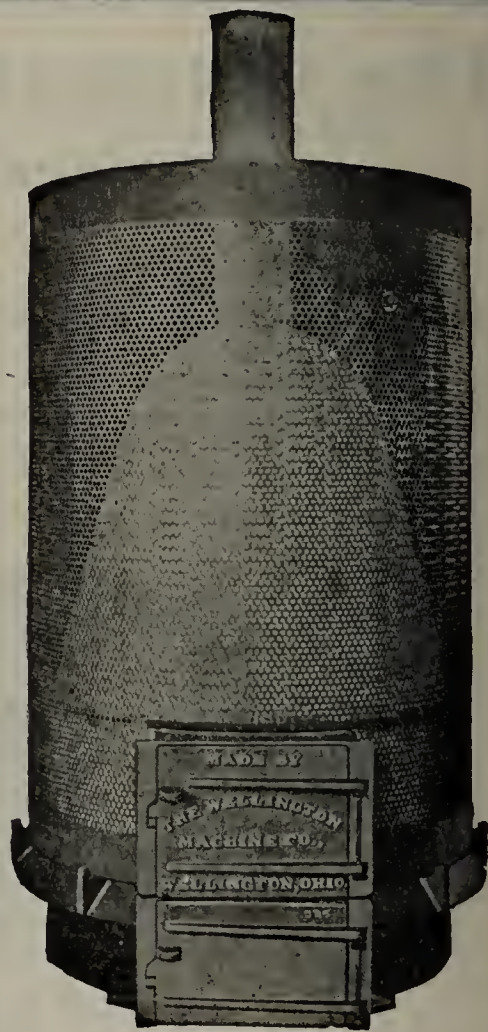
There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.

For catalogue and any further information address

James W. Hensley,

Successor to S. K. Fletcher.

Indianapolis, Ind.



SAND DRYER.

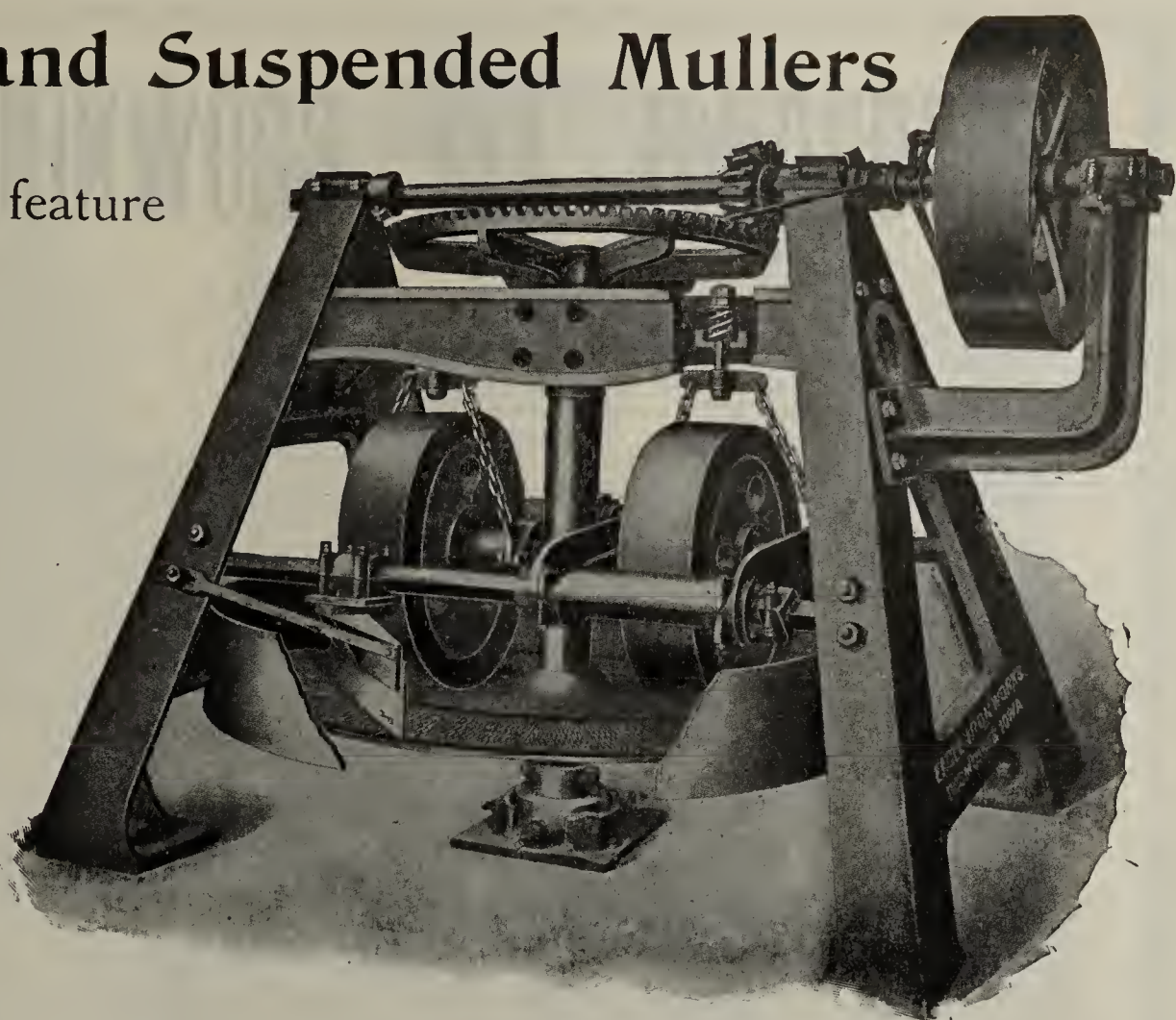
Weight, 1,100 lbs. Every brick work needs one. Diameter over all, 3 ft. 1 in. Height 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

Independent and Suspended Mullers

the distinguishing feature
of our

DRY PANS.

Other valuable
features which our
catalogue fully
describes.



EAGLE IRON WORKS, Des Moines, Ia.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for ; write us.

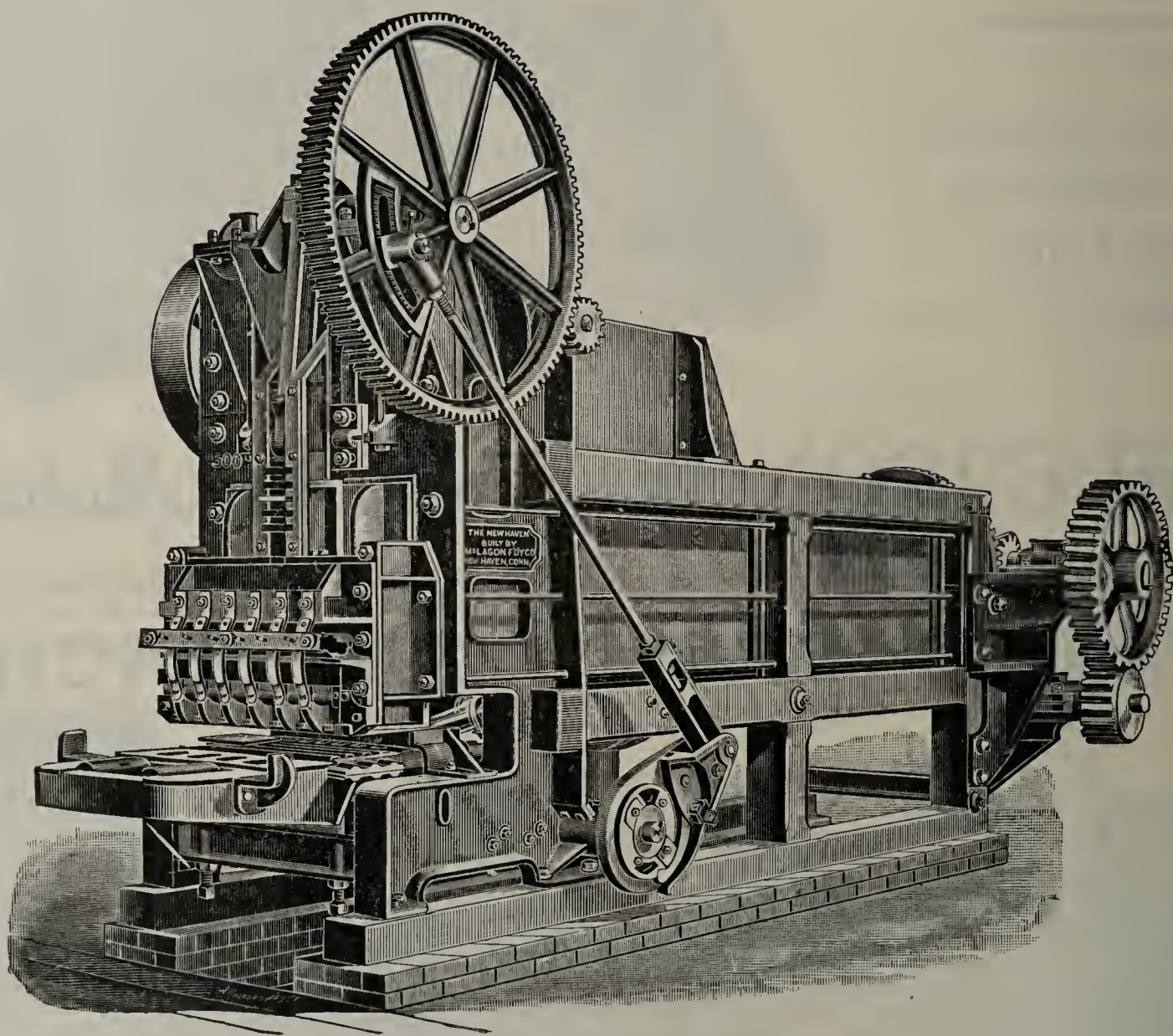
Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.

"ENDURANCE THE CROWNING QUALITY."

In the construction of **New Haven** Brick Machines every wise economy is applied except "cheapness." This is scrupulously avoided, and the buyer may confidently expect the fullest service from every machine sent out. We aim to build every machine in design, material and workmanship, just as carefully as if the purchaser superintended its construction at our works.



"New Haven" Horizontal Brick Machine.

We can furnish machinery equipment of the most improved modern construction for brick manufactories of any capacity at reasonable prices. Shafting, hangers, bearings, pulleys, belting, gearing and machine work of all description. We will be pleased to submit estimates for a complete plant, or any portion of one. Specials drawings and plans furnished free of charge with complete outfits.

The EASTERN MACHINERY CO.,

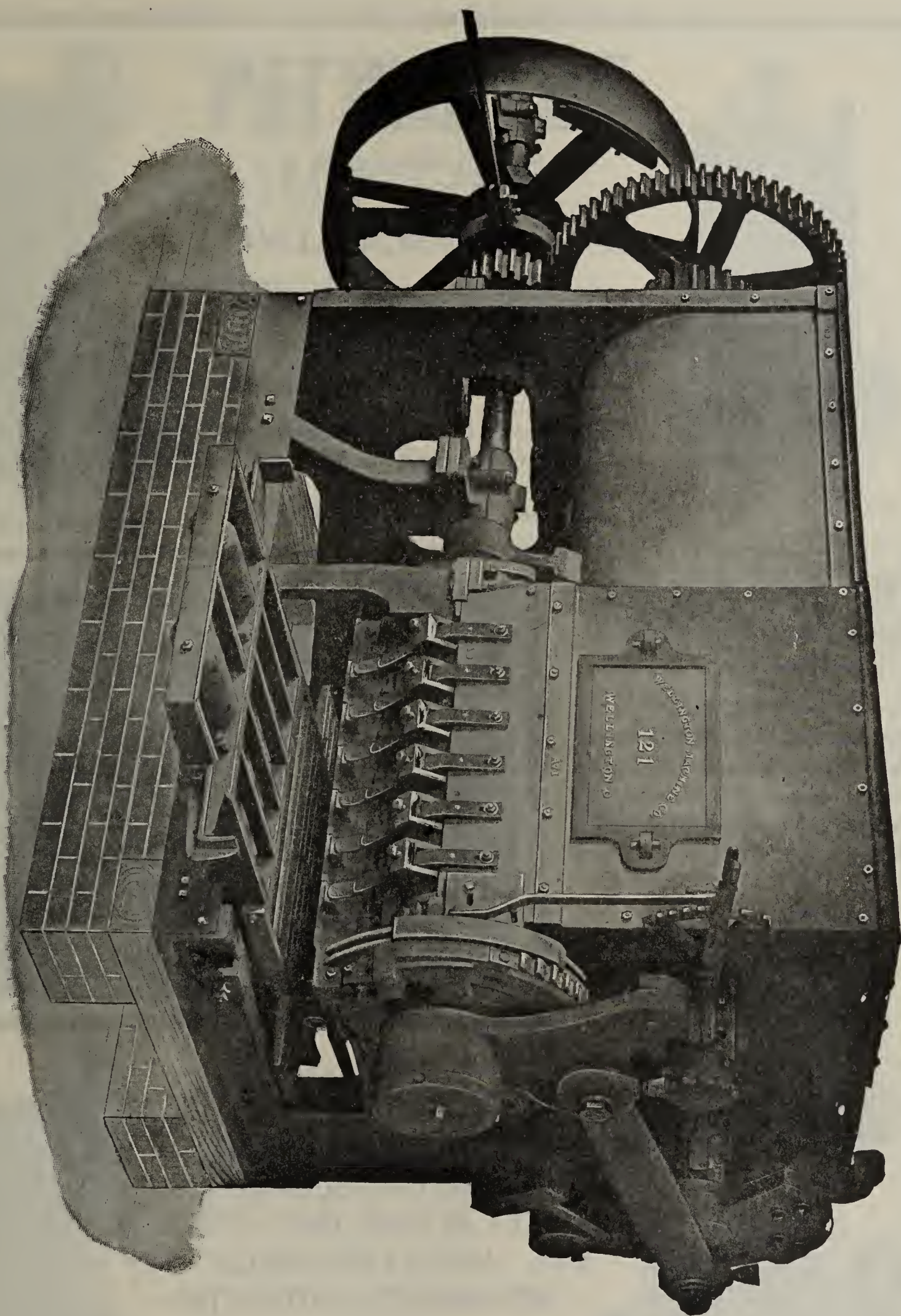
NEW HAVEN, CONN.

Mention The Clay-Worker.

OVER
250
"Monarch"
Brick
Machines
in use.

OVER
600
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators,
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Clay Cars,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The Big "No. 6" "Monarch" Brick Machine.

REMEMBER:

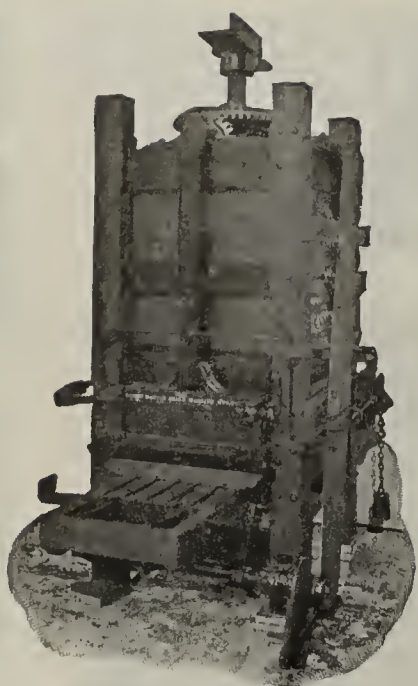
You are losing
money wheeling
brick unless you
have our

ROLLER-BEARING
BARROWS.

The Wellington Machine Co.,
WELLINGTON,
OHIO.

Send for Catalogue.

Mention the Clay-Worker.

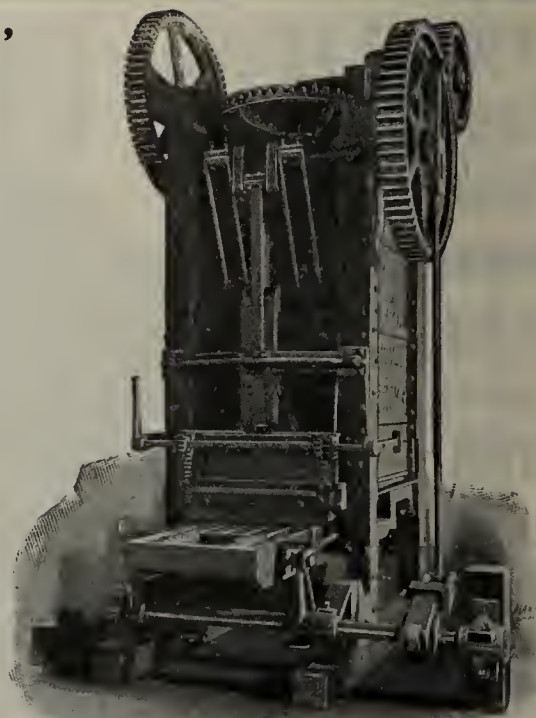
ANIMAL POWER
MACHINE

THE "MARTIN"

PRACTICAL BRICK-MAKING MACHINERY DOWN-TO-DATE

"We Furnish Everything
the Brickmaker Needs"

From CLAY BANK to KILNS

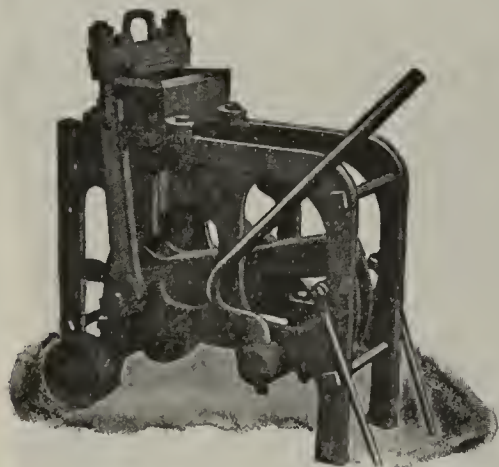


STYLE "A" BRICK MACHINE

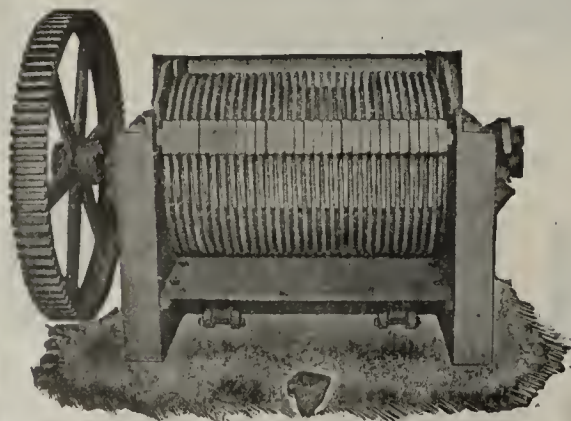
THE OLD WAY

Of Handling and Drying
BRICK--GET WISE

Let Us Figure With You on
the Most Complete and
Labor-Saving System Yet
Devised--The "Martin" Way
--The ONLY SURE WAY



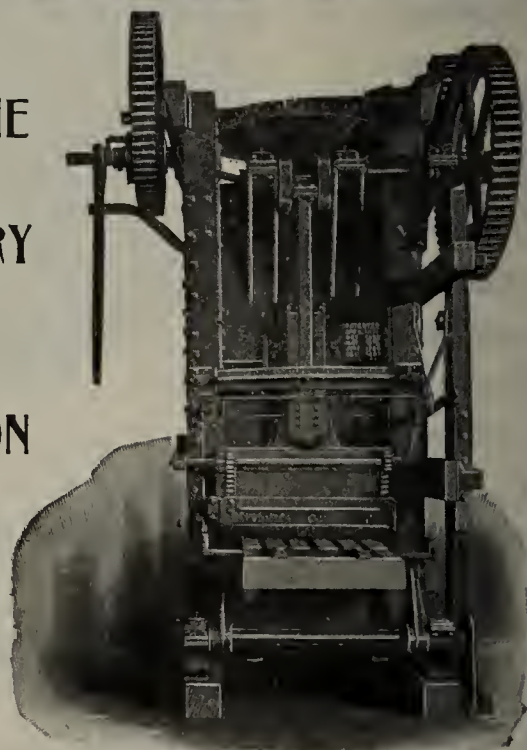
HAND REPRESSES



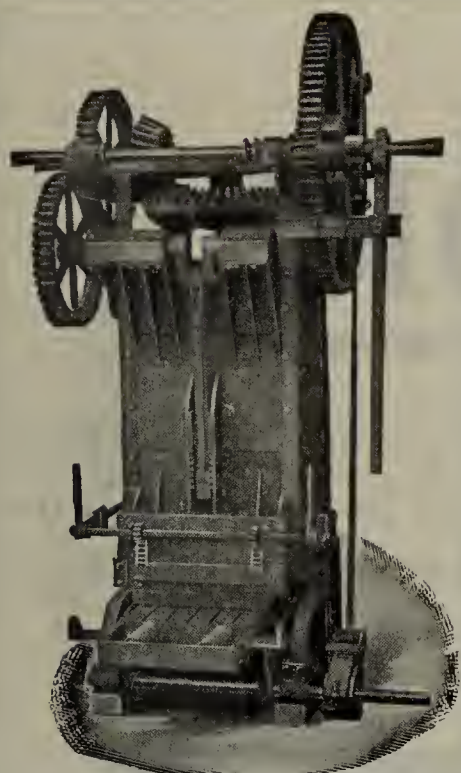
CLAY SCREENS

THE MARTIN COMPANY
HAS THE MOST COMPLETE LINE
OF HIGH-GRADE CRUSHING
AND PULVERIZING MACHINERY
LET US KNOW YOUR NEEDS
AND GET OUR PRICES
WE GUARANTEE SATISFACTION

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



STYLE "A" BRICK MACHINE



STYLE "P" BRICK MACHINE

THE "MARTIN"

BRICK DRYERS

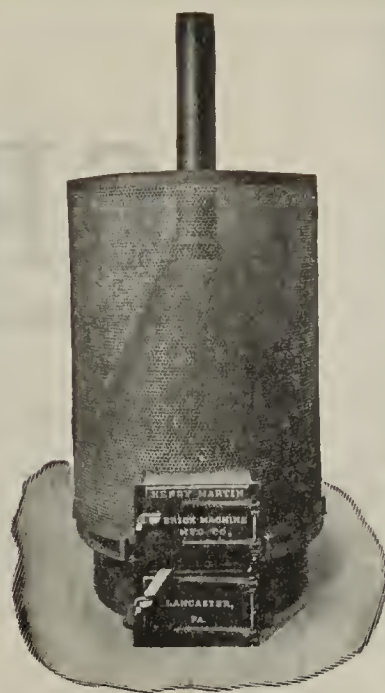
ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

FULLY COVERED BY PATENTS

PATENTED

Feb. 22, 1898 -- 599509
Oct. 10, 1905 -- 95520
Nov. 14, 1905 -- 804489
May 26, 1908 -- 888831

UNITED STATES & CANADA



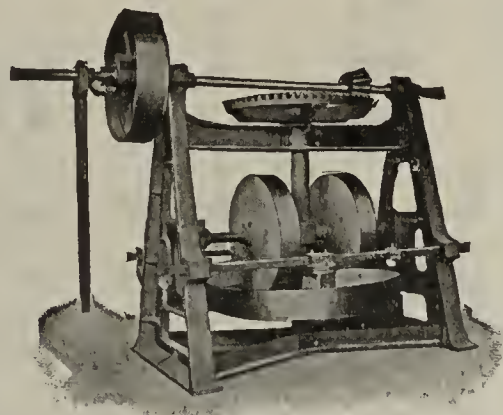
MARTIN'S SAND DRYER



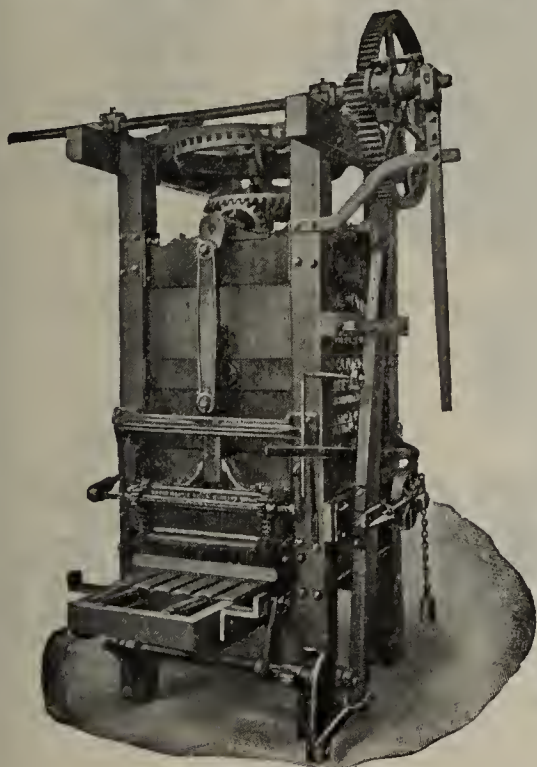
THE NEW WAY

Of Handling and Drying
Brick==INVESTIGATE

The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem -- Quick to Install and
Low in Price -- Write Us.



DRY OR WET PANS



STYLE "B" BRICK MACHINE

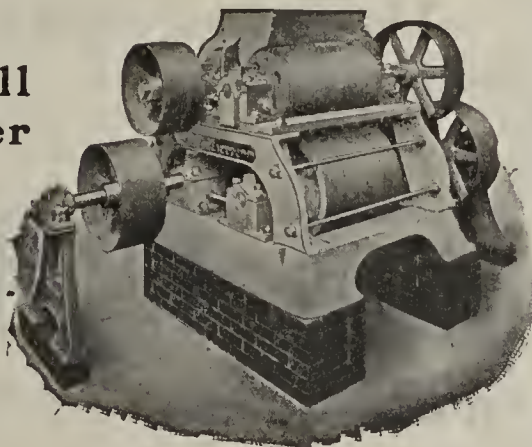
THE "MARTIN" COMPANY
AT LANCASTER, PA.

Own and Control These
Important Dryer Patents
and Have Authorized
— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



DISINTEGRATORS

GRANULATORS.

We have many patterns of Granulators, including spur geared, bevel geared, pushing and pulling; large and small sizes. The severe requirements under which a granulator has to work are anticipated in the design and construction.



THE BREWER NO. 17

is a spur geared, pushing granulator of large size, great strength and weight. The shell is 12 feet long. The granulating shaft is 10 in. diameter. The knives (48 of them) are forged from hard, high carbon steel and each one is independently adjustable for pitch. Main gears, 8 in. face. Weight 18,000 lbs.

Our catalog shows a complete line of clayworking machines with full specifications.

If Marked



It's Good.

H. BREWER & CO.,

Tecumseh, Michigan.

If Marked



It's Good.

The Steele Automatic Cutter.



Lavonia, Ga., Dec. 9, 1907.

Messrs. J. C. Steele & Sons, Statesville, N. C.:

Gentlemen—It is pleasant and delightful work when operating your No. 3 machine with a 20 h.p. engine and making 3500 bricks per hour. Your rotary automatic cutter can't be beat; it cuts square and smooth, Messrs. Bowers Bros. of the Canon Brick Yard, came to my plant at Royston, Ga. to see my machine work and of course were so pleased they ordered one of your machines. I have run two machines of other manufacture and they were both more complicated and expensive to keep repaired. I recommend your machines to anyone entering the business.

Very respectfully,
W. E. STEVENSON.

(Signed)

We build a complete line of clayworking machinery.

Write for further information.

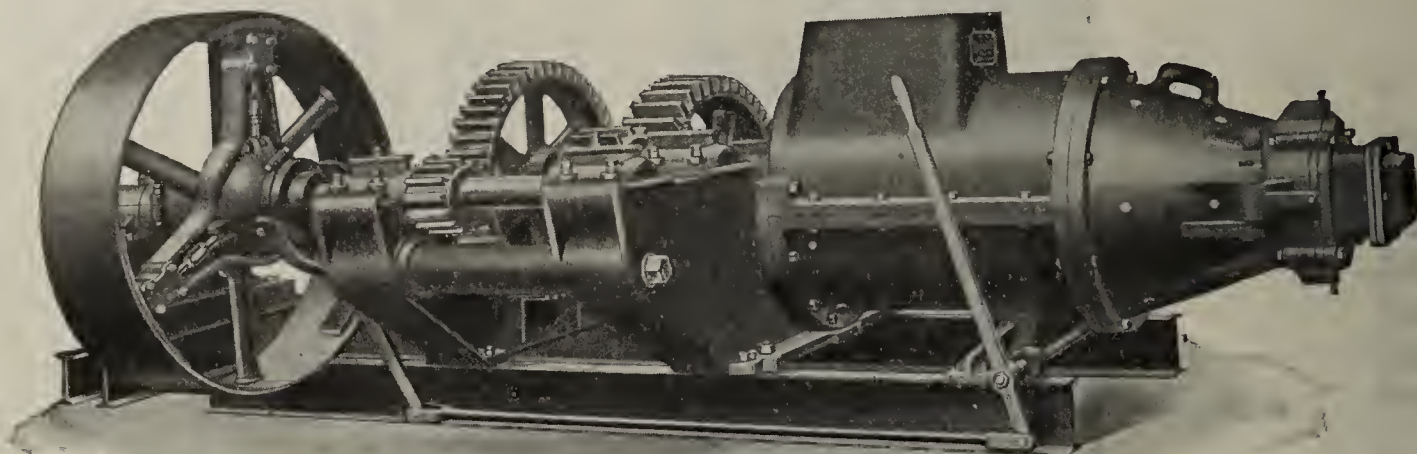
J. C. STEELE & SONS,

Success Brick Machinery Co., Memphis, Tenn.,
Western Agents.

Mention The Clay-Worker.

STATESVILLE, N. C.

Modern Clayworking Machinery



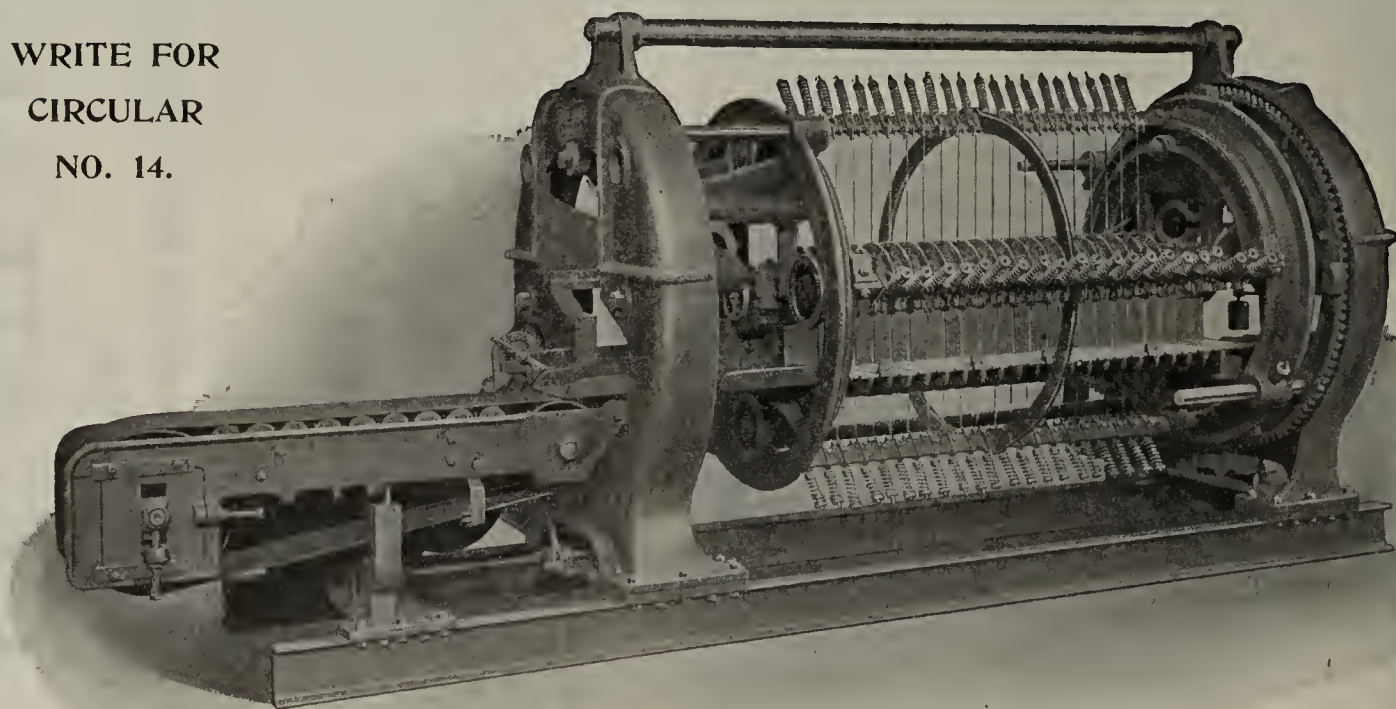
No. 10 Auger Brick Machine.
Capacity 50,000 to 75,000 per Day.

A GOOD MACHINE AND EASILY GET-AT-ABLE.

CANTON REPRESS is the Best of its Class.

ASK US FOR THE PROOF.

WRITE FOR
CIRCULAR
NO. 14.



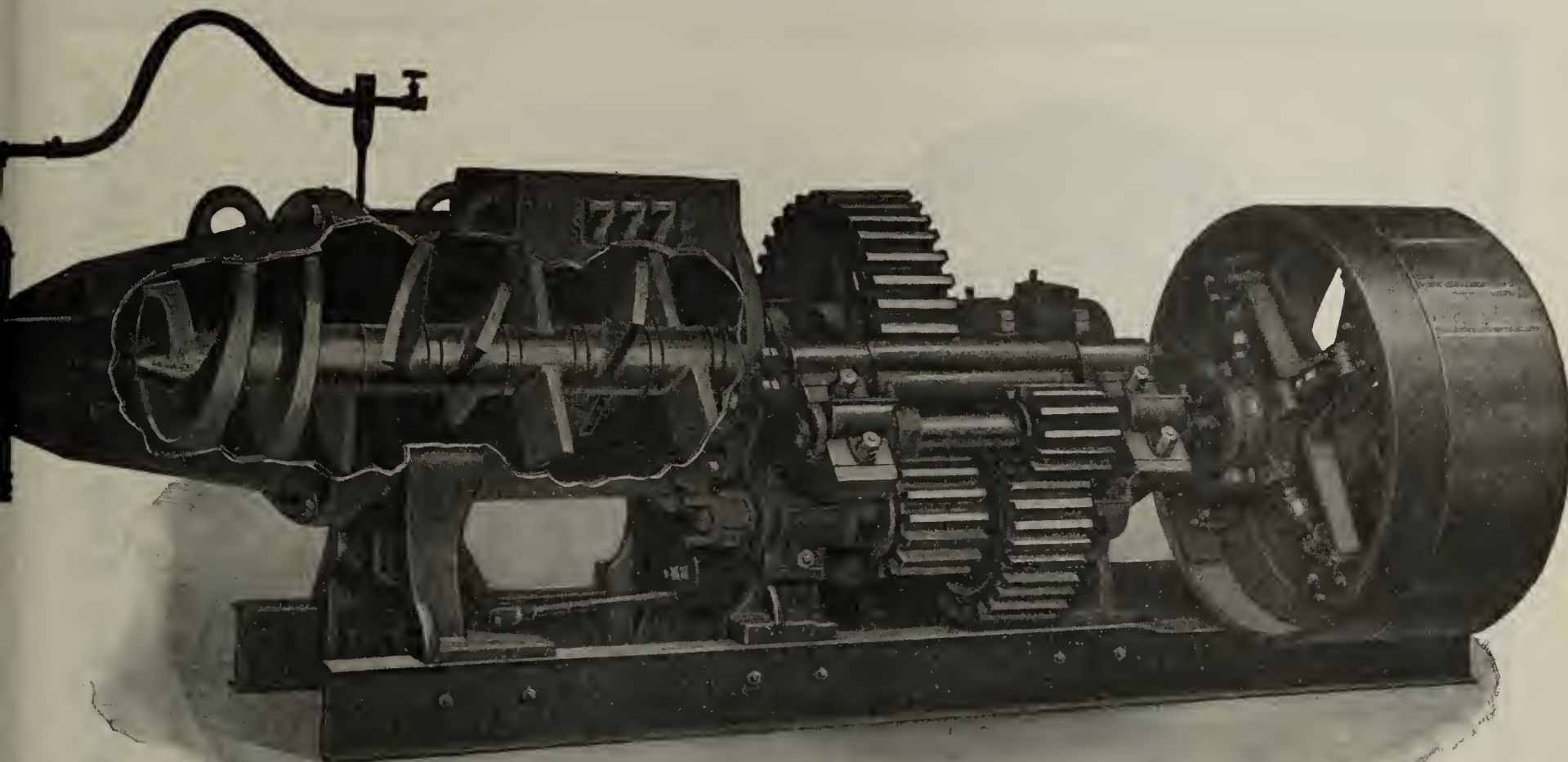
Rotary Automatic Cutting Table.
Capacity Up to 100,000 Daily.

Cuts Brick Within 30 Inches of the Die. End Frames are Stationary.
COMPLETE LINE OF CLAYWORKING MACHINERY.

THE BONNOT COMPANY,

305 NEW YORK LIFE BLDG.,
KANSAS CITY, MO.

Canton, Ohio.



RAYMOND "777" BRICK MACHINE.

Over six million brick made every day on the famous Raymond "777" Brick Machine.

It is the embodiment of strength, durability and performance—so with all of our manufacture.

We issue the following publications which may be obtained upon application to our Publicity Department:

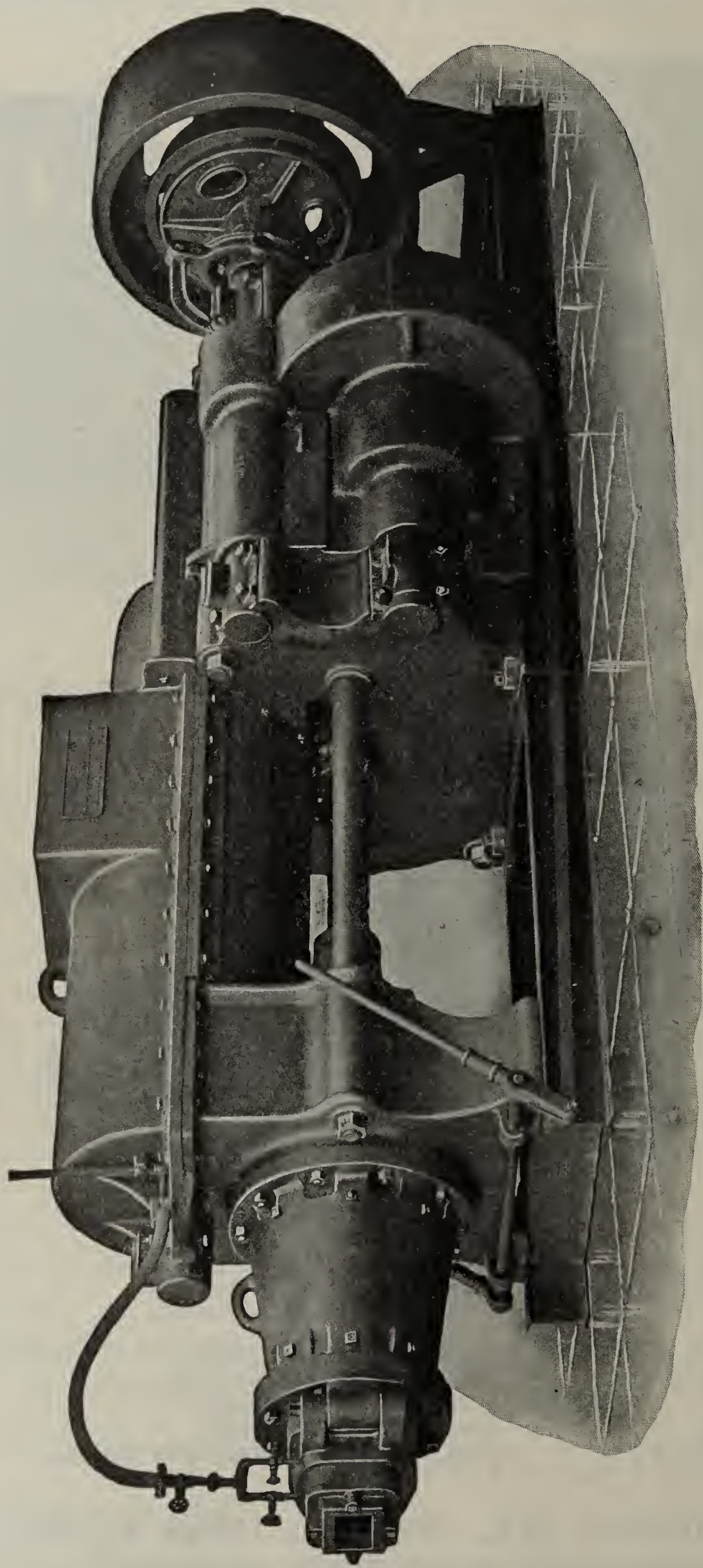
GENERAL CATALOG CATALOG OF DRAWINGS AND SPECIFICATIONS "Smiles."

- | | |
|---|--|
| Exhibits | Exhibits |
| 2040. Nine-foot Heavy Duty Dry Pan. | 2071. Standard Pug Mills. |
| 2042. No. 2 Rotary Automatic Cutting Table. | 2072. Single Geared Pug Mills. |
| 2044. "999" Brick Machine. | 2075. Semi-Automatic Cutter. |
| 2045. Perfection Hand Represses. | 2077. Radiated Heat Dryer. |
| 2046. Clay Conveyors. | 2078. Soft Mud Machinery. |
| 2047. Four Roll Crushers. | 2079. Belt Apron Type Clay Elevator. |
| 2049. Niagara Hollow Ware Machine. | 2080. "555" Brick Machine. |
| 2052. Victor Repress. | 2081. Automatic Wet Pan Emptier. |
| 2053. Granulators and Bevel Geared Pug Mills. | 2082. Piano Wire Screens. |
| 2055. Clay Elevating Machinery. | 2083. No. 1 Automatic Cutter. |
| 2056. Portable Track. | 2084. Dryer Cars. |
| 2060. Roofing Tile Designs. | 2085. No. 3 Hand Dry Press. |
| 2061. Dry Presses and Dry Press Machinery. | 2086. Automatic End Cutter. |
| 2062. Automatic Tile Cutter. | 2087. "777" Brick Machine. |
| 2063. System of Open Air Drying. | 2088. Hoisting Apparatus. |
| 2069. Peerless Smooth Roll Crusher. | 2089. No. 2 Combination Brick Machine. |
| 2070. No. 3 Brick and Tile Machine. | |

THE C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

The Largest Exclusive Builders of Clay Working Machinery in the World.

Another Brick Machine.



This is a Brick Machine of massive proportions and of modern construction throughout, designed for large capacity and severe service. The gearing, shafting and other parts are very heavy. The gearing is protected by a removable dust and accident proof covering, hinged for convenient access to the interior. The feeding chamber is of ample diameter and length, and this result is obtained without excessive overhang of auger shaft. The auger shaft is supported by three journal bearings of sufficient distance apart to give it a substantial support. The part of the auger shaft in the clay chamber is about 4 feet in length, while the part outside is more than 9 feet long.

The machine is mounted on steel "I" beam sills between which are placed heavy cast iron spreaders with flanges, affording a substantial method of attaching the machine to its foundation. The outer end of the pulley shaft is supported by a rigid stand having an adjustable journal box.

Length of machine over all, 19 ft.

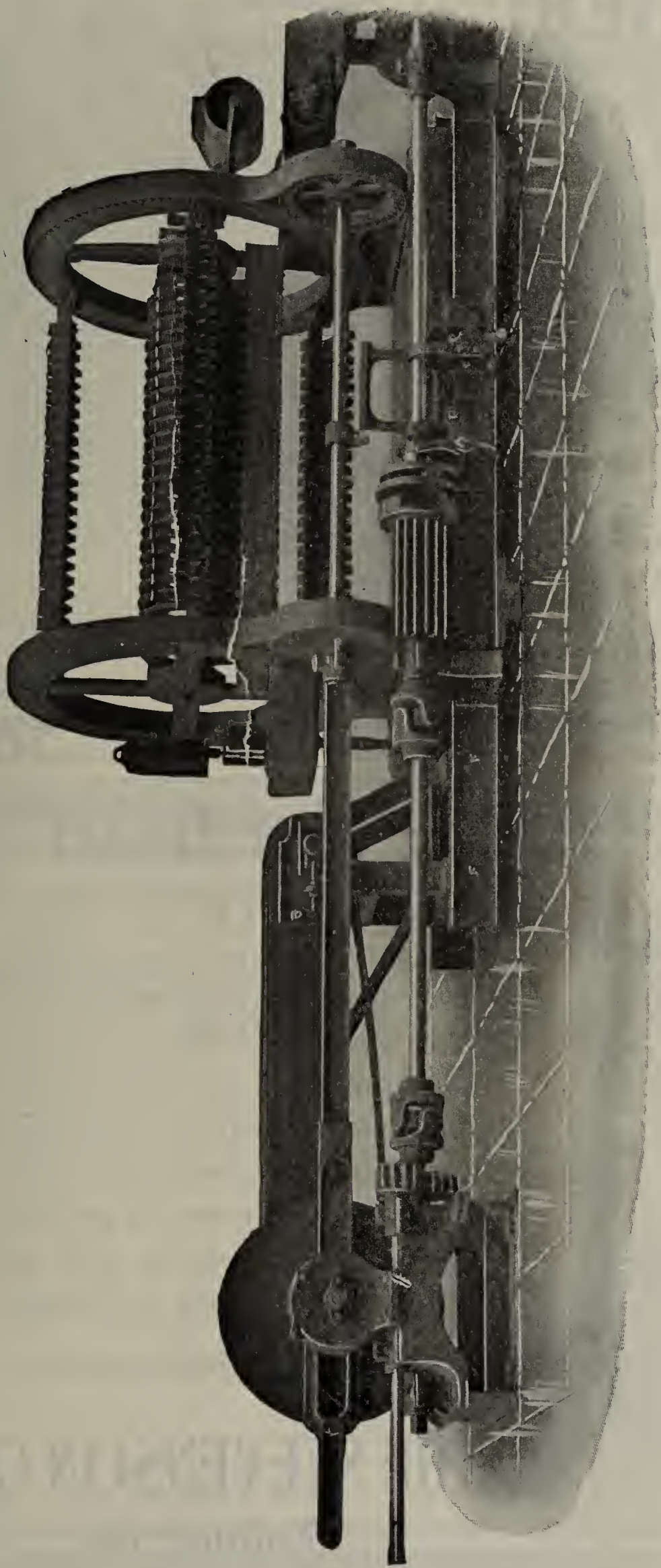
Height from floor to top of hopper, 5 ft. 8 in.

Size of hopper, 26-in. x 26-in. Weight of machine about 26,000 pounds.

E. M. FREESE & CO., Galion, Ohio.

(Mention The Clay-Worker.)

An Improved Rotating Automatic Cutter.



Our Rotating Automatic Cutters are the result of many years' constant hammering at a single type of Cutter. One of the three sizes we are building will suit your Stiff Mud Brick Machine.

We ship on trial—YOU say whether our guarantee of "satisfactory operation" is fulfilled. If desired a man will be sent to arrange details of installation.

These Cutters will give you satisfaction when all others have failed.

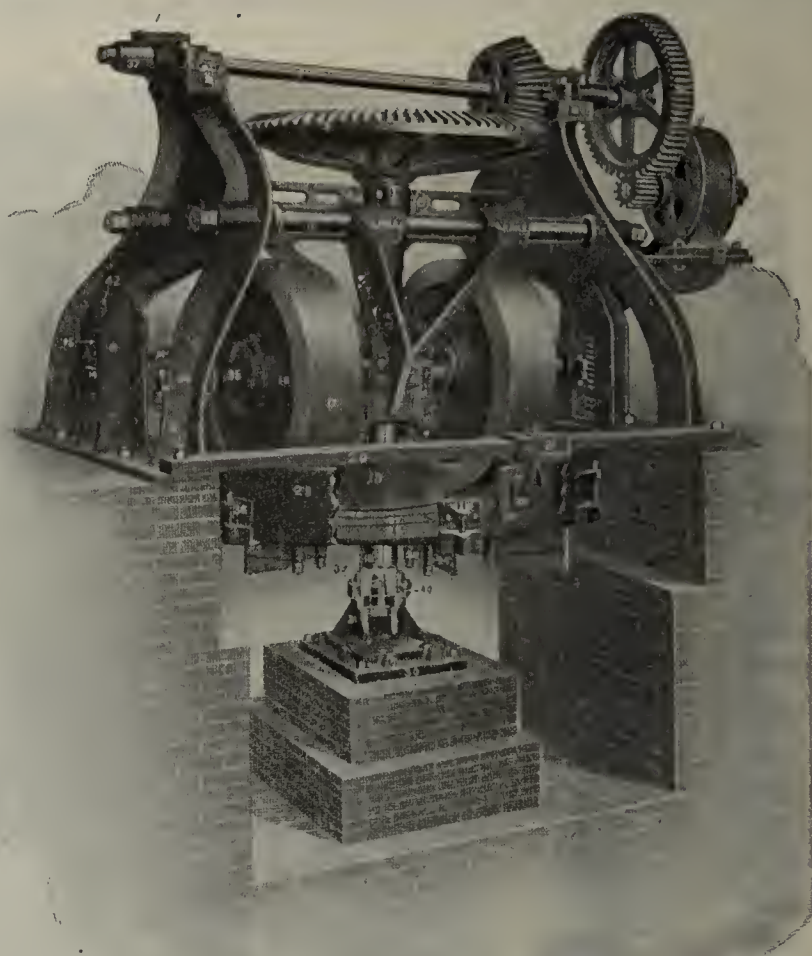
(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



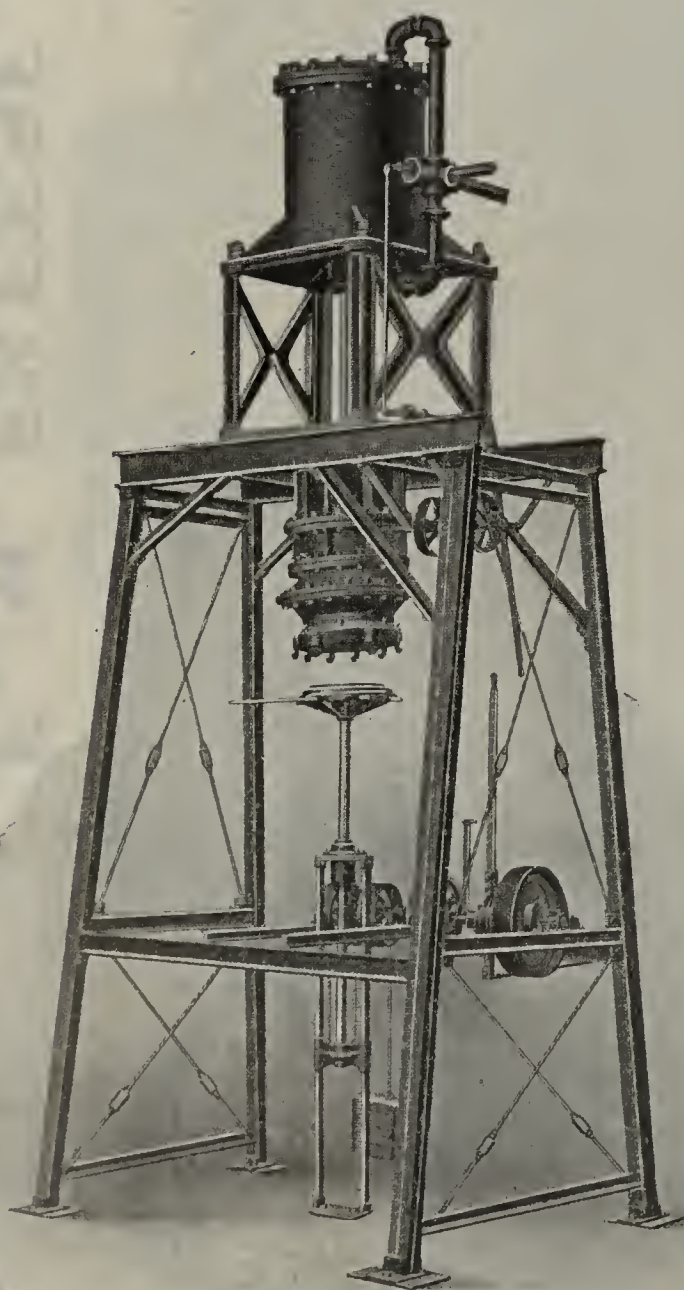
You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.



THE HARRINGTON AND KING PERFORATING CO

PERFORATED METALS

OF EVERY DESCRIPTION

AND

FOR ALL PURPOSES

FOR SCREENS OF ALL KINDS

PERFORATED STEEL FOR CLAY SCREENS.

Samples or blue prints with prices furnished on request.

For Chute or Gravity Screens, Shaking or Vibrating Screens, Revolving Screens, Dry Pan Screens.

For Cleaning and Grading Clay, Shale, Sand, Cement, Coal, Stone, Etc.

For Pallets or Trays, Car Bottoms, Drying Floors, Conveyor Bottoms, Separators, Etc.

NEW YORK OFFICE
No. 114 Liberty St.

No. 231 North Union Street,

CHICAGO, ILL., U. S. A.

IF YOU WANT SATISFACTION

we can give it to you, so far as the drying of your brick is concerned.

Rodgers Waste Heat Dryers

stand for

Reliability
Originality
Durability
Guarantee
Economy
Rapidity
Satisfaction.

What more could you ask for in a Dryer?

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

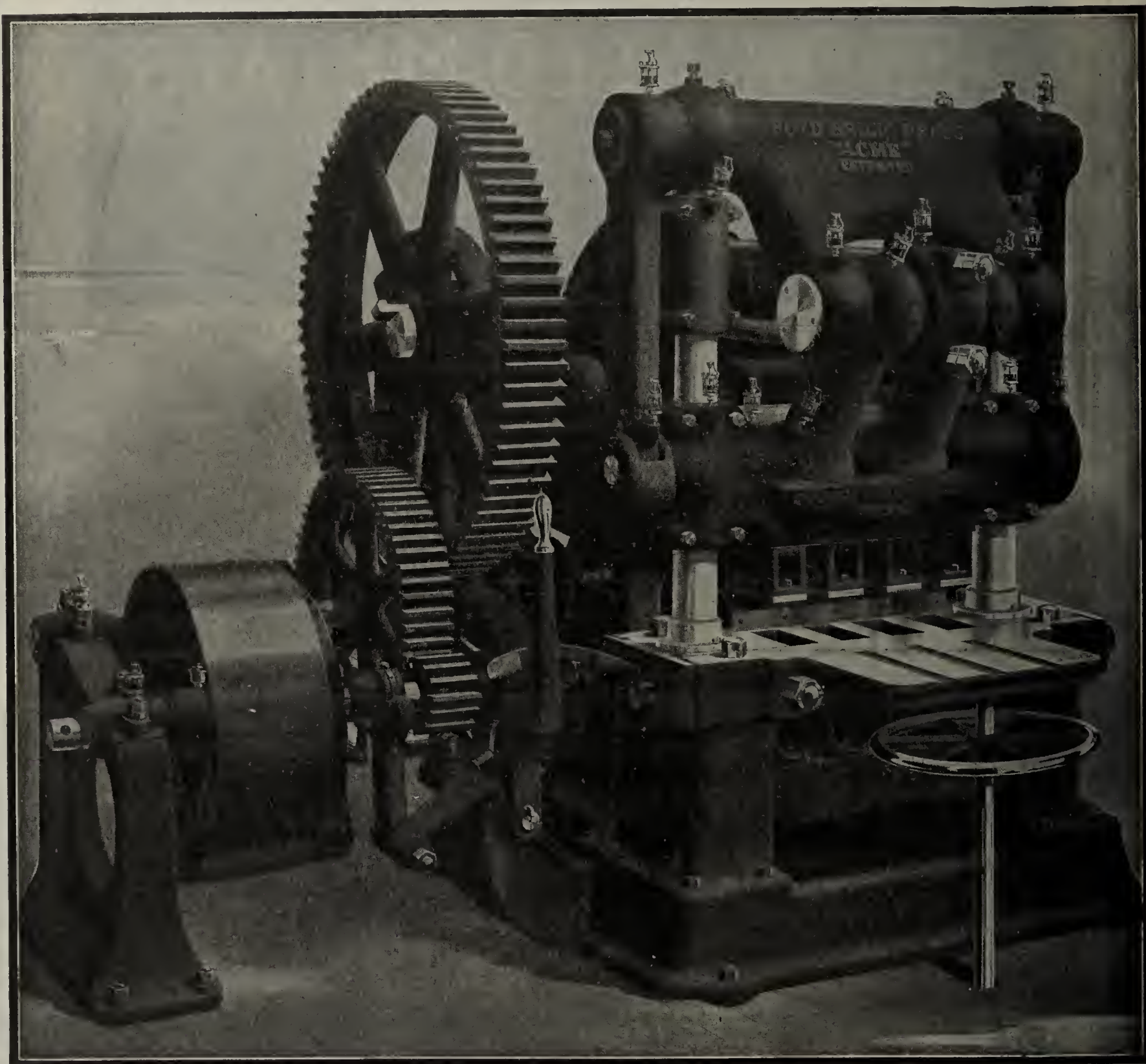
108 LA SALLE ST.

CHICAGO.

Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold "Acme."



We have been building this type of machine for over ten years. It has all improvements to date and embodies all the special features of the original Boyd Press.

Detailed perfection, strength, endurance and quality of product have made THE BOYD the Brick Press by which all others are judged.

We will send to any responsible party a *Boyd Brick Press on trial* under the broadest and safest guarantee. We take the machine back if not satisfactory.

Chisholm, Boyd & White Company,

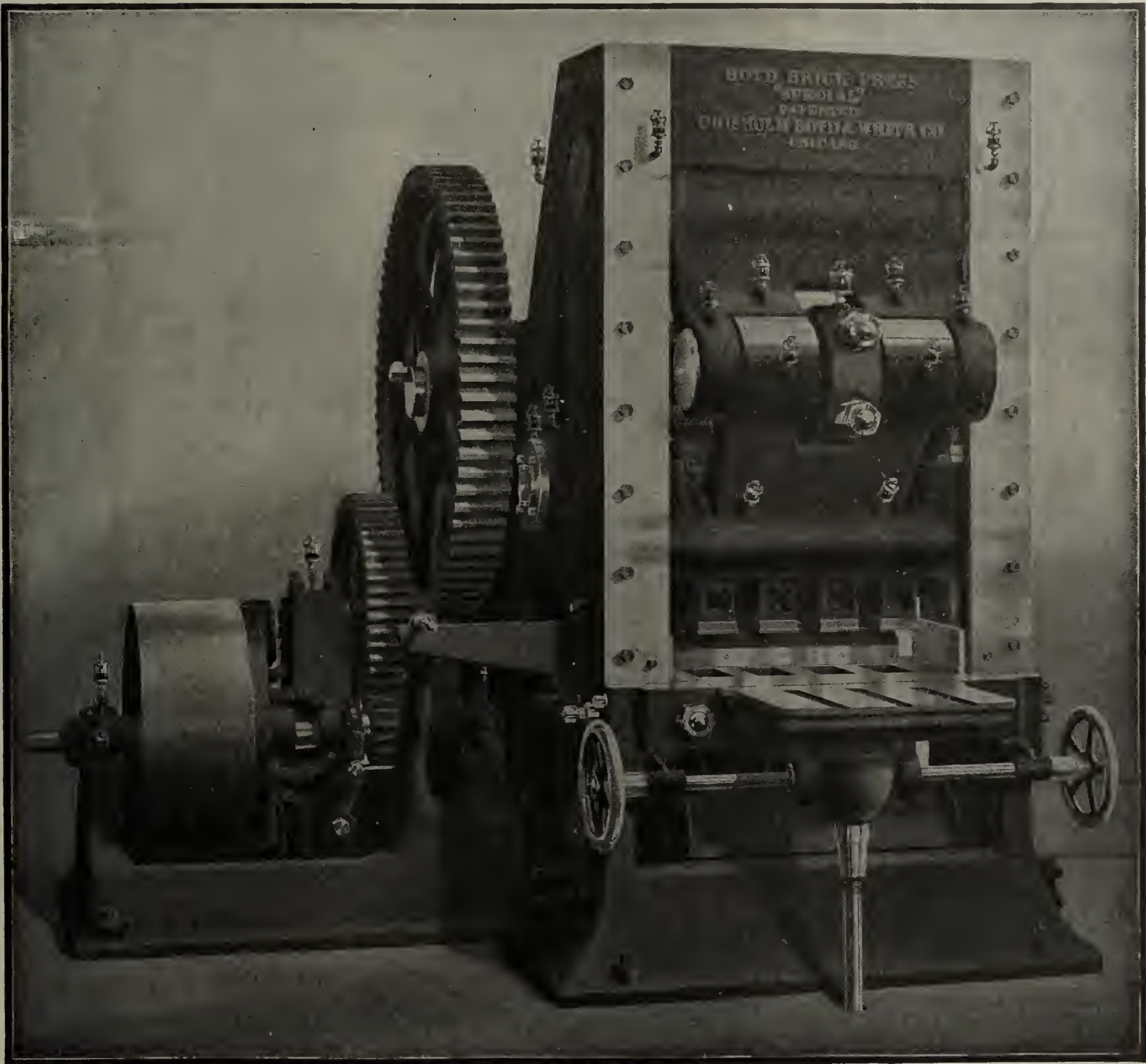
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Boyd Brick Press

Built in Two, Four and Six-Mold Sizes.



FOUR-MOLD SPECIAL.

BRICK PLANTS designed and complete machinery equipment furnished. Machinery and product guaranteed.

More Boyd Presses in use than all other Press Brick Machines combined.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 19 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

The Grath Special Brick Press

Patented.

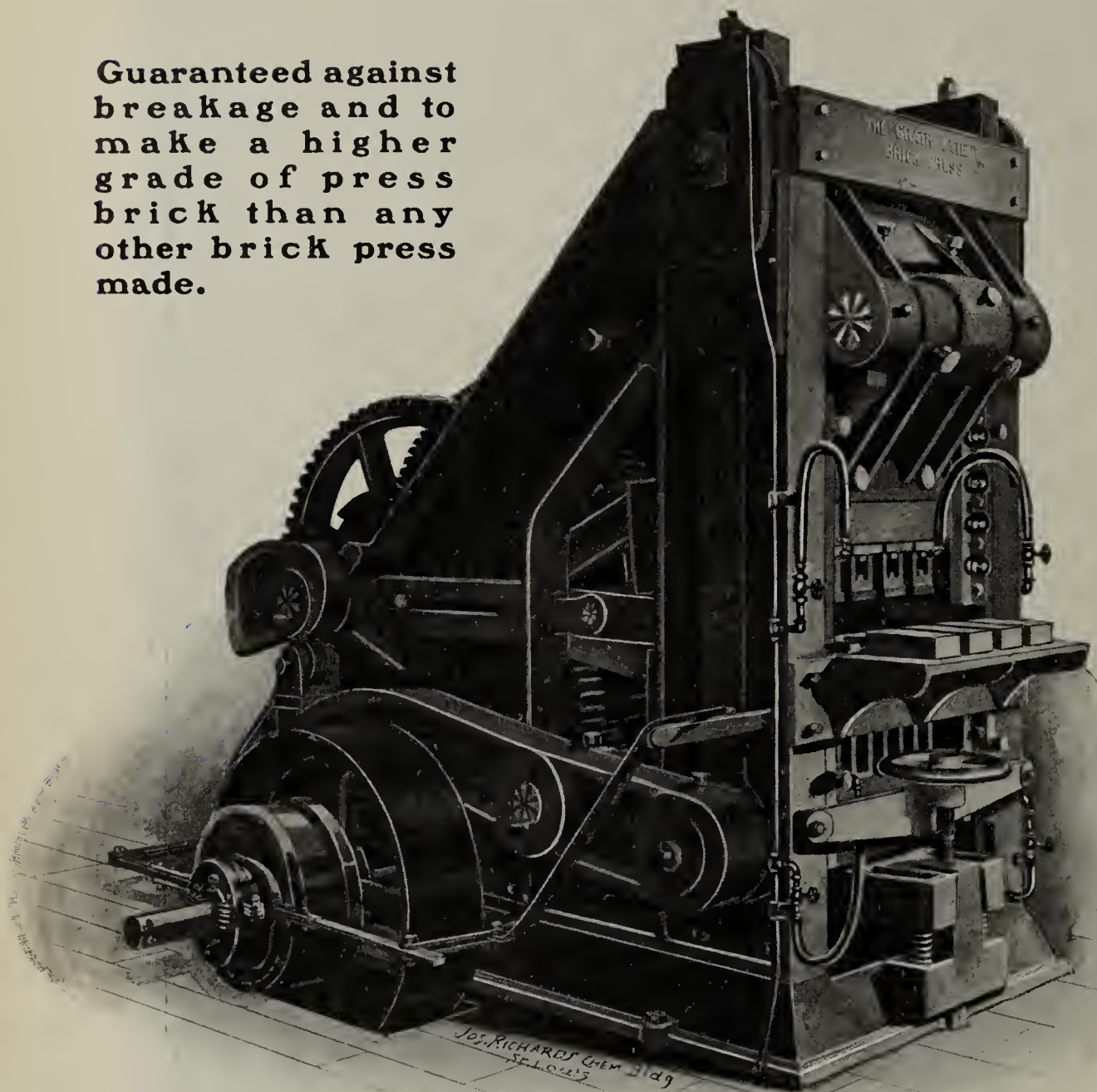
Made in Two, Three, Four and Five-Mold Sizes.

THE ONLY PERFECT BRICK PRESS

For SAND=LIME and DRY CLAY BRICK of Unequaled Quality.

FOUR MOLD MODEL.

Guaranteed against breakage and to make a higher grade of press brick than any other brick press made.



BRICKMAKERS

Do not buy Brick Presses every month or year.

When you **do** buy get a **modern** press. It costs no more than one which is **out of date**.

Unless the press is **double geared**, with gears between frames and bearings, which prevents all side strain and twisting of crank shaft, it is out of date and behind the times.

The above construction is contained in the **Grath Special** and is securely covered by patents. All infringements will be prosecuted.

THE PRESS OF TODAY.

THE ALBERTA PORTLAND CEMENT CO.

W. P. Grath, St. Louis, Mo.:

[Copy]

Sandstone, Alta., Sept. 26, 1907.

Dear Sir—Replying to your favor of recent date regarding Grath Special press purchased from you, would say that after working your press alongside another well-known make, your press has proved itself vastly superior in every way; it is stronger, simpler, easier of adjustment, makes more brick, and of much better quality.

After a long experience with presses, having operated five (5) different presses each of different makes, I consider yours "THE BEST YET," in short, "AN IDEAL PRESS."

Wishing you the success your press merits

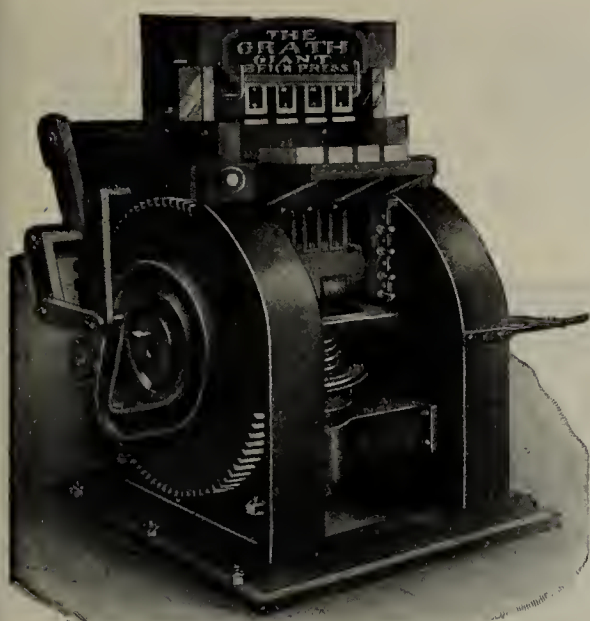
Yours truly, G. W. DELLER, SUPT.
Alberta Portland Cement Co., Limited.

Illinois Supply & Construction Co.,

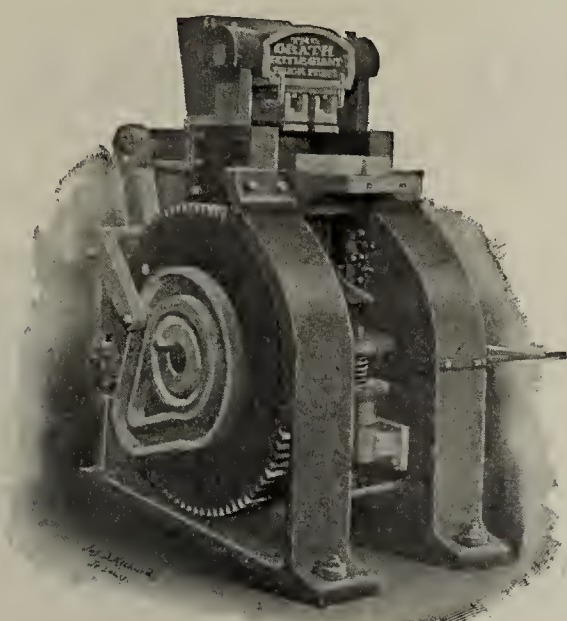
Suite 512 and 513 Holland Bldg.

St. Louis, Mo., U. S. A.

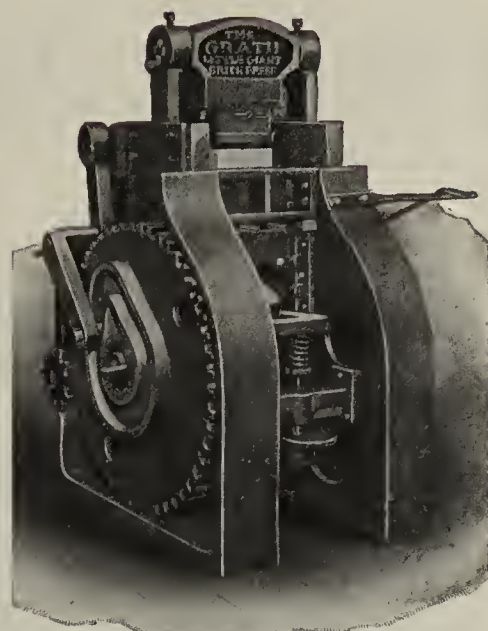
Mention The Clay-Worker.



**THE GRATH GIANT FOUR MOLD
BRICK PRESS**
For Fine Press Brick
From Dry Clay or Sand-Lime.



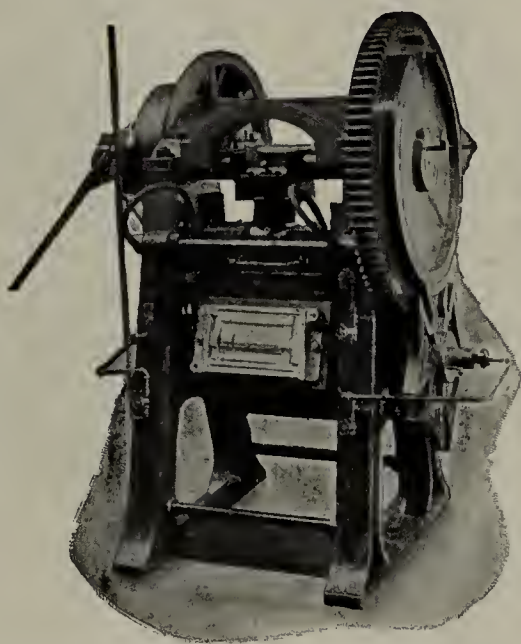
**THE GRATH LITTLE GIANT TWO
MOLD BRICK PRESS**
For Fine Dry Press Brick.



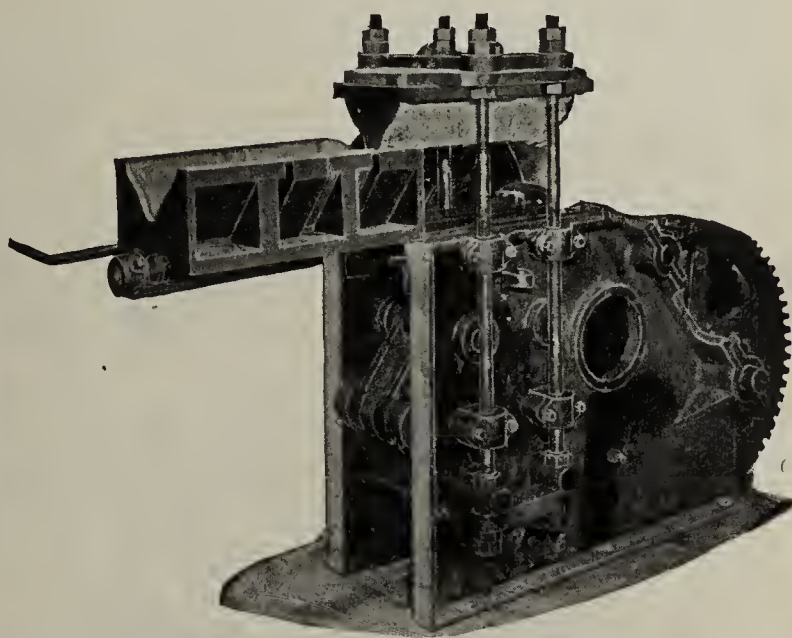
**THE GRATH LITTLE GIANT
ONE MOLD BRICK PRESS**
For Perfect Sand-Lime or
Dry Clay Face Brick.



**The Grath Special Hand-Power Brick
Press, for Plain and Ornamental
Press Brick.**
From Dry or Semi-Dry Clay or Sand-Lime
Guaranteed against breakage.



**The Grath Revolving Roofing
Tile Press.**
Strongest and Simplest Made.
For Plaster or Metal Dies.
Top Cross Head and Pentagon Adjustable.



The Grath Roofing Tile and Trimming Press
No Roofing Tile Plant
Complete Without This Press.
For Plaster or Metal Dies.
For Special Tiles, Hips and Crestings.

GUARANTEED AGAINST BREAKAGE.



Selling Agents for The **SCHURS PATENT PERFECT OIL BURNERS**

Especially designed for burning Brick, Tile, Terra
Cotta and Lime. For Up and Down Draft Kilns.

Flame may be regulated as desired and to produce any heat, can be
turned upward, downward or sideways. Most economical Steam
or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices and information.

Illinois Supply & Construction Co.

HOLLAND BLDG., ST. LOUIS, MO.

Lieber's Code.
Cable Address,
GRATH, St. Louis.

Long Distance
Phone
Bell, Main 235.

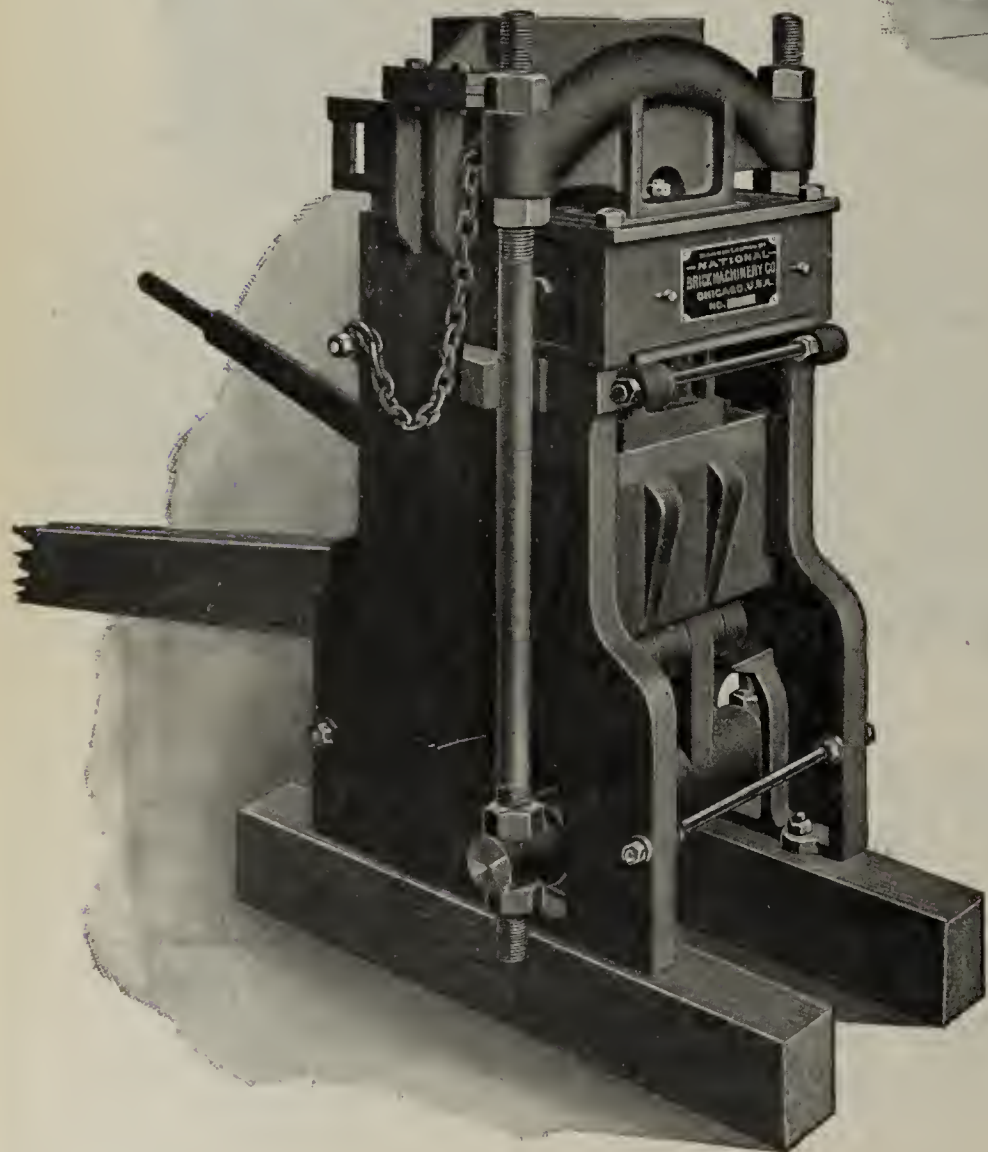
Complete Outfits for Brick Plants.

SEND FOR OUR NEW TREATISE
ON
DRY PRESS BRICKMAKING.

Write for prices on supplies of all
kinds for your yard.

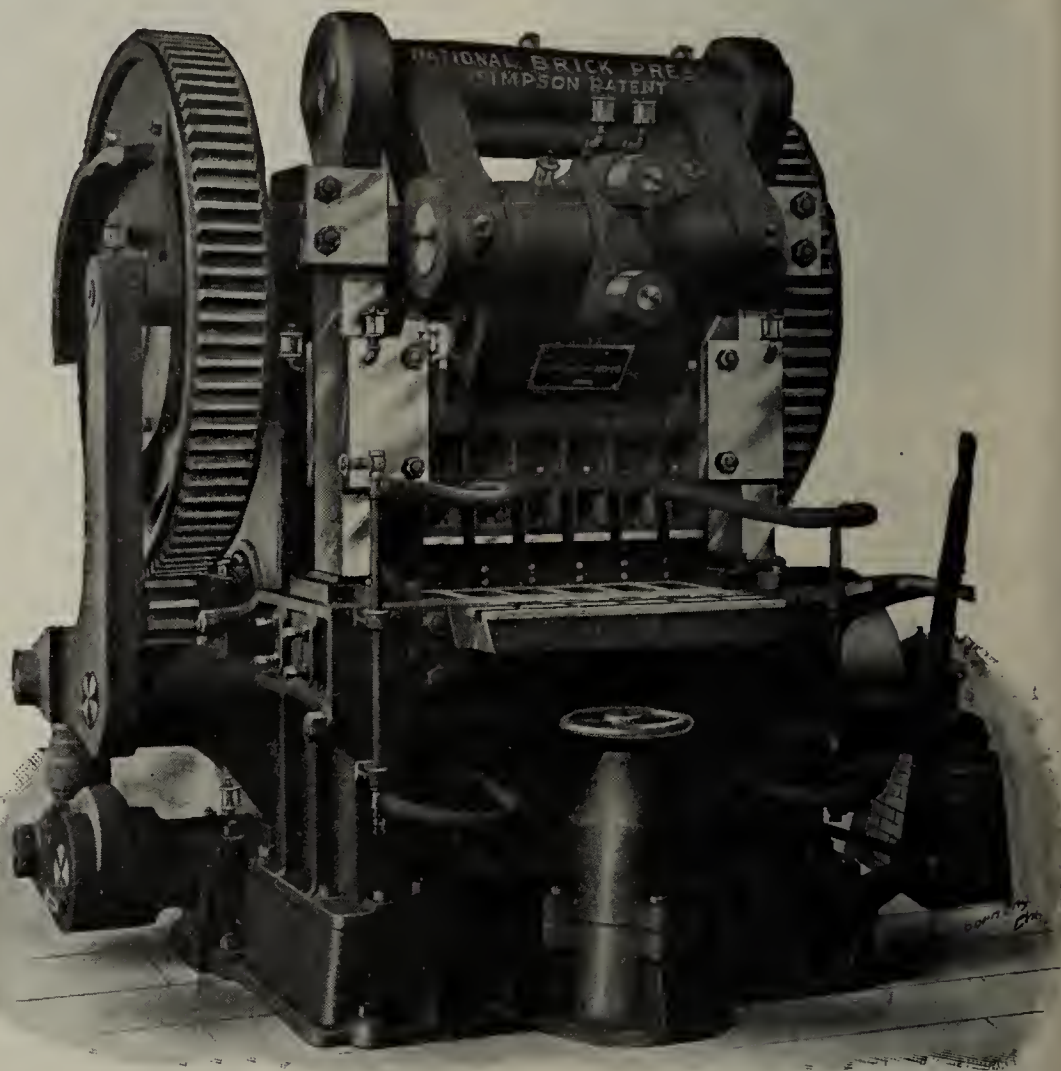
Correspondence solicited.

SIMPSON HAND PRESS.

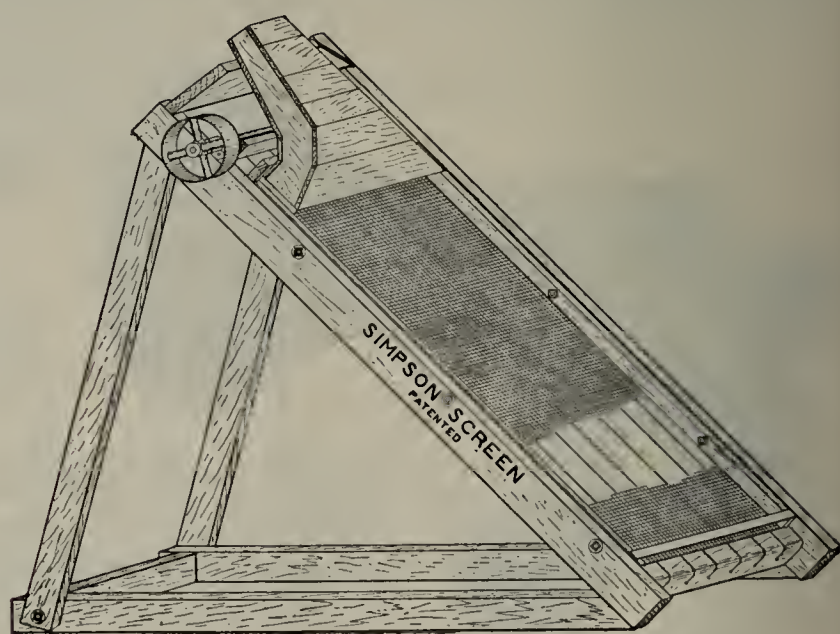


NATIONAL BRICK PRESS (SIMPSON PATENT)

Built in Four, Five and Six-Mold Sizes.



SIMPSON SCREEN.



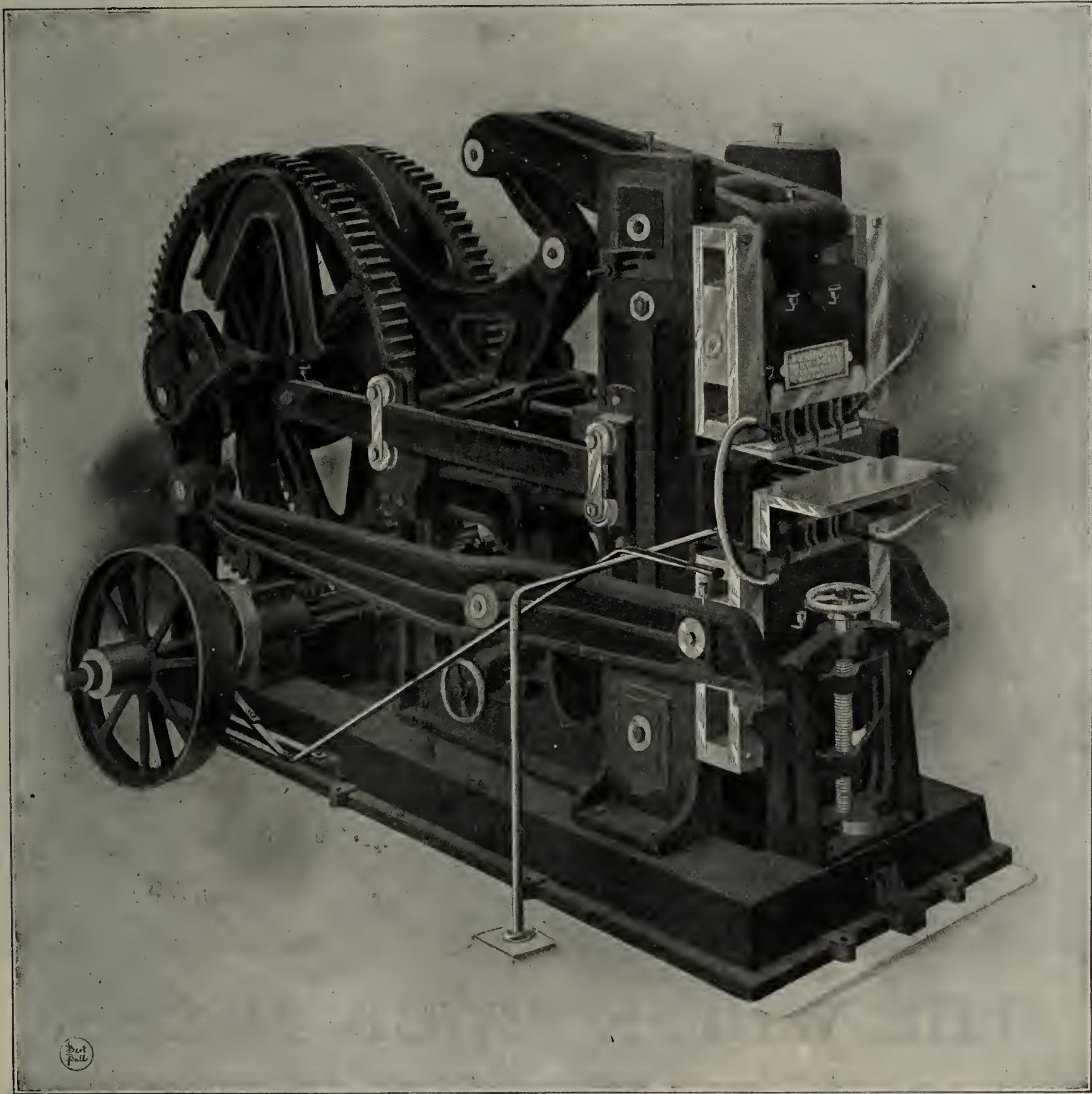
National Brick Machinery Co.,

Chamber of Commerce Bldg.

CHICAGO, ILL.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

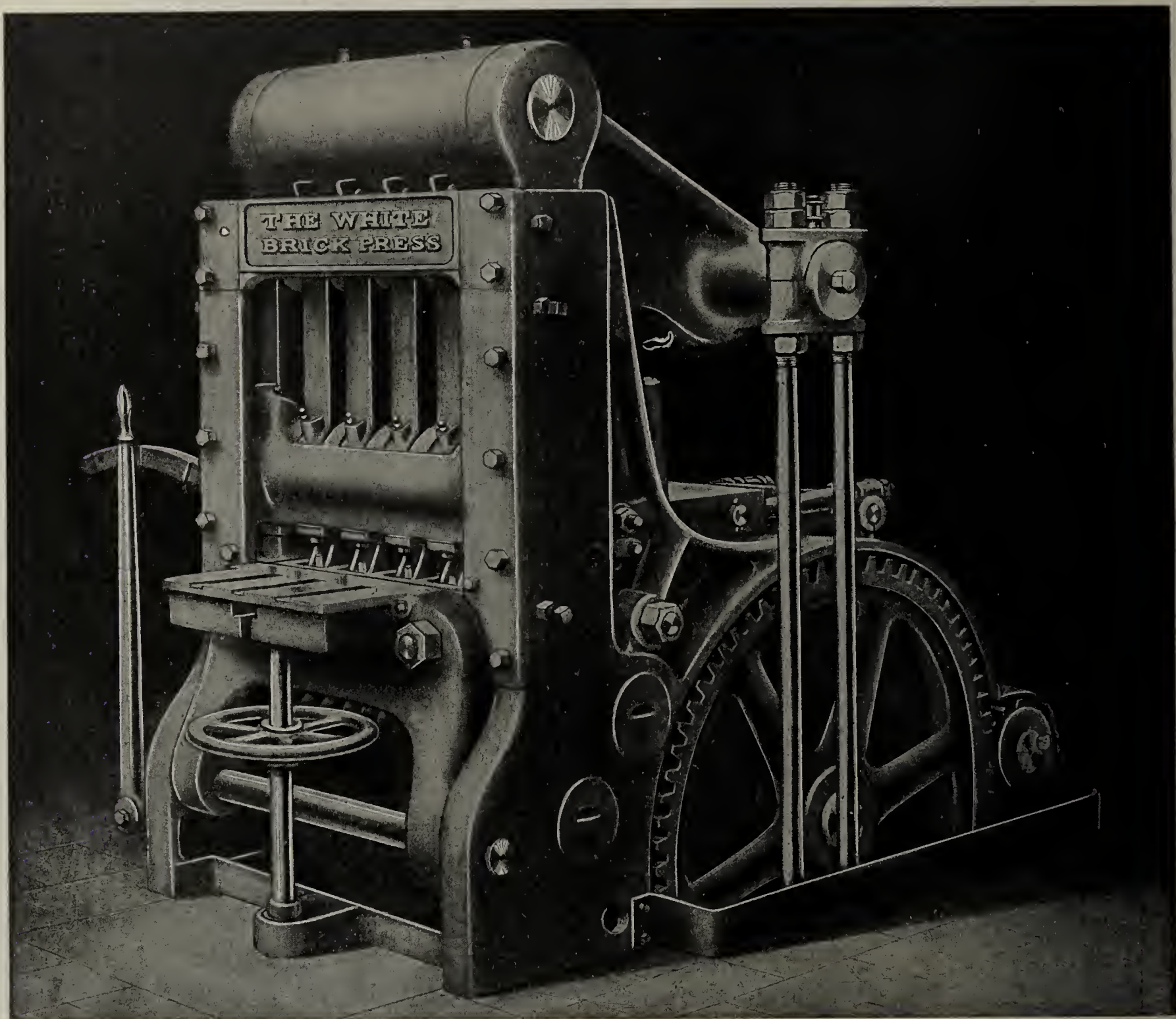


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

**Always Worth More Than
You Pay For It**



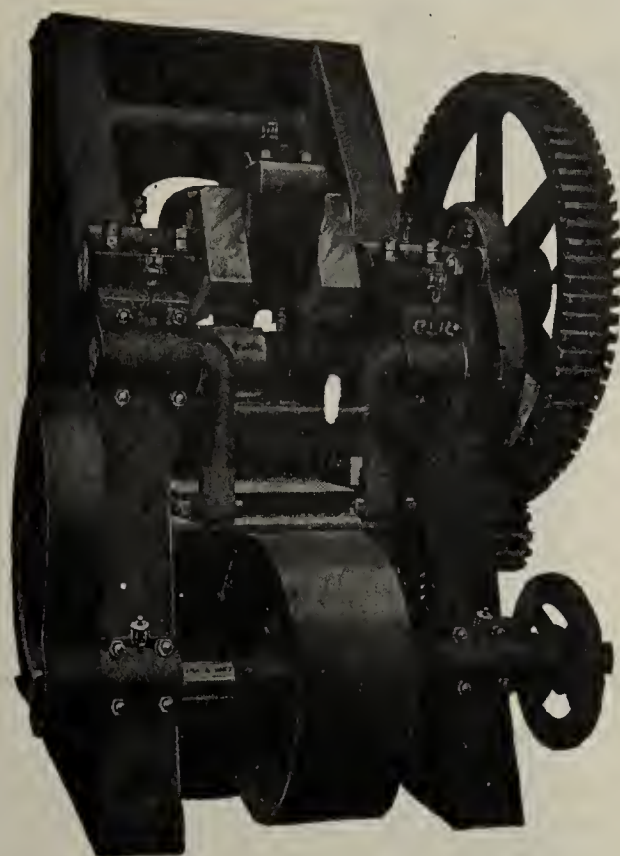
THE WHITE BRICK PRESS.

No brickmaker need fear unsatisfactory returns from his investment in a White Brick Press. It Stops the Stops and Delivers the Goods. Send for special catalog.

CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

New Model Berg Brick Press



Back View.

Still in the Lead

and

One Step Further Forward.

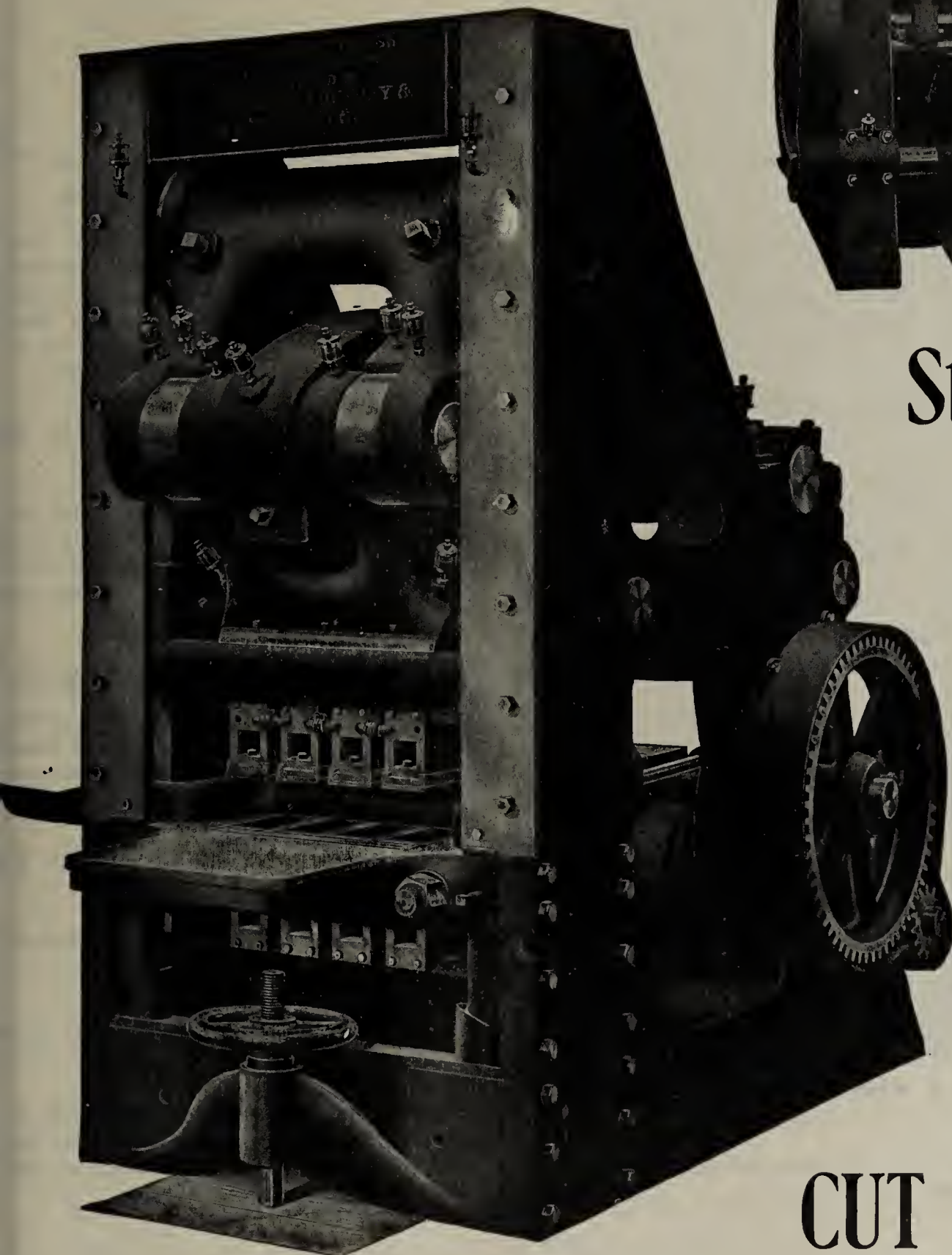
Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact, and

SHIPPED IN ONE
PIECE.

Provided with

CUT GEARING

of either iron or steel, if desired.



Manufactured and Sold by

Sold by

CHICAGO BRICK MACHINERY CO.,
Great Northern Bldg.
77 Jackson Blvd.
CHICAGO.

Anderson Foundry & Machine Works,

Southwestern Office, Wilson Bldg., Dallas, Texas. ANDERSON, IND.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryer, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Price \$1.00.

A review of present practice in the manufacture, testing and uses of Vitrified Paving Brick.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transporting, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting of Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Burning Brick in Down Draft Kilns, by W. D. Richardson. Price \$1.00.

A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observation and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvements.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

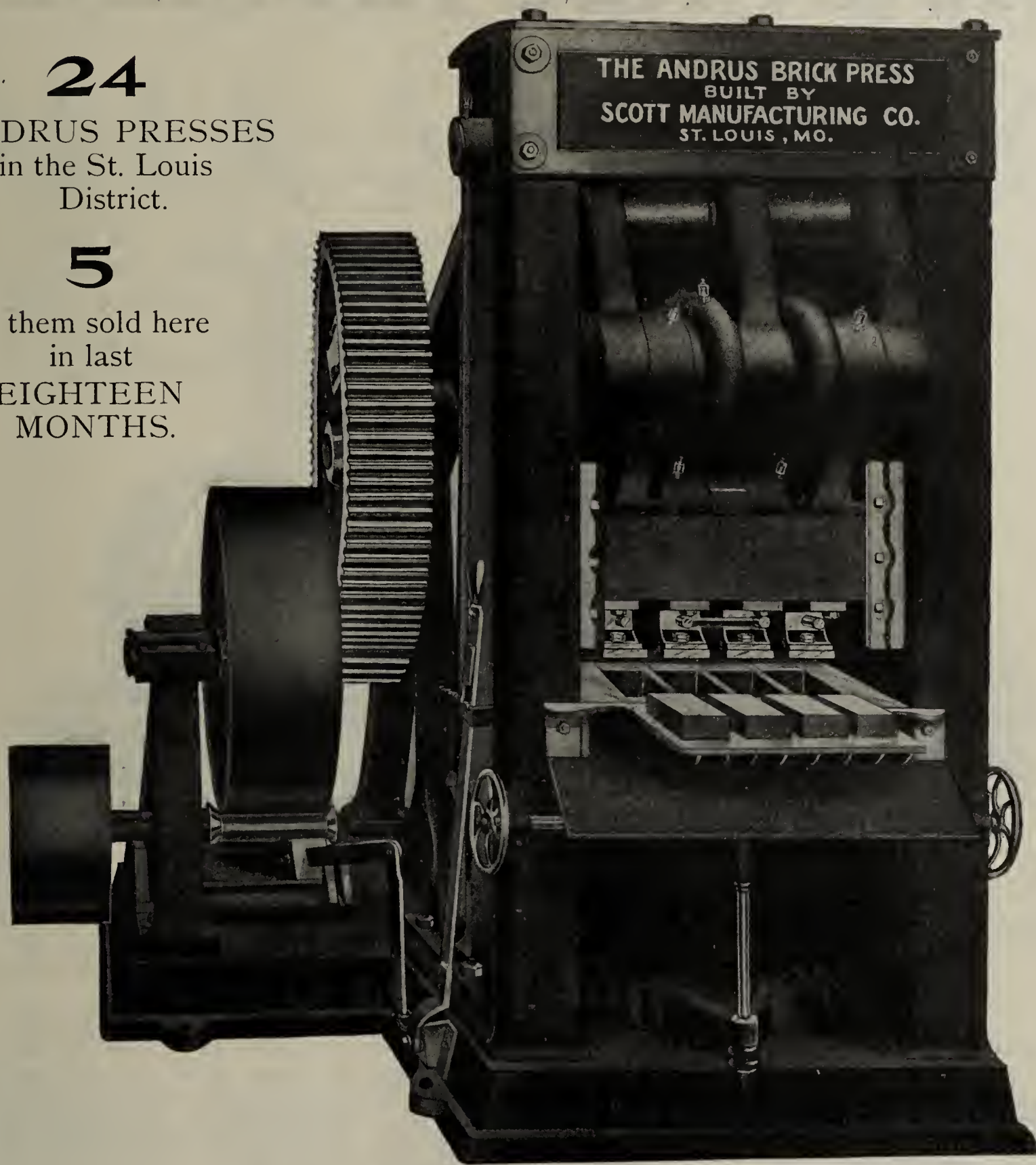
The Andrus Brick Press.

24

ANDRUS PRESSES
in the St. Louis
District.

5

of them sold here
in last
EIGHTEEN
MONTHS.



The Press That Scott Builds.

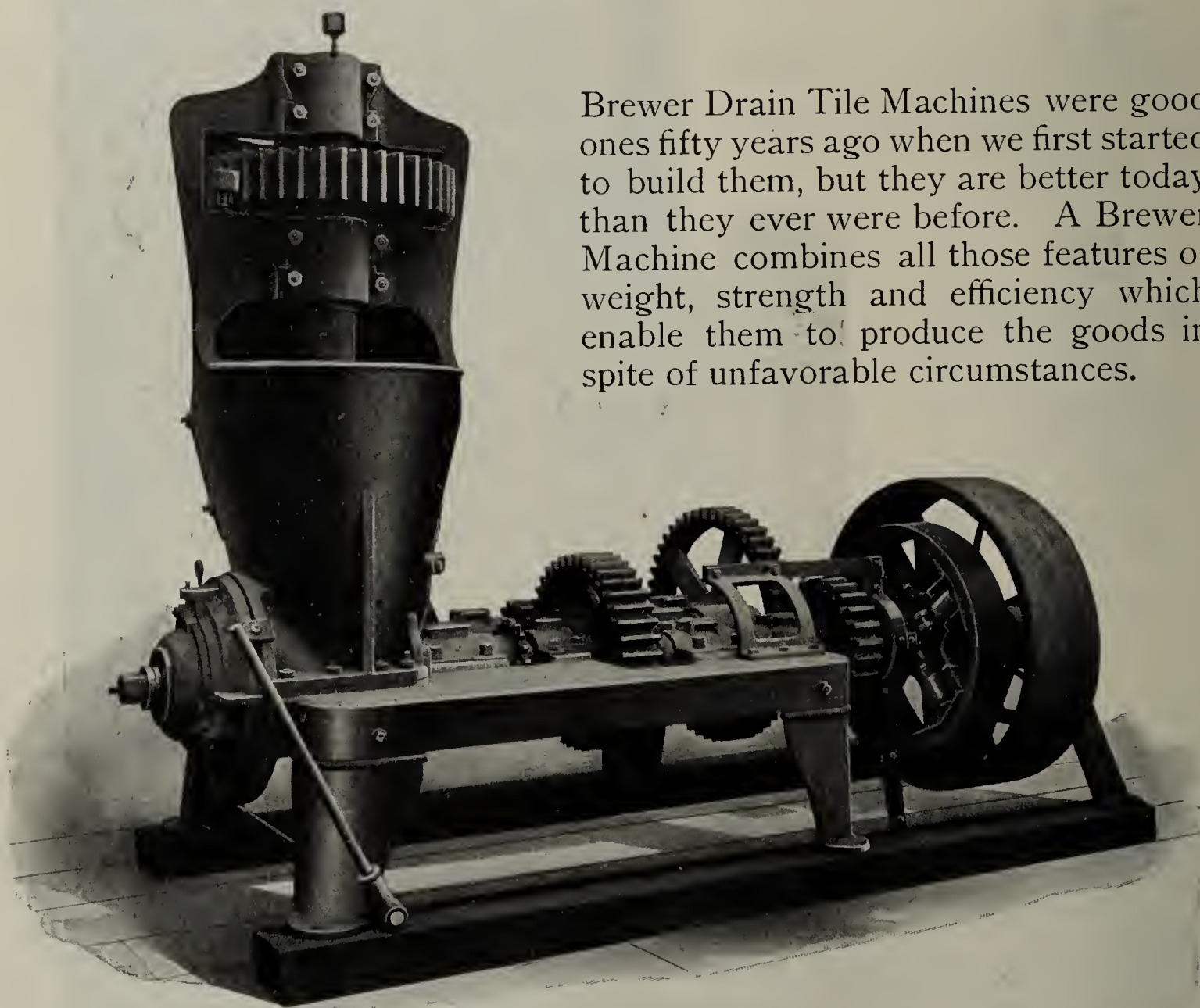
Come and see the Andrus Press making face brick, common brick, fire brick and shale brick right here at home.

Scott Manufacturing Company,

1812 Third National Bank Bldg.

St. Louis, Mo., U. S. A.

DRAIN TILE MACHINES



Brewer Drain Tile Machines were good ones fifty years ago when we first started to build them, but they are better today than they ever were before. A Brewer Machine combines all those features of weight, strength and efficiency which enable them to produce the goods in spite of unfavorable circumstances.

We Build Three Sizes

ranging in capacity from 1,000 4-inch tile per hour to as many as can be handled by any present day method. The knives on the vertical shafts are forged from hard, high-carbon steel. The augers and casings are of white-iron. The back-thrust bearings of auger shaft are self-oiling and self-aligning. The up-thrust bearings are of the Marine pattern. The vertical cylinders are cast in one piece. Gears, wide face. Journals, long. Shafts, heavy.

We will be glad to send you our catalog which shows a full line of clayworking machines.

If Marked



It's Good.

H. BREWER & CO.,

Tecumseh, Michigan.

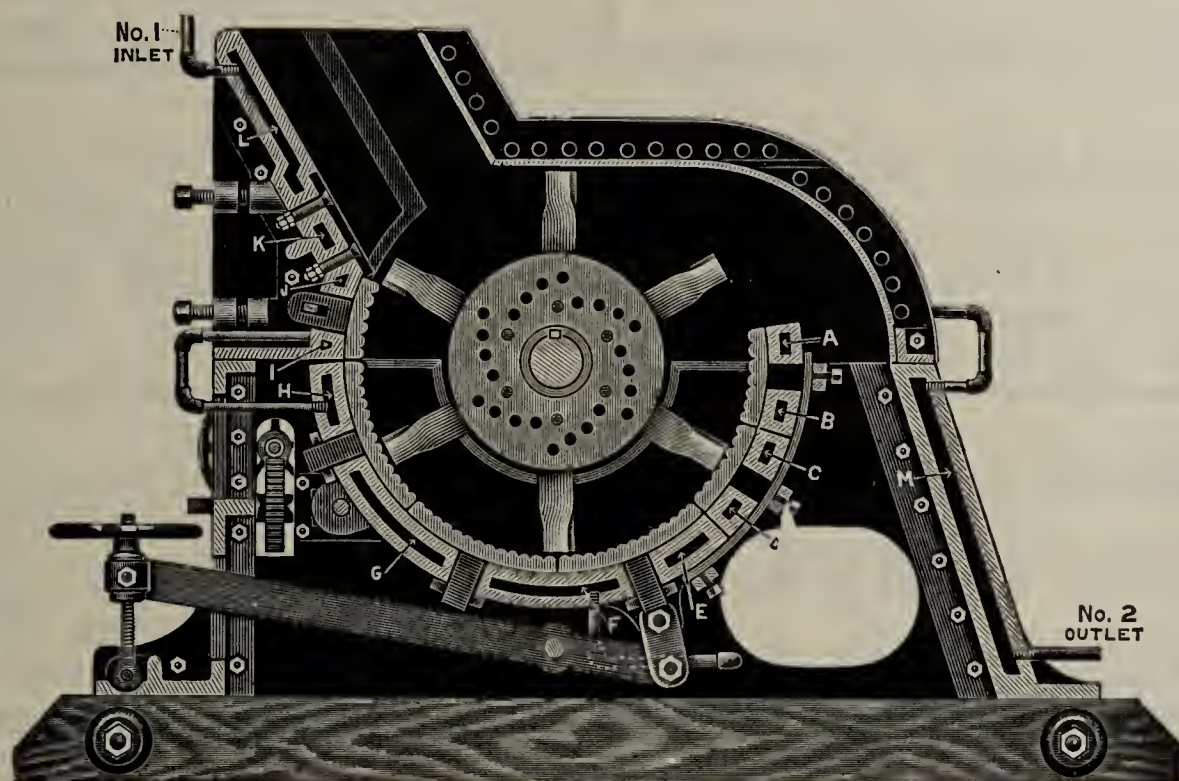
If Marked



It's Good.

See Advertisement of Horizontal Brick Machines on page 686.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

Williams Patent Crusher and Pulverizer Co.
St. Louis, Mo., U. S. A.

Old Colony Building, Chicago.

456 Empire Bldg., Seattle, Wash.

1531 Maines Ave., Los Angeles, Cal.

Write for Bulletin 21.

Over 1300 of the Williams Hinged Hammer Crushers and Pulverizers in daily operation.

Mention The Clay-Worker.

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:

"Directions for Laying Brick Street Pavements."

"Why Vitrified Brick Street Pavements Are the Best."

"Why Should You Pave at All?"

"A Directory of Manufacturers of Vitrified Brick."

Address **WILL P. BLAIR**, Corresponding Secretary, 522 Board of Trade Bldg., Indianapolis, Ind.

PRESTON BRICK COMPANY,
Manufacturer of

Vitrified Shale Paving Brick,
SEWER AND HARD BUILDING BRICK.
Hornellsville, N. Y.

JOHNSONBURG VITRIFIED BRICK CO.
Johnsonburg, Penn.

Street Paving **Brick and Block.**
Samples on Application.

SHAWMUT VITRIFIED PAVING BRICK WORKS,

Shawmut, Pa.

Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay Paving Bricks and Blocks.

Burned in Yates' Patent Kiln.

Samples and Prices on Application.

Kushequa Shale
VITRIFIED PAVING BLOCKS, CHOCOLATE-RED
BUILDING BRICK.

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MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

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"SPECIALS," for crossings on macadam streets, GUTTER BLOCKS,
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Our material has for over fifteen years successfully stood the
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dozens of other large cities of Indiana and Illinois. We ask investigation
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Samples furnished on application.

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Clinton Paving Brick Company,

Manufacturers of the Highest Quality of

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Which are offered to the municipalities of the Cen-
tral States under positive guarantee as to wearing
quality. None better.

Prices and samples sent on application.

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WE OWN AND OPERATE EXTENSIVE DE-
POSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kao-
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Have been in the business for TWENTY-FOUR
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YOU show your friendship and esteem by making presents to those near and dear to you at Christmas-time. Why not present a Christmas-gift to your BUSINESS? Why not install

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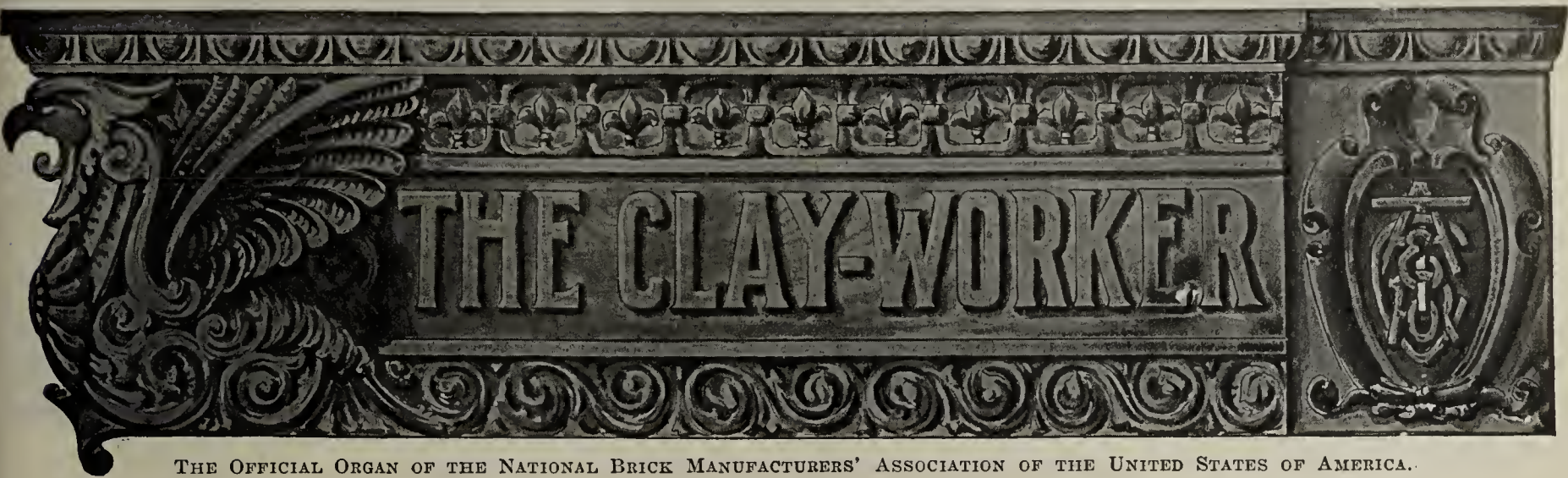
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Here is a holiday purchase that will prove a greater source of pleasure to you than any other that you have ever made. As a usual thing, gifts pay dividends of goodwill, but The Standard Drier pays dividends of DOLLARS—in more satisfactory drying and in economy of operation and maintenance.

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The Standard Dry Kiln Co.,

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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. L. INDIANAPOLIS, IND., DECEMBER, 1908. No. 6.

Written for THE CLAY-WORKER.
THE WORLD'S GREATEST DRAIN TILE CENTER.

Mason City, Iowa—Its Environment of Peculiar Interest to Clayworkers.

THE EXECUTIVE COMMITTEE of the Iowa Brick and Tile Manufacturers' Association certainly made a wise step when they decided to hold their Twenty-ninth Annual Convention at Mason City, Iowa, for of the many hundreds of tile plants in that prosperous Hawkeye State, none are more interesting than the group of eight plants located in that busy city. It is a veritable beehive of drain tile

many advantages of brick pavements. When he took up his present position there were but six blocks of brick-paved streets, and those were indifferent pavements. The brick were good, but were poorly laid with a sand filler and little or no care as to construction, but during the last ten years nearly 50,000 square yards have been paved, not including 25,000 square yards of pavement now let, and to be laid as soon as the weather will permit. The brick are all of the Galesburg make, laid on a 2-inch sand cushion, resting on a good 6-inch concrete foundation, with suitable expansion joints and cement filler. The people are thoroughly satisfied with the brick pavements as they are laid today, realizing that they are the most economical, durable and sanitary.

Mason City possesses abundant rich clay and shale de-



The New Plant of the American Brick and Tile Company, Mason City, Iowa.

plants, is the home of a number of Iowa's most prominent clay manufacturers, and affords suitable hotel facilities to handle a record-breaking attendance. The date of the convention has been set for January 13th and 14th, 1909.

Mason City is a beautiful little town with well-paved, shaded streets, and attractive commercial houses and residences possessing a charm which few other towns of its size can boast. There are no imposing business blocks or unusual dwellings—the charm exists mostly in the city's cleanliness, made possible by the possession of well-laid brick pavements and the care employed by the city officials in keeping Mason City in the best sanitary condition.

Mr. F. P. Wilson, who has been the City Engineer for ten years, declares that the people thoroughly appreciate the

posits in its vicinity, and is so conveniently situated physically as to give it every advantage possible as a clay manufacturing center. The country here is fairly level, with no freak formations to hinder the manufacturers in mining their materials. The abundance of this raw material suitable for the manufacturing of tile, hollow block, sewer pipe, etc., the excellent transportation facilities and the financial backing, combined with the energetic promotion work of such men as Mr. O. T. Denison, F. A. Stevenson, and C. L. Smith, has made Mason City a most wonderful drain tile center. All three of these gentlemen are prominent in the clayworking world. Mr. Denison is an ex-President of the Iowa Brick and Tile Manufacturers' Association, while Mr. Smith and Mr. Stevenson now hold the offices of President and Treasurer



A View of the Interesting Mason City Sewer Pipe Plant.

respectively. All three have been invaluable to the Iowa Association, through their able papers and discussions, and their assistance in all important matters relating to the up-building of the trade.

A trip through the Mason City plants is generally considered a treat to the visiting clayworkers, as there are many unusual features. Up-to-date methods and all modern conveniences are employed that are suitable to the handling, preparing and burning of the clay goods. There are in all eight large clay plants here, which have a combined daily output during the summer season of over forty carloads of drain tile, a record not equalled by any other city of its size in the world. The plants are located to the west of Mason City proper, and are within easy walking distance of one another. All have exceptionally good railroad facilities, the C., M. & St. P., the C. & N. W., the M., C. & C. L., the C. G. W., and I. C. either passing through the plant or in close proximity.

A Trip Through the Denison Plants.

Walking down the C., M. & St. P. Railroad tracks a short distance from the depot, we see before us on either side scores of tall chimneys pouring out large volumes of smoke, impressing one with the fact that here is a prosperous, busy group of plants seemingly unaffected by the recent panic. The first plants we will visit are those of the Denisons, of which there are four, one (the oldest in Mason City) on the right-hand side of the tracks, while the other three are seen on the left and to the southwest.

The four plants are located on a tract of rich clay land comprising 200 acres. The land is level, so that the raw material is worked from pits and conveyed to the plants on inclined tracks. Each plant has a separate pit, and is worked

for the most part entirely independent of the others. At Plant No. 1, or rather the plant operated under the head of the Mason City Brick and Tile Company, the pit is located 600 feet to the south of the plant. There is no subsoil, hence stripping is unnecessary. There is an average of 10 feet of alluvial clay which tops a 40-foot vein of Devonian shale. The clay and shale are mixed, forming a mixture more easily worked and better adapted to the manufacture of brick and tile than either used separately. The shale is too wet for dry pans, hence disintegrators are employed.

The shale is dynamited, while the clay is easily gotten out by shovel. The raw materials are loaded separately into side dump steel cars, and conveyed to the plant on narrow gauge tracks by means of cable and drum. These cars are of the company's own design, being longer than the ordinary clay cars. At the plant there is a large storage shed of a capacity sufficient for the winter's run. This is filled at odd times during the summer and allowed to weather. The clay cars are automatically dumped at the plant, after which they are allowed to run back to the pit by gravity. After being thoroughly ground in a disintegrator and set of conical rolls, the mixture of raw material is conveyed to a pug mill and is then dropped into a Madden & Co.'s machine, which has a daily capacity of over 30,000 tile. The usual run is on 4-inch tile, but sizes up to 12 inches are made at this plant, the larger sizes of tile being manufactured at the other plants. From the machine the tube of clay runs onto an H. Brewer & Co.'s No. 61 automatic cutter, and from thence are taken and placed on double-deck steel cars which hold 240 4-inch tile. The cars when loaded are pushed into a twenty-four-track tunnel dryer which holds 360 cars. Exhaust and live steam are used in the drying; exhaust steam by day and live steam at night.



A Panoramic View of the Clay and Shale Pit of the Mason City Sewer Pipe Plant.



A Glimpse of the Mason City Clay Works. The Clay Pit is Located to the Left of the Track.

When thoroughly dried, the tile are set in 26-foot round down-draft kilns. There are in all on this yard, nineteen kilns of this type. The kilns are fired with slack coal, this fuel proving more economical and satisfactory than using lump coal.

The power of the plant is furnished by two Murray Corliss engines, one of 200 h. p., which runs all machinery during the day, while the other one, a 150 h. p. engine, runs fans and a dynamo for lighting at night. The fans are large 9-foot fans, one used for blowing hot air through coils for the dryer, and the other for creating the necessary draft. There are direct lines from this plant to the others for lighting in case of emergency. The capacity of this plant is five carloads of tile per day.

It might be interesting to note that this plant, which is the oldest in Mason City, was established in 1882. At that time Mr. O. T. Denison, the present owner of the plant, was a banker in Mason City. He discovered the clay land in this territory and knew its value, and in an endeavor to build up his home city, he tried to persuade his neighbors to build plants here. He succeeded in the promoting work, and loaned money to the investors. The plant was installed, but poorly managed, so that the stockholders soon lost interest. Mr. Denison then bought up the stock, and turned all his energy towards making the plant a success. The result was so satisfactory and the demand so great for his ware, that in the past ten years it has become necessary for him to erect three more factories.

The Mason City Clay Works.

It was in 1899 that Mr. F. A. Stephenson came to Mason City, through Mr. Denison's request, and built for him an excellent plant, this one known as the Mason City Clay Works. This plant was built one-eighth of a mile to the

south of the old plant. The C. & N. W. and the C. G. W. Railroad tracks passing on either side of it, connecting it with the old plant.

Mr. Stephenson had twenty-two years of experience in the clayworking lines previous to his coming to Mason City, so that he was well qualified. He started in the clay business in a small way in Illinois in the spring of 1877, and went to Des Moines, Iowa, the day Garfield was nominated, where he took a position as superintendent in the Des Moines Brick and Tile Company. Two years later he built the Iowa Pipe and Tile Works, and later went to Grand Junction and started up a factory there. After erecting a plant at Grand Junction he rebuilt a plant at Panora, Iowa, and afterwards went to Webster City, where he built a fine tile factory. He was located at Webster City for sixteen years, at the end of which time his services were obtained by Mr. Denison.

At the Mason Clay Works we find about the same methods used, with the exception of the installation of a waste heat system wherein the heat from the cooling kilns is employed in drying the green ware, being conducted to the dryer by means of underground flues. This dryer is perhaps the first one built in Iowa utilizing waste heat. It is Mr. Stephenson's own idea, and certainly has proved a money-saving investment. The dryer has twenty-one tracks. The waste heat is drawn from the kilns to the dryer and draft created by means of William Bailey & Sons' Milwaukee fans.

Tile is the only product manufactured at this plant, ranging in size from 3 to 12 inches, which are burned in twelve 28-foot round down-draft kilns.

Mason City Sewer Pipe Plant.

So successful was the second plant, that in 1903 the company cleared ground and constructed a third large factory,



Pit of the Mason City Brick and Tile Company's Plant. The Mason City Clay Works and Drain Tile Plants in the Distance.

on a convenient site one-quarter of a mile southwest of the second plant, directly across the Northwestern Railroad tracks, being bounded on the north and south by spurs from the C., M. & St. Paul Railroad. This plant, which is known as the Mason City Sewer Pipe Plant, was erected chiefly for the manufacture of sewer pipe, an entirely new field for the company at that time. It proved a most successful venture, for there is a great demand for sewer pipe in this locality. Sewer pipe is not the only product made at this plant, however, as there is ample room for manufacturing drain tile and hollow block. The clay and shale is gathered in the same way here as at the other plants, being worked from a pit to the rear of the factory.

The same amount of Madden & Co.'s machinery is used here, with the addition of a large American Clayworking Machinery Company's large sewer pipe press, which is located on the first floor, and used in making pipe ranging from 14 to 24 inches. They have also a 9-foot dry pan here for re-grinding the waste. As the pipe come from the press they are placed on trucks made by the company from their own



A Large Round Stack 110 Feet High in the Course of Construction.

design, and are set on elevators and taken to the second floor, where they are allowed to dry. The drying floor space is 180x160 feet, the heat from radiation in the dryer being utilized in drying the ware on the second floor. The dryer is of about the same capacity as at the other plants, being of twenty-four tunnel construction. The ware is burned in eighteen round down-draft kilns.

The Mason City Drain Tile Plant.

This plant was but recently completed, but is operating to full capacity and turning out excellent ware. It is located a quarter of a mile to the southwest of the sewer pipe plant, using a spur from the C., M. & St. P. Railroad. The building of this plant was the natural outgrowth of the increased demand for drain tile, and the necessity of a large production to meet the demands of their customers. It is almost an exact reproduction of the Mason City Clay Works in construction. The machinery equipment varies somewhat, as here they have installed a large Madden & Co. machine, the most up-to-date and largest machine that well-known clay

machinery company ever produced. Disintegrators are used more at this plant than at the others, the clay being too wet to work by any other method. The drying and burning facilities are about the same as at the other plants, with the possible exception that the kilns here are larger, being 30 feet in diameter. The plant is operated in the same careful, systematic manner that characterizes the other yards, every convenience being employed to aid and assist the men in doing excellent work, both in the preparation of the clay as in the drying and burning. We might add that the stacks at all of the new yards are 110 feet high, built of 4x8x12 hollow blocks made at the plants, cut at a radius, so as to permit their use in the building of these round stacks. At the old factory there are six stacks, one 125 feet high for the boilers, and the remainder 80 feet in height, for the kilns.

The total output of these four plants in September last was over 600 cars.

American Brick and Tile Company's Plants.

To the west, and within a stone's throw of the Denison plants, are located the two large plants of the American Brick and Tile Company, which was organized in 1900, and has been most successful in its production of high-grade drain tile, brick, hollow brick, and hollow block. The company owns two large plants, one but recently built, but now operating to full capacity. These plants are under the careful management of Mr. C. L. Smith, the President of the Iowa Brick and Tile Manufacturers' Association.

The company's property embraces 110 acres of rich shale land, differing somewhat from the deposits found at the Dennison plants, in that they have two distinct formations of shale, with little or no clay. There is a 12-foot vein of yellow shale, known as the Hackberry, overlying a 36 to 40-foot vein of blue Devonian shale. The Devonian shale rests upon a hard strata of stone. These two shales are worked from pits, being blasted with dynamite and conveyed to the plants in end dump cars, which hold from 1½ to 2 yards of shale.

The new plant obtains its shale from a pit 400 feet to the south of the plant. The loaded shale cars are drawn up an incline to the top of the storage sheds by means of cable and drum, and, after being automatically dumped, are allowed to run back to the pit by gravity. The bed of the pits is 45 feet below the surface of the ground, while the storage shed is 25 feet above the ground level. The storage shed has a capacity sufficient for two to three weeks' supply; that is, a capacity of 2,000 to 3,000 tons. The shale is allowed to stand one week.

A complete line of H. Brewer & Co.'s machinery is used at these plants, including a granulator of unusual proportions, being the largest Brewer ever put out, having a daily capacity of from 150,000 to 200,000 brick. The shale is crushed in two crushers, going first through the granulator, thence through compound disintegrator rolls, and then smooth rolls, after which the ground material passes down a chute to an elevator which takes it to a horizontal conveyor in the storage room. Automatic plows are employed, which distribute the raw material to any part of the storage room. The material is taken from the storage shed as needed and elevated to the third floor in cup elevators, where it is dropped into a large Brewer pug mill, and thence is delivered by means of a chute to a No. 10A Special Brewer brick and tile machine on the first floor. Here we find a Bensing tile cutting table and a Brewer rotary side cutter for brick. The average run is of tile, although they make two to three million brick annually. The output for the tile ranging from 4 to 12 inches was over \$150,000 in value last year. This new plant, of course, will about double this figure. In making the larger size pipe, the pugged clay is delivered to a horizontal pug mill, and thence conveyed to the fourth floor to a large Taplin-Rice steam

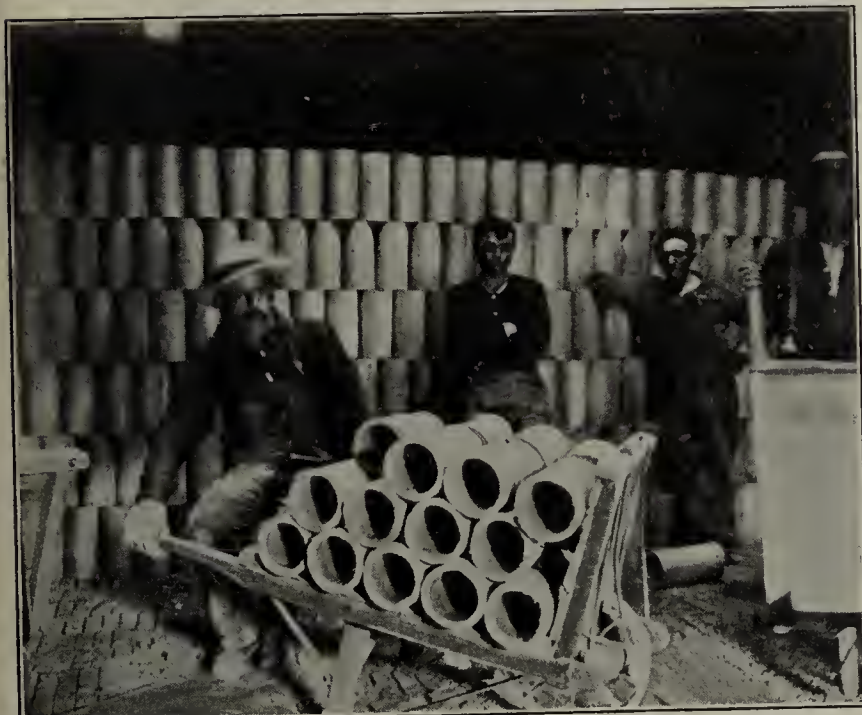
Views Taken in and About the Mason City Plants.



On the Kiln Yard of Mason City Clay Works.



View of Kilns at Mason City Sewer Pipe Plant.



Interior View of Kiln Being Set With Medium-Sized Tile.



Dried Tile Waiting Their Turn in the Kilns.



A View of the Kiln Yard at the Mason City Drain Tile Plant, Showing Type of Kilns and Large Stacks.



The Large Elevator Used at the Sewer Pipe Plant for Conveying Large Pipe From Floor to Ground.

Interesting Snapshots of the Mason City Clay Plants.



A Large Kiln in the Course of Construction.



Setting Kiln With Large-Sized Pipe.



Dried Hollow Block at End of Dryer.



Setting Large Pipe on Drying Floor.



Delivery End of Dryer at Mason City Brick and Tile Plant.



A Carload of Excellent Brick and Hollow Block.

press by means of cup elevators and belt conveyors. The tile, which are generally from 10 to 30 inches, are received from the press on the third floor and taken down to the second floor by gravity or elevators, where they are left to dry. All sizes of tile are dried on this second floor. The heat for the drying floors is supplied from the waste heat from the kilns. The green small size tile, brick and hollow block, which are made on the first floor, are set on steel double-deck dryer cars, each having a capacity of nearly 600 brick. These cars are the product of the Ohio Ceramic Engineering Company, of Cleveland, Ohio. The loaded cars are pushed into a twenty-four-track dryer of the Richardson-Lovejoy construction, which has a capacity of 600 double-deck dryer cars, or 360,000 brick. This dryer is built of concrete and hollow block, and utilizes exhaust steam from the boilers, and waste heat from the cooling kilns, exhaust fans being employed of the American Blower Company's make. The ware in the dryer can be dried in twenty-four to thirty-six hours, while the ware dried on the floors requires four to ten days. The ware is burned in sixteen round down-draft kilns, which are 26 feet in diameter and have eight furnaces

up the deficiency. The same methods are employed at the old plant as at the new, except that here they have no storage shed and use lighter machinery. A complete line of Brewer machinery is used here, as at the other plant, the shale being ground by a pair of smooth Brewer rolls and then conveyed directly to the pug mill, and thence to a No. 10A Special brick, tile and hollow block machine. Here they also use a tunnel dryer, this one being of smaller capacity, having seventeen tracks, holding in all 350 cars. Exhaust steam is used here, draft being produced by a Phillip's inside fan.

There are many improvements in the new plant over the old, as waste heat is an economical method of drying, and brings better and quicker results than by drying with exhaust and live steam. The ware, which, for the most part is of the small sizes of tile and hollow brick and block, are burned in 26 foot down-draft kilns. The power of the plant is furnished by a 150 h. p. Erie City engine, and a battery of three 80 h. p. boilers. The engine also runs a 16 k. w. generator for lighting the plant with electricity. The water supply is obtained from deep driven wells. This plant has been doing excellent work since its erection in 1900, and is run-



A General View of the New Plant of the American Brick and Tile Company, Showing a Car of Shale on its Way from Clay Pit to Top of Storage Shed.

each, of the usual type. The flue arrangement is of the triple draft pattern. Brick are set in the kilns thirty-six high, while the small size drain tile are set only twelve high.

The power of the plant is furnished by a 250 h. p. Erie City four-valve engine, with a battery of three boilers 150 h. p. each. This also operates an 85 k. w. generator for electric lighting. A 125 h. p. engine is employed for power for running the fans. This new plant began operating in January, 1908. While the capacity at this time is unusually large, the company intends enlarging the plant to a twenty-six-kiln capacity.

The buildings are constructed of hollow block and brick, covering about 51,000 square feet. The arrangement of the various departments of the plant economize space and allows the clay to advance in a direct line from pit to kiln. It is certainly a great improvement over the old plant, where the shale is obtained in the same way from a pit 800 feet to the south of the plant. The vein of Hackberry shale here is somewhat lighter than at the new plant, so that it is necessary to ship a quantity of Hackberry shale from the other to make

ning every day to full capacity. The company expects to put in a waste heat system here soon, and also to build four more kilns. The Chicago, Milwaukee and St. Paul Railroad passes through the two plants, so that they do not lack for good railroad facilities. Over 1,000 carloads of clay products were shipped from this plant last year. The general market for their ware is the central States. The company has large orders ahead for shipments into Iowa, Kansas, Nebraska and South and North Dakota, so that they are extremely busy.

The company is incorporated for \$200,000. The officers are: I. I. Nichols, president; G. E. Winter, secretary-treasurer, and C. L. Smith, manager.

The North Iowa Brick and Tile Plant.

Directly west of the American factories is located the above-mentioned plant, being next to the youngest clay plant in Mason City. This factory has only been operating one year, having been built the later part of 1906. Here we find a most interesting plant, turning out an enormous amount of clay products, shipping weekly over fifty cars. They manu-



Large Brewer Pug Mill at American Brick and Tile Plant.

facture all sizes of tile from 4 to 30 inches, besides brick and hollow block. They have 160 acres of clay and shale land, working from a pit 150 feet from the plant. The raw material is handled the same way as at the other plants, the shale differing only slightly in the pit in average depth, being from 10 to 40 feet. They do not store the clay here, working it right through as it is brought from the pit. The shale passes through a granulator, conical rolls, a disintegrator, and into the pug mill. From the pug mill the material passes through two auger machines, first through a horizontal, from which it is elevated to a vertical machine where it is cut into extra lengths by hand. There are two 6-inch drain tile machines, one right-hand, and the other left-hand. These set back to back, so that the work is carried on in one direc-



View of Brick Machine at American Plant.

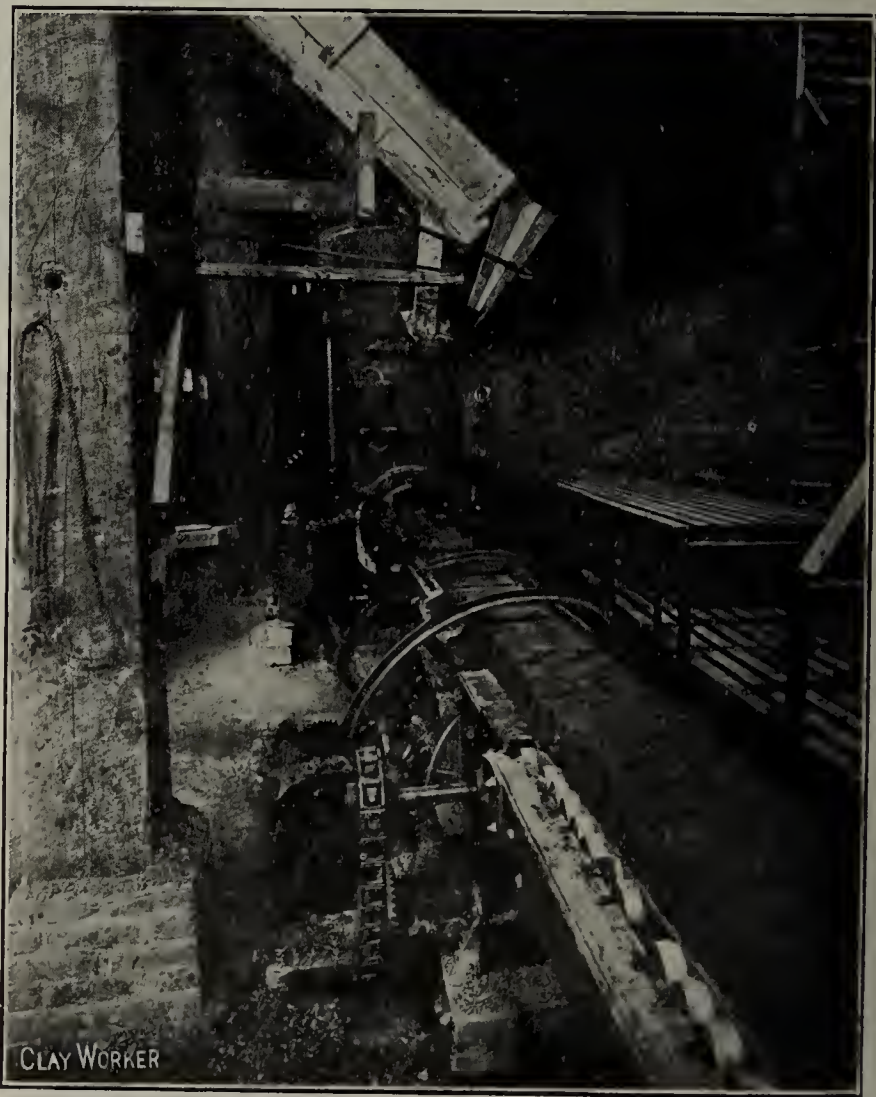
tion without conflict. The Madden & Co. machine used here has proven entirely satisfactory.

The ware is dried in a twenty-three track dryer, which holds 368 cars. Both waste heat and exhaust steam are used. The ware is burned in nineteen kilns, located to the south of the plant. They are all round down-draft in construction; thirteen are 26 feet in diameter, while the other six are larger, having a diameter of 32 feet. There is a machine and blacksmith shop on the plant, where minor repairs can readily be made.

The power of the plant consists of a 250 h. p. engine, with the usual battery of boilers. A new engine is to be installed in the near future, which will enable them to increase their capacity. They get their water supply from deep driven



The Long Belt Conveyor Used at the American Plant in the Storage Shed.



Machinery Room at American Brick and Tile Plant, Showing Automatic Cutter and Off-Bearing Belt Loaded With Brick.

Immense Plants Where Large Quantities of Drain Tile Are Manufactured Daily.



A General View of the New Plant of the American Brick and Tile Company Looking From the West.



A Panoramic View of the American Company's New Factory Taken From the South East.



Snapshot of the Factory of the North Iowa Brick and Tile Company, Next to the Youngest Plant in Mason City.

wells. The company employs fifty to eighty men, and has built houses for these workmen, as well as suitable stables for the horses. The officers of the company are: A. W. Dawson, president; L. A. Page, vice-president; J. W. Adsams, treasurer, and R. Valentine, secretary.

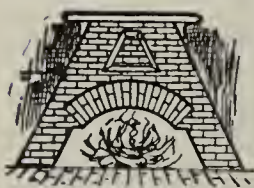
The Farmers' Co-Operative Brick and Tile Company.

This is the youngest plant in Mason City, having but recently been completed, and has been operating only a few months. It is located to the west of the North Iowa Brick and Tile Company's plant, and is almost an exact duplicate, having the same area of shale land, though running to a greater depth, using the same amount and make of machinery, employing shale of the same consistency, and manufacturing a product of about the same standard. In the near future they expect to make a large tile on a sewer pipe machine. The officers of the company are: Mr. W. M. Colby, president; C. G. Messerole, vice-president; W. H. Gleason, secretary-manager, and W. R. Fleming, treasurer.

J. E. RANDALL.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



REVIEW OF THE brick and building industry for the past year in Cleveland and northern Ohio has caused brick dealers and contractors generally to feel thankful that conditions have been no worse than they have been. From all indications the building record for the year will be about two-thirds that of 1907, and almost equal that of 1906. The season has not been marked by the erection of many big structures, although several of the largest jobs in recent years have been gotten under way. For the most part, however, the work has been devoted to small apartment buildings, stores, factories, and dwellings. The volume of building, it is agreed, has held out remarkably well, and contractors generally are satisfied with the year.

Among the paving brick interests it is reported that while the amount of brick delivered has not broken any records, it will be well up to the average. Prices have been a little lower, but so have raw materials and labor, and the latter has been easy to get. Many of the manufacturers are laying in stocks in anticipation of a heavy call next year. They believe that money invested there will be well invested.

The outlook for the next year is excellent. Quite a number of unusually large projects have been announced, and nearly all call for the extensive use of brick or clay products. Tile and terra cotta buildings are coming into great favor in Cleveland, and several of the big jobs will make extensive use of those materials. The difficulty of securing building loans has about ended, and the prospect for a liberal supply of money for the building season next year is good.

One of the new projects announced during the past month is a new \$125,000 home for the Cleveland Elks. The order owns a lot opposite the Central Armory, on East Sixth street, which faces on the new group plan, and it is likely that a building will be erected on that site. It is believed that the plan will be sufficiently progressed to start work on the new structure in the spring. The building will probably have a first story of stone, with terra cotta in imitation of granite above.

The Republic building, on Euclid avenue, opposite the new Hippodrome, has changed hands, Henry Boehmke having leased it for ninety-nine years to the Tenbusch Realty Company. The latter concern announces that the seven-story structure now occupying the site is to be razed, and a sixteen-story skyscraper erected at a cost of about \$700,000. It will be of steel and brick construction.

Halle Bros., prominent Euclid avenue dry goods merchants,

have leased the new ten-story Pope building, on Euclid avenue, and will occupy it upon its completion next summer. The building is to be elaborately finished in terra cotta supplied by the Northwestern Terra Cotta Company, and will be the most ornate in Cleveland. The new Sterling-Welch building, directly opposite, is finished in a similar material, and presents a most attractive appearance. The Bailey Company has leased a large tract of land nearby, and is considering the advisability of erecting a new store there.

Further details concerning the erection of the twelve-story building for the Brotherhood of Locomotive Engineers have been announced, together with the names of the architects, Knox & Elliott, of Cleveland, who built the big Hippodrome, have been chosen for the work. The exterior of the building is to be of white glazed terra cotta, which can be easily cleansed, and similar to that of the Railway Exchange building in Chicago. The office entrance will be on Ontario street, and on St. Clair avenue there will be an elaborate auditorium entrance. The dimensions of the lot are 124x178 feet, and there will be 11,000 square feet of office space.

Architect George S. King has awarded contracts for the erection of a new eight-family apartment house on St. Clair avenue, at East 108th street, for Adam Linn, to cost



Interior View of Dryer at North Iowa Brick and Tile Plant.

\$22,000. The mason work goes to N. C. Smith. The building will be of brick and millwork construction.

A new addition to cost about \$25,000 complete is under way for the Boys' School, on the West Side. It will be used as a shop and class rooms for a manual training department for incorrigible boys. Pressed brick is being used for the outer walls. A brick building costing \$35,000 is being erected for the congregation of St. John Cantius, on College avenue. Phillip Kirschner has the mason contract. It will be used as a church and school until a regular church can be erected.

President Springborn, of the Board of Public Service, will ask the City Council to set aside \$125,000 for the city's share of street paving for 1909. There is a balance of \$25,000 in the fund, which will also be used. Contracts will be let on most of the work early in the year, so a prompt start can be made as soon as the weather will permit.

Baldwin Bros. & Graham were the low bidders on the job of paving Mayfield road with brick. Their bid was \$59,000, \$9,000 below the County Engineer's estimate. Work will be held up until spring on account of the weather. It is aimed, however, to improve an unusually large mileage of country roads with brick next spring.

George W. Kinney, of Kinney & Levan, china and pottery dealers here, was one of those who appeared before the

Ways and Means Committee at Washington a few days ago to argue in favor of the reduction of the tariff on pottery. Mr. Kinney thinks the present tariff of 55 per cent. should be lowered to 30 per cent. BUCKEYE.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.

THERE HAS BEEN a perceptible change for the better since election in the building brick business. While there is by no means a rush of business, the market does not show the same torpidity which was apparent all summer. There are now numerous inquiries from prospective builders, architects are busy preparing plans, and contractors are figuring, all of which has injected new life into the situation, and lends much encouragement as to future prospects. There has been some improvement in the actual demand for building brick recently, and present indications point to at least a limited call during the winter months, a thing very unusual here. Those in touch with the situation predict more building for Toledo this winter than the city has known for many years. There is a plentiful supply of brick to meet all the coming requirements, despite the fact that the season's output was far below the average, a number of the local plants having been idle nearly all summer.



Machinery Room of the North Iowa Brick and Tile Plant.

With this increased activity in the building situation has come a gradual strengthening of prices, and while brick are still selling lower than they should, it is no longer a question of "what will you give," but quotations are settling down to a definite basis, with a fair prospect of an advance to reasonable prices by the time the spring building season opens in earnest.

The paving brick prospect is very encouraging, indications pointing to a fair demand throughout the winter. The summer's business, while very satisfactory, was retarded somewhat by the depressed financial condition, and the inability of numerous municipalities to sell their bonds. This difficulty seems to have been overcome, and there is now much final legislation under way throughout this section of the country, making certain a large amount of street paving. Prices remain firm, and there has been little, if any, decline with the coming of cold weather. Many of the plants are still operating and will continue to do so most of the winter, thus laying in supplies to meet an expected rush of business in the early spring. There is a disposition on the part of municipalities to carry on public work, so far as practicable, all winter, in order to furnish employment for idle laborers, and this will no doubt have a good effect upon both paving block industries and sewer pipe concerns.

After three months of terrible suffering, B. O. Kleinhans, thirty years of age, of Port Clinton, died at the home of his father in Toledo. Kleinhans met with an accident while digging clay at the Port Clinton tile works, being caught in

a cave-in of earth, in which his back was broken. He was taken to Robinwood Hospital, where it was found nothing could be done for him, and from where he was removed to his father's home. He leaves a widow and several small children.

The City Legal Department of Norwalk, Ohio, has issued attachments in Lorain County against Penny & Corren to secure the refunding of \$1,533.01, which, it claims, has been overpaid to the concern through clerical errors in the Engineering and Auditing Departments of the city. The contractors have performed more than \$50,000 worth of work in Norwalk during the past year.

On the promise of the firm to employ local labor, the firm of Gould & Wright, of Toledo, was recently awarded two big sewer contracts by the Board of Public Service of Springfield, Ohio. One contract was for \$10,461.05, and the other for \$6,170.35. This firm is also constructing the high level sewer in that city, which is a job of considerable magnitude, costing about \$100,000. In this contract, however, the firm met with misfortune, as an explosion of dynamite occurred while blasting recently, killing one man and injuring two others, doing considerable damage to property as well. For several days the firm was busy replacing windows blown out by the explosion. This alone will cost the firm several hundreds of dollars, and there will be other repairs for houses shattered by the explosion.

T. O. D.

Written for THE CLAY-WORKER.

CONSERVATION OF RESOURCES.

THERE ARE at least two men in the country devoted heart and soul to this task. One is Gifford Pinchot, the United States Government Forester, and the other is F. W. Fitzpatrick, the executive officer of the International Society of Building Commissioners. In many respects the two men are alike, in their enthusiasm for their chosen cause, their disinterestedness and fearlessness, the magnitude of the work they have undertaken, and the certainty that there will be scant thanks given them for the mighty work they are doing. It was very largely through Mr. Pinchot's influence with the President that the governors were called into conclave to devise means of preserving the nation's forests, mines and other great natural resources. The awful forest fires of the last couple of months ought to give force to and illustrate the importance and the need of protective action at least in regard to our timber. The task Mr. Fitzpatrick has set himself is that of diminishing our wastefulness, not with a natural resource, but with something that we have taken great pains to produce—our buildings. For twenty years he has labored in this cause, and is certainly the father of the fire prevention movement in the United States. Through his activities civic and other organizations have been formed, city authorities have been induced to revise building ordinances, and the building bureaus of cities have awakened to a zealous performance of their duties. In the past few years he has given considerable time and attention to what might be called a popular campaign in the direction of betterment of building conditions. He realizes that whatever the people really want they are bound to get, and if they can be aroused to see things as they actually are, in so far as building is concerned, it will not be long before drastic curative action is compelled. Lately he has had articles on fire in a number of magazines. In the November McClure's he has one, entitled, "Fire—An American Extravagance," that should certainly make people sit up and think. In it he tabulates the appalling losses and cost of fire in a year's time, something like \$600,000,000, almost as much as the entire yearly expenditure for new buildings and repairs! He compares the wooden cities of America with the brick cities of Europe, and finds the former wanting; he blames the insurance companies very largely for the craze for cheap construction with us, and interestingly describes what really is a fireproof building.

These two men are engaged in national tasks of colossal magnitude, and of the very greatest benefit to ourselves and our children, and the least we can do in slight return is to thank them for their splendid efforts and try to make their work as easy for them as we can.

for other kilns on the same stack, etc. Really, that is the man that ought to use a draft gauge. He sets his damper at a certain height because he wants a certain pull. Now the same height of damper will not always give the same pull; but if he were going by a gauge he would set his damper where it did give a certain pull, and he would know what he was getting.

I have made these few suggestions as to how to use the gauge, and have pointed out some things that you can find out with it that you could not be so sure of without it, simply to get you started. As you use the gauge and compare gauge records of one burn with another, etc., other things will suggest themselves to you. Likewise, I have prescribed in detail how you shall record and compare your first readings, simply to get you to making records of some sort from the beginning. Now that you have these instructions, you won't have any excuse for doing otherwise. As soon as you find ways of improving on what I have given you it will be your privilege to adopt your own methods. But in this one thing take my advice: Every time you make a reading of any sort, make a note of it in your note book. Then keep the note book. You may not see any value in these memoranda for a long time, but you will eventually. I tell you this because I have not followed the practice myself, and I am sure I would be better off now if I had done so.

Undoubtedly you have, at the present time, a regular method of burning your kilns that is giving fairly good results with what seems like a moderate amount of fuel, and I believe that you will find from your draft records, by comparing those for different burns of the same kiln, that your different burns are not so near alike but what there is room to make them more so. So far as you now know, a certain method, including a certain draft schedule, gives the best results attainable; and I think that in following this established method, it will be possible to do away with much irregularity by setting the damper according to the gauge. In addition to this use, you will want to try to either improve your methods or justify them by proving, to your own satisfaction, that they can not be improved. Of course, to do this you must experiment.

Now I assume that you have your own method, with your regular schedule, which varies but little from burn to burn, and that you feel able to control it, to measure certain features of it, and to give a reasonably exact account of the whole proceeding on paper. But, after studying the various principles involved, some of which I mentioned in the first part of this letter, you have formed the opinion that more draft at one stage of the burn, or less at another stage, would save coal in the long run. In that case, the thing to do is to make one change only, and in the burning of but one kiln. For example, you think it might be better to use a lower draft near the finish. You then burn the kiln just as usual in every respect until near the finish, but give it less draft at that time. If, after the kiln is burned and drawn, and all the results can be taken into consideration, you note an improvement or the reverse, you know what produced it. There is no question as to which of several different things accounts for the difference in results. Moreover, you have a record of what you have done, and can verify your results by repeating the same thing in another burn. Since you have made the change in the burning of only one kiln, you do not run a risk of multiplying the loss in case the change proves to be a bad one, and either uses more coal or gives a poorer drawing record than the regular method does.

This, so far as I know, is the only safe and sure method of getting the sort of information you are looking for. You can get general principles from text-books and trade journals, but in making use of them you must patiently and methodically work out your own salvation. I trust that you will be persistent along this line, and will gather some reliable figures which will be of value to yourself and others. One

reason why there is so little definite information available on this subject is that those who have done work in connection with it have hid their light "under a bushel." I trust that your case will not be so. If you should be so reckless as to get your employer's permission and publish some of your results in THE CLAY-WORKER, I don't think the price of brick will go down because of it. And I dare say that you might be instrumental in encouraging a healthy tendency among clayworkers to compare notes more freely and less publicly. Such a tendency would be good for the progress of our industry, and I don't think anybody would lose money by it except the fellow who crawls back in his hole and spends his time treasuring his secrets, without realizing what is going on out in the world.

Yours with best wishes,

SI ENTIFIC.

Written for THE CLAY-WORKER.

CLEVELAND BUILDERS' EXCHANGE ELECTS OFFICERS.

THE FIFTEENTH ANNUAL MEETING of the Builders' Exchange of Cleveland was held on the evening of November 11th, and was attended by about 150 of the members. A brief business session was conducted in the Exchange rooms, on the third floor of the Chamber of Commerce building, followed by a social assembly in the Chamber of Commerce Club, on the sixth floor of the same building. At the first session, reports were presented by the officers and some of the important committees, indicating that the Exchange passed a prosperous and altogether successful year. The membership is still the largest of any Exchange in the United States, and the financial strength has been increased by steady additions to the reserve fund. The interesting feature of the meeting was the conferring of honorary membership upon Mr. E. H. Towson, the first president of the organization. The address in this connection was made by Col. C. C. Dewstoe, postmaster of Cleveland, who for many years was associated with Mr. Towson in the work of the Exchange. At the social assembly the report of the board of directors was presented, covering the work of the year. It was shown that 589 meetings had been held in the Exchange during the year; that the average number of visitations was 241 during the month of October; that 284 bulletins of information on building operations had been posted; that the telephone calls had numbered 500 per day; that many social meetings and luncheons had been conducted; and that the Exchange committees had looked after legislation, the labor situation, and many other matters for the good of the industry in the city. The annual address of the president was read by George B. McMillan, the popular head of the Exchange, who touched upon business conditions, the supply of building materials, the improved standard of construction, and other subjects of importance to the members. His address was optimistic, a cheerful view being taken of the prospects for the coming year, with reviving activity in all lines of industry. During the day preceding the meeting, ballots were cast for the election of the new board of directors. It was found that 204 votes were deposited, and that the following were the successful candidates: Geo. B. McMillan, general contractor; C. S. Bigsby, of the Garry Iron and Steel Company; Ira S. Gifford, plastering contractor; George A. Rutheford, carpenter contractor; Jacob Schade, carpenter contractor; J. Wenworth Smith, mason contractor; Henry A. Taylor, of the W. Bingham Company; Elmer E. Teare, of Potter-Teare & Co.; Geo. Thesmacher, sheet metal contractor, and R. R. Willis, painting contractor. The directors met on the following day and organized by electing Mr. McMillan president for a second term; Mr. Taylor vice-president for a like term; Mr. Rutheford, treasurer; Edward A. Roberts, secretary, and Chester M. Harris assistant secretary.

Written for THE CLAY-WORKER.

THE CLAY DEPOSITS OF IOWA IN GENERAL, AND OF MASON CITY IN PARTICULAR.

BY JAMES H. LEES.



IS A FACT PROBABLY familiar to most clay-workers of the United States who are interested in the large problems of their calling, that among the producers of clay wares, Iowa holds a leading position, and that in the matter of drain tile she takes first rank.

The reasons for these conditions may, however, not be so familiar. In view, therefore, of the coming meeting of the Iowa Brick and Tile Association at Mason City, and the interest which will be taken in conditions over the State, it may be instructive to indicate some of the physical conditions which have made possible the development of this very important business.

The source of supply for the raw material may be conveniently divided into two classes—the loose surface clays, and the more indurated clays and shales underlying the super-

of an area which extends to the western boundary of the State, and in which there are no commercial quarries. It is from this horizon, too, that the cement plant at Mason City draws its supplies of limestone.

At the western border of the town begin the beds of the Lime Creek stage, consisting chiefly of shales, but with more or less limestone and magnesian limestone overlying the heavy bodies of shale which form the major portion of this stage. The shales are remarkably well adapted for the manufacture of drain tile, and common building brick and block. Analyses show them to possess an excellent composition for these purposes, a composition which allows of burning at a comparatively low heat, and thus at less expense than with more refractory clays.

Another feature which aids in carrying on manufacture is the readiness of access to the shales. In some of the pits there are only a few feet of pebbly clay overlying the shales, while elsewhere a few feet of interbedded stone and shale overlie the thick body of workable shale beneath. Thus the pit of the new plant of the American Brick and Tile Company shows beneath 1 to 2 feet of black soil about 4 feet of soft reddish yellow rock, which is said to have the effect of increasing the refractoriness of the clay when mixed with it.



Two Clay Pits at the Denison Plants, Mason City, Iowa, Showing the Stratification of the Clay and Shale.

ficial formations, and forming a part of the foundation of the State, so to speak.

Among these latter, the oldest, beds which are used for clay ware are those known as the Maquoketa shales, which are exposed in several of the northeastern counties of the State, and are used in the manufacture of earthenware, brick, and drain tile in the counties of Clayton, Delaware, and Fayette. Tests and analyses of these shales prove their suitability for widely extended use, and their distribution and availability should make them an inviting field for greater exploitation.

The next succeeding clay beds are in the Upper Devonian series, and are known as the Lime Creek shales. These reach their greatest development in Cerro Gordo County, and have been most vigorously exploited at Mason City. It is due to the abundance and excellent quality of these shales that Mason City has attained her pre-eminence in drain tile manufacture. Mason City is certainly well-favored in the matter of structural materials. Along the eastern edge of the city are exposed thick ledges, yielding abundance of limestone of excellent quality for building and lime-burning purposes. These limestones belong to the Middle Devonian series, and underlie the beds found at the surface to the west. They furnish the natural source of supply for a portion, at least,

Below these are about 12 feet of interbedded clay and stone, and under these are exposed 20 feet of the blue shales, which are used in making the ware. In the pit of the old plant of the same firm, however, which is only a few rods distant from the other, and at the same level, the heavy blue shale bed is overlain by only 4 feet of the soft yellow decayed rock, and 1 or 2 feet of black pebbly soil. The pit of the North Iowa Brick and Tile Company shows a similar succession. There are only a few feet of soil and limy rock overlying the shales. It will be readily seen, then, how highly favored are the manufacturers in this very important element of supply of raw material.

The Lime Creek shales are also well developed to the southeast of Mason City, and are used by the Cream City Brick and Tile Company, west of Rockford, for making common brick and tile. The pit here shows 40 feet of shale under 8 feet of marly limestone. A drill section shows 40 feet of clays beneath the exposed beds. At Sheffield, a few miles south of Mason City, the American Brick and Tile Company has installed a plant which began work in August of the present year, and is using the same shales. Here are over 30 feet of shales resting upon limestone, and with little or no waste material over them.

Probably the most important shale beds in the State are

those belonging to the Carboniferous system, both because of their extensive distribution, and because their variety of character fits them for a wide range of uses. The Kinderhook stage, the basal member of the Lower Carboniferous, or Mississippian series, contains a very heavy body of shales in the southeastern part of the State, and in Des Moines County these reach a thickness of 150 feet. They have been extensively used near Burlington by the Granite Brick Company in the manufacture of common, front, and paving brick. Their high fusion temperature and slight shrinkage render them well suited for the latter purpose. The shales are also used for the Burlington Pottery Company in the manufacture of stoneware.

The coal measures, known also as the Upper Carboniferous, or Pennsylvanian series, cover nearly one-third of the area of the State. These contain an almost inexhaustible wealth of raw materials suitable for the manufacture of the various classes of clay wares. The coal measures comprise



View of Clay and Shale Pit at the Mason City Clay Works, Showing in Detail the Large Deposits.

a complicated series of sandstones, clays, shales, limestones, and occasional beds of coal, all of which merge into one another vertically and horizontally by gradual change of composition. The members which are of value to the clay industry include, besides the coal, the white to gray fire clays, the red and blue clay shales, and also the sandy, the limy, and bituminous shales, each of which is of importance, and serves a useful purpose in admixture with other clays.

Of the two divisions of the Iowa Coal Measures, the lower, the Des Moines stage, or Lower Coal Measures, is characterized by a predominance of shales and sandstones, with most of the workable coal seams of the State. In the Upper Coal Measures, or Missouri stage, limestones and calcareous shales are more prominent, although there are some fire clays, shales, and coal. In spite of the wide distribution of the Coal Measures, their shale content has been brought into commercial use in only sixteen of the counties within which they occur. But these counties have to their credit over 45 per cent. of the total production of the State. Of these

sixteen the leaders are Polk, Webster, Dallas, and Boone, and in each of these four the chief factor is drain tile. Indeed, these sixteen counties produce nearly one-half of the drain tile of the State, or as the figures of 1907 show, an output of \$893,000, out of a total product of tile valued at a little over \$2,000,000.

The greatest centers of the clay industry in the area underlaid by these shales of the Pennsylvanian series are Des Moines and Fort Dodge. At the former place the business is about equally divided between common brick, paving brick, drain tile, and sewer pipe, face brick and miscellaneous ware, and amounts to over \$600,000 per annum. At Fort Dodge over two-thirds of the annual output of \$315,000 is contributed by drain tile.

There is one other series of rocks which contains shale beds of commercial importance, a series which covers the northwestern counties of the State, and is known as the Cretaceous, from the Latin word "creta," meaning chalk, which makes up a large proportion of these rocks in some parts of the world. The shales as developed in Iowa are similar to those of the Coal Measures, except for a higher silica content and less plasticity. Because of these facts they are not so well adapted to the manufacture of hollow ware as the shales of the lower formations. They are said to be very well adapted to the manufacture of shapes, owing to their low shrinkage. Several large plants are operated in and about Sioux City, and these place Woodbury County at the head of the list of building brick producers.

The Cretaceous is the youngest of the indurated rocks series of Iowa, but over this, as over all the other rocks of the State, there has been spread by the glaciers of the glacial period, and by the rivers and winds of subsequent time, a mantle of boulder clay, of river silt and of a fine yellow clay called loess. These cover the entire State, and are quite generally used in the manufacture of the various grades of brick, as well as drain tile. By far the greatest number of producers obtain their raw material from omnipresent and withal excellent sources. While many of these plants are not very extensive, they go far to swell the total production of the State, and to furnish a convenient supply for the local necessities, as well as the more distant trade.

A second element to be considered is the conditions which have caused Iowa to become such a prominent factor in the clayworking industries of the United States. So far as these relate to the use of the different varieties of brick, we must look chiefly to the rapid growth of our cities, with the continual movement toward more fireproof structures and the accompanying desire for substantial, ornamental buildings which will minister at the same time to the desire for permanency, and for the gratification of the esthetic taste which uniformly follows the attainment of wealth and the enjoyment of the comforts of life. Added to this is the expression of the movement for better roads and streets in the shape of brick paving, the most durable and satisfactory method of road-making. To this extent the growth of the industry is general, and is common to other States. What is more peculiar to Iowa, and what has made the State the leader in one branch of the clay industry, is the drainage situation. This is worthy of more than passing notice, since in it lie the reasons for the existence of an industry aggregating over \$2,000,000 a year.

Stretching over the north-central and northwest portions of Iowa, from the Minnesota line as far south as Des Moines, is a great expanse of land of marvelous productivity, but where the topography is as yet so undeveloped that drainage is an absolute prerequisite to successful farming, and indeed in some seasons to farming at all. A perusal of the map of Iowa will show that over this great lobe, extending from Mason City and Iowa Falls on the east, to Carroll, Storm Lake, and Sibley on the west, streams are much less numerous than in the southern part of the State, for example, and

that a much smaller portion of the surface is controlled by them. Here they have little more than begun their work, and, except in the case of a few of the largest, they have no deep valleys, but usually flow in mere trenches in the bottoms of the swales and gentle depressions of the surface. Their channels are due to constructive rather than to erosive agencies. Because of these conditions they are not able to carry away the run-off from the soil, and recourse must be had to artificial drainage. This will explain the presence of the great industries at Mason City, Des Moines, Fort Dodge, Van Meter, and in less degree at many other points in or near to this area. These large producers, as has already been shown, are favorably located with regard to supplies of raw material, they are centers from which radiate lines of railroads which penetrate to all parts of the field, and, what is of equal importance, they control a territory which must depend for its supply either upon them or upon local supplies, which are in general either smaller or less economically obtained and handled. It is true that not all the land needing drainage lies within the area under discussion, but it is also true that of the \$2,000,000 worth of drain tile made in Iowa last year, all but \$346,000 worth was put out by counties wholly or partially within this area.

Written for THE CLAY-WORKER.

ST. LOUIS BRICK AND BUILDING NEWS.



EARLY ALL THE building and fire brick manufacturers report a fair amount of business, although not as much as there should be with the building conditions as good as they are. Up to the past few days, the weather conditions have been all that could be desired. Now, however, while not extremely cold, it is wet and disagreeable, but not enough to greatly interfere with operations. Within a short time most of the plants will close down for their annual repairs, and it depends on the weather conditions as to when work will be resumed—not until after the first of the year at the earliest. Nearly all the plants have plenty of brick on hand for immediate needs, and many of them have enough stored to last for some time.

In his monthly report for November, the Building Commissioner showed an increase of \$577,325 in building for the month of November, as compared with November, 1907. The increase was mostly in new brick buildings, the aggregate of which for November this year was \$1,199,025, against \$633,835 for the same month last year. The total permits for all kinds of buildings aggregated \$1,366,511, against \$789,186 for November last year—about 73 per cent. increase.

With the exception of additions to brick buildings, every class of buildings showed an increase, based on the cost. Permits for additions to brick buildings increased from ninety-eight to 105, but the cost shows a decrease from \$102,434 to \$85,888, or \$16,546. New frame buildings increased from \$47,996 to \$68,182, while additions to frame buildings increased seven in number, and \$10,495 in cost—from \$4,921 to \$15,416. The total number of permits issued increased from 453 to 614, an increase of 161. Of the increase in permits, new brick furnished 106, with an aggregate for the month of 199.

Usually the aggregate amount of permits issued for November are much lower than months earlier in the season, in that persons contemplating the erection of dwellings and houses to rent hold off until spring to begin work. This year, however, the situation is different. A large number of the permits have been issued with intention of rushing the work through before the weather breaks. To the low price of building material the boom is attributed.

Building operations for October, this year, were \$2,280,050,

against \$1,013,322 last October, or an increase of more than \$1,000,000, or 77 per cent.

The prices of building material still are favorable for the immediate or early construction of residences, apartment houses, flats, or mercantile structures. The probability is there will be a slight advance in the price within the next few months. Lumber is the only material so far which has taken an advance since election. The large demand for this class of material in the East has caused prices to rise in the western market, but thus far the rise has been only slight.

The situation among the architects is more of hopefulness than of immediate results, but they assert the time has been too short since the election for them to size up the situation in any tangible way. Pre-election promises, however, are being fulfilled, and many contracts have been made for work for the spring season. The best-known architects declare the revival of business will be slow but steady, and will be permanent. Many projects that have been apathetic for the last several months have been again revived, and orders given to rush the work of the plans and specifications. This is particularly true with contemplated mercantile structures and large apartment houses. They do not expect work on the office buildings of high type. The supply has been satisfied in this line. They do anticipate a "boom" in small structures and homes.

"The decrease of about 20 per cent. in the cost of construction," said one of them, "and the general anticipated revival of business in all lines will cause many persons to erect their own homes. A point well worth considering is that labor performed in dull times is far better than in 'boom' times. The work is therefore more satisfactory to the builder."

The deal that a Cleveland corporation tried to close for the merger of the smaller brick plants here has fallen through. According to the best obtainable information, prices were asked from quite a number of the small plants, and in some instances figures were given, but when the Cleveland corporation stated that the purchase price would be paid in stock in the larger corporation, and not cash, the option was withdrawn.

Brick are selling at about the same price as they have for several months, in spite of the reduction in prices of other material that enter into the construction of houses, although instances can be cited where a reduction of about 25 cents a thousand has been made, when competition has been strong and immediate delivery wanted. This, however, can not be considered a falling off in price.

The fact that one railroad entering the coal section in Illinois has reduced the rate for hauling coal, and the other competing road will probably follow suit, is good news to the building and fire brick manufacturers, for it will mean a saving of a large amount of money to them. One well-known large fire brick manufacturer states that it will mean the saving to their company alone of about \$6,000 a year, and to the general industry all the way from \$75,000 to \$100,000.

The top machinery of one of the mines of the Evens & Howard Fire Brick Co. was completely destroyed by fire a couple of weeks ago, and a loss of about \$10,000 sustained, but it was fully covered by insurance.

The brick machinery people report inquiries have been coming in nicely for some time. The inquiries made before the election indicated that when the election was over and it "went right," orders would probably be given. It must have "gone right" for some of those who made inquiries, for since the election several big sales have been made that have been hanging fire for some time. There is a decidedly better feeling all along the line.

A. SAINT.

Which jury is likely to give the best brand of justice, the one where nine of the twelve men can bring in a verdict, or the one where one hard headed or obstinate juror can prevent any action whatever?

Written for THE CLAY-WORKER.

PALATIAL RESIDENCE AT CLEVELAND BEING BUILT OF HAND-MADE NEW HAMPSHIRE BRICK.

THE FIRST IMPORTANT job of any magnitude in which old Harvard hand-made brick have been used is about completed at Cleveland, Ohio, and presents a very attractive appearance. It is a palatial residence for Samuel Mather, a Cleveland millionaire vessel owner. The facing brick employed in the exterior walls are the genuine Harvards, made at Gonic, N. H., and are hand-made, water struck brick, which were first given pre-eminence by their use in the famous Harvard gates.

These brick weigh but four and one-half pounds, and are molded and burned in the crude manner which characterized the earliest method known to the brickmaker. While lacking the mechanical perfection the modern machine-made

the architects whose work expresses this country's most highly developed artistic sense.

The architect for the Mather home, which is reported to have cost nearly \$800,000, was Charles F. Schweinfurth, the eminent Cleveland man, who has long ranked high as a developer of a distinct line of originality. The building is patterned after an Italian villa, with two bays of limestone and roof of tile. The brick used are brown in color.

Remarkable care was taken in the selection of the brick, the freight rate on which to Cleveland from the New Hampshire brickyard was as much, or even more, than the cost of the usual brick used in residences. Mr. and Mrs. Mather made two trips to the East, and were followed by Charles F. Schweinfurth. The contract for the brick was given to the Cleveland Hydraulic Press Brick Company, and W. H. Hunt, the manager, then journeyed eastward to get the exact shades.

After determining upon the kilns from which the brick



The Magnificent Samuel Mather's Mansion at Cleveland, Ohio. Built of New Hampshire Hand-Made Brick.

brick possesses, the texture and irregularity of lines and color features have given them first place in the minds of discriminating architects.

The appearance of these brick in the wall is greatly varied, according to the bond employed, and the percentage of dark and black headers in the surface of the wall. In the case of the Mather house, only about 15 per cent. of the headers appear, and, as a result, the effects obtained are pleasing. The disadvantage of the idea so commonly exercised in notable buildings in Boston and other New England towns, where a great number of header and stretcher brick are used, is that a mechanical effect results. This is avoided in this example of architecture, by a rather limited use of the dark headers.

With all the modern science applied to the manufacture of mechanically perfect brick, there is probably no facing brick used in this country which so heartily meets the approval of

were to be secured, Mr. Hunt intimated to the brickmakers just what brick he desired shipped. The four lower rows in the kiln and the top four rows were all rejected as being too dark. The inner rows were tinted about right and were accepted. About 300,000 were shipped to Cleveland, and then very carefully picked over and set in the wall.

Verily, this house is built of the brick that grandfather used to make. The old methods and the old results are obtained in these crude but beautiful specimens of the brickmaker's art. Never before have so many of these brick been brought into the middle West. They have been used for mantels and other small jobs, but now that they have come, they promise to be popular to those who can afford them.

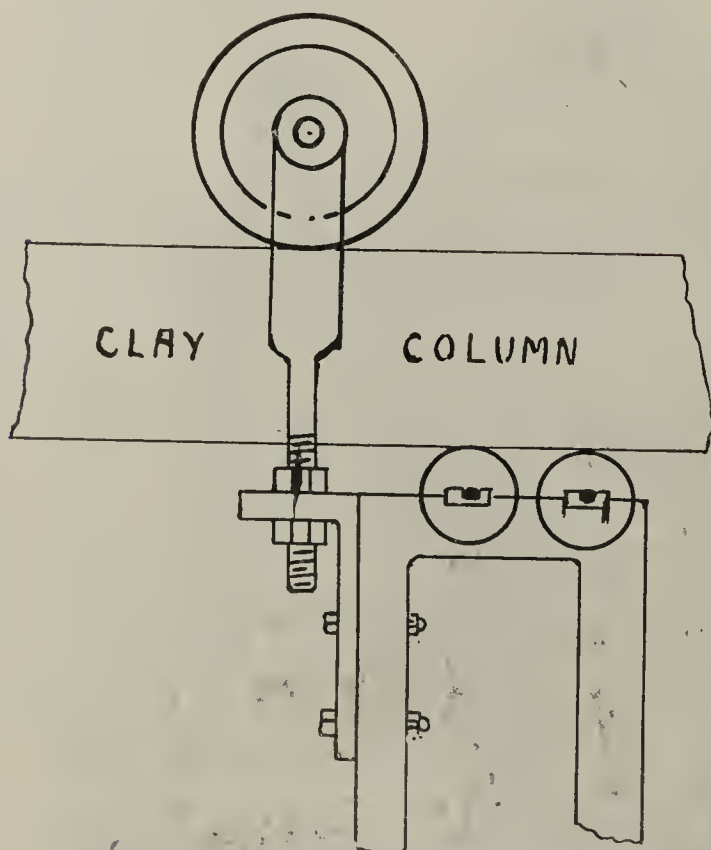
BUCKEYE.

The more a man knows the less he feels inclined to grumble, for he knows it don't pay.



Fire Clay Mixtures for Glass Furnaces.—The grog to be used for glass pot work shall not be greater than one-eighth of an inch in size. A well-adopted mixture is made of eight parts grog, seven parts glass pots grog, seven parts plastic fire clay, and two parts flint clay. Care should be taken that the pots are fired slow, and visible red heat should not be had until the third day.—Sprechsaal, No. 33, 1908.

Stamping Bricks With Firm's Name.—A simple device for stamping the name on brick while passing the cutting table consists of a roll on which the name plate of brass or zinc is fastened. The name plate can be made in five or six



Side View of Simple Stamping Device.

strips. The roll will move with the clay column, and stamping of the brick is continuous.—Tonind. Z., No. 107, 1908.

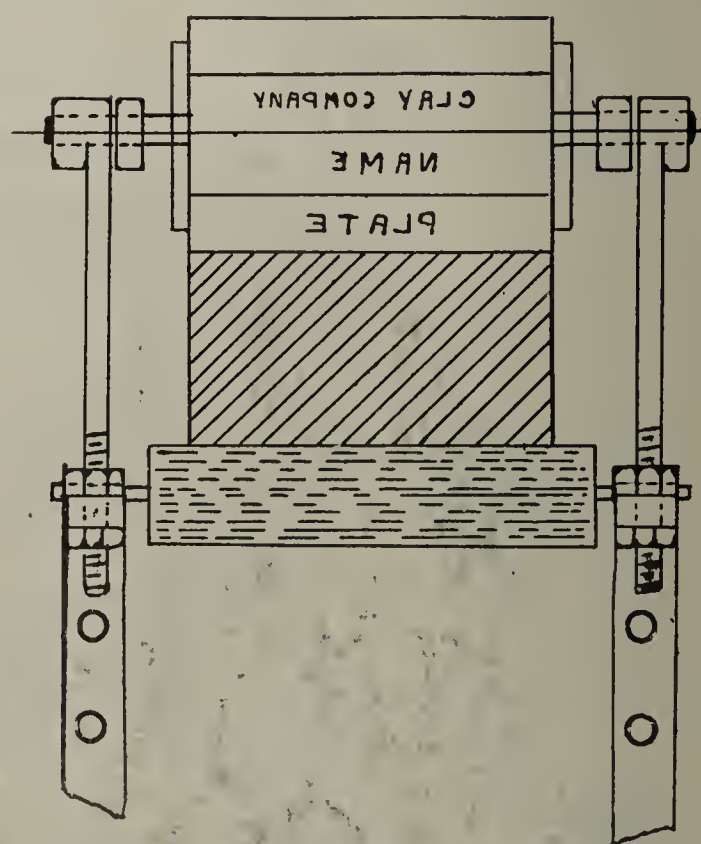
The Grinding of Grog and Calcine.—The dry pan has not given the desired result when the grinding of grog is considered. A set of rolls is in many ways preferable for the grinding of this hard material. The ground material had more sharp corners, and will stand better in mixtures with clay, than when ground on the dry pan. A rotary screen is the best method for screening this kind of material.—Sprechsaal, No. 35, 1908.

Brick for Grinding Mill Linings.—The lining for most ball mills is porcelain. In many cases these linings are imported, but it is not necessary as these bricks have been easily made at home. A good mixture is made of from twenty to thirty-five parts of good stoneware clay, forty to fifty parts of ground glazed, hard-burnt whiteware, fifteen to twenty parts of feldspar, and twenty to twenty-five parts of flint. The whiteware parts should not be ground too fine, otherwise the brick will crack in drying. When a dry press outfit is handy, it should be used for making the brick, other-

wise the plastic process is used. Another mixture which has given good results is as follows: Kaolin, fifteen parts; ball clay, fifteen parts; flint, forty parts, and soft feldspar, thirty parts. When the brick made from this mixture are not hard enough, the flint should be reduced to thirty-five parts, and the kaolin increased to twenty parts. The brick should be burned at a temperature of about Cone 15.—Sprechsaal, No. 36, 1908.

Rose-colored Pottery Body.—To make good rose-colored porcelain, a temperature of Cone 8 to 10 is necessary to obtain a good body. When a body is wanted which should mature at lower heat, it will be necessary to use a frit. Such bodies will have very little transparency. A body which will answer the purpose is composed of ten parts of ball clay, twenty-two parts of kaolin, and sixty-eight parts of feldspar. The addition of from 1 to 5 per cent. of Red of Thiviers will give a rose-colored body in oxidizing temperature. The clay body should have no lime, as this will destroy the red and give a yellow color.—Keramische Rundschau, No. 38, 1908.

Dog as Moving Power for Potter's Wheel.—Dr. L. Durr, of Berlin, in describing the old pottery industry of Sufflenheim, which dates back to the thirteenth century, shows with a



Front View, Showing Name Plate.

photograph how, even today, a dog is used to turn the large potter's wheel. This principle of motive power is in general use throughout the district. There are from thirty to thirty-five small potteries in this district, besides a new large pottery, which makes flower pots exclusively, and is one of the largest flowerpot factories of Germany.—Tonind. Z., No. 109, 1908.

Terra Sigillata.—According to Director Karl Bluemlein, of Homburg, the reproduction of the old Italian terra sigillata, which has been tried for years by different ceramists, has now been successfully made by Karl Fischer, of Sulzbach. The Royal Porcelain Manufactory, in Berlin, has studied this type of pottery for years, but has been unsuccessful in making good reproduction. As the old terra sigillata has been found in different places, it was evident that its manufacture was not a hard matter, as it was practiced by many people. The experiments conducted so far were all along too complicated lines, and it was only after Fischer made experiments based on simple principles that he succeeded in making good reproductions. Fischer also succeeded in obtaining a pure black finish, such as is found on the old Grecian pottery.—Tonind. Z., No. 107, 1908.



FLANIGAN'S CHRISTMAS SPIRIT.

BEGORRA, IT'S THE Christmas spirit that do beat the devil intirely, and makes St. Patrick's Day look like a plugged nickel along side of a big new dollar, so it does. And it's that mysterious, it is, in its workings, more than Mr. Phil's chiminal laboratory, and it's about as easy to see through a vitrified paving brick as it is to see what's going to happen to you when you do get it. And we all get it, its ipidemic, it is, and more catchin' than the measles, and the way you know yez got it is that yez feel like ye been an unburned brick all your life, so ye do, then yez get to feelin' sanctified like as if yez were just ripe to take on a good salt glaze, and be all ready to go into a front wall and show the world how fine yez are. Then, when yez takes the third degree, if yez ain't married yez are mighty near sure to fall in love, and if the game is blocked in that direction by being married, then yez take another turn and want to lay hold of some common chunk of human clay, and use your Christmas spirit on it to shape it into a statute of glory, so yez do.

There's the Boss, now. He gets it first, just like he gets the money first, and then divides it up with the balance of us, accordin' to what he thinks we've earned, need, or can get along with. And that's the way with the Christmas spirit when he lines us up to dish it out to us with a little spiel. It's plain and substantial, but there's not enough of it to get us confused. But it's young Phil that comes back from college and brings the confusion kind along with his chiminal things that they stuff young brickmakers' sons with up at Columbus, and the way young Phil dishes it out to us makes it sound like a profit-sharing plan instead of a pay roll. And, while it's the new kind, it's the devil's own time a man has figuring out just what he's got, and just what to do with it.

When I comes up to Mr. Phil's office with a sample of clay from the Blue Hill opening, I butts in like a Kerry Patch billy goat, and overhears him makin' highfalutin' talk to Miss Beauty, the stenographer, in which he's telling her what a fine girl she is and what iligant letters she writes, and that she's too grand a girl intirely to be working all the time. Mr. Phil, he looks at me a minute, like the Boss does when I wants to borrow the loan of a few dollars until pay day. Then, he bucks up and smiles like a spring day, and sez: "Brick," sez he, "do you know what Christmas-time means, what it stands for, and what inheritance it brings to the human race?"

"Yez can search me," sez I, "and if you can find the price of a drink on me after Christmas it's yours already, Mr. Phil, for it's more'n I'll ever be able to find."

"Why," said Mr. Phil, "it's not the spending of money that makes the real Christmas. Christmas is the spawning time of peace and goodwill, and that is one thing," sez he, "that can be had and given without money and without price. It is all a mistake, this spending of money and making Christmas a burden, and what you should do is to sow the seeds of goodwill among your fellowmen, and, in time, you will reap a harvest of good things that are worth more than all the money that is foolishly spent for Christmas presents."

"Mr. Phil," sez I, "it's the great man yez are for analyzing and inventing things that move on ball-bearings and pay

for thimselves, and," sez I, "if you've found a better way for spending Christmas than going broke the morning after, it's meself wants to hear about it."

"It's the easiest thing the world," sez he, "just make up your mind to say a good word and give good cheer to every man you know. If you have a friend you like, tell him about it; if you have an enemy, go and forgive him and ask to be forgiven, so as to start into the new year with a clean slate, feeling good toward everybody, and make it a point to say some complimentary things to everyone you meet. That is what it takes to make light hearts, and make good cheer in the world."

"Do you mean," sez I, "that's it's better than giving presents?"

"Sure," sez he, "tin times better. You just try once and see."

It was the great puzzle, it was, to me how it would work out, but I sez to meself, "Brickie," sez I, "you couldn't see how it was when Mr. Phil told you that the new steel wheelbarrow with ball-bearings would run lighter than the wooden one. But it did, just the same, so it did, and if that idea was good, this one is worth trying, too, so it is, and cheap at that."

Then I goes home thinking that Christmas cheer is cheap, and that I'll commence giving it early and keep it up late, so I will, and when I gets home I sez:

"Bridget, it's the fine woman yez are," sez I, "it's too fine yez are to be working every day, and it's silks you ought to be wearing," sez I, "and presiding over a mansion."

"Go long wid ye, ye old fool, and quit your lalligagin," sez she.

"It's not blarney," sez I, "it's the Gospel truth," sez I, "for Mr. Phil sez so."

"It's the great man Mr. Phil is," sez she, "but do you be running along wid yourself and making a fire in the parlor, for Tim Haggerty be coming to see Katie tonight, and it's not a frost she is after, being wanting to give him."

"It's the hot air game that's the great game," thinks I, to meself, as I was building the fire, "and there's other things that can be done with hot air besides drying brick, for I could see that Bridget was all in a glow with tickling over what I had already given her. And there's plenty more of it I'll be giving her, for it's a great Christmas I'll have without spending a cint."

Then as I was washing the dirt off me hands, looking for me pipe, I heard Bridget talking to Katie, and saying, "it's the fine husband your father is," sez she, "and I only hope that Tim makes you as good a one, for your father has just been letting me know, the slick man he is, that it's a fine silk dress he is going to be buying for me Christmas."

"It's the great mess I am getting into now," sez I to meself, "and it's Mr. Phil that'll have to help me get out of it."

Then I reminds meself that it was fellowmen that Mr. Phil was talking about, and he didn't say nuthin' about women at all, so he didn't.

"It's the bad break I've made," sez I to meself, "like letting a kiln arch cave in, but cryin' won't save it, and there's other fires to tend to." So, I butts in on Katie and Tim, and sez kind of careliss and easylike:

"Hello, Tim. It's the great man yez are," sez I.

"Thank you," sez Tim.

"Don't mention it," sez I. "It's meself thinks you could lick Pat Murphy," sez I.

"Sure," sez Tim.

"It's workin' fine," sez I to meself, and would a give him a lot more out o' the some bottle, so I would, but I sees Bridget a makin' faces and motion to me to come on out and leave 'em alone.

Me intentions was all right the next morning, too, as I started out to work, with Katie going along with me, going uptown shopping, but a man never knows what his intentions are going to do with him whin the women are along, and who did we meet but Pat Murphy, bad luck to him. He is a beau of Katie's, too, and as he stopped to say top of the morning to us, "what's the difference," thought I, "good

cheer is for iverybody, and that includes Pat as well as Tim," so I sez, "it's the fine man yez are Pat."

"Thank you," sez he.

"Yis, it's the great man yez are," sez I. "I believe yez could lick Tim Haggerty," sez I.

"Sure I could," sez he, and then he looks at Katie, but Katie don't look pleased none.

"I don't believe it," sez she. "Tim sez he can lick you with one hand tied."

"Whoop," sez Pat, "just let me at him, that's all," sez he. And with that he lights out for the brickyard, and then I don't have to do any analyzing for results, I can just naturally smell trouble, so I can.

I ducks for the office at a pay-day gait and explains to Mr. Phil. He laughs a little, and we both hurry down to the yard, but we miss the first round, for when we gets there the boys are holding Tim and Pat apart until they breathe a little and get the mud out of their eyes, and they are about ready to let 'em go for a second round, but Mr. Phil sez "no." He then takes Tim off to the office with him. By and by he sends back and gets Pat, and then in about an hour here comes Pat and Tim, arm in arm, like two brothers.

"What did you do to them?" sez I to Mr. Phil.

"O," sez he, kind of smiling, "I gave them some of the Christmas spirit."

"Begorra," sez I, "can you give me and the old woman a drink out of the same bottle?"

"Sure," sez he, "but it don't come out of a bottle. Here is what it is: I explained to them that a fight was nothing but a test of brute strength and skill, was not any measure of true greatness. True greatness consists of a capacity for doing good in the world, and the way to do good is not by way of belittling the other fellow, so as to make yourself bigger in comparison, but is rather by starting on a foundation of humility and praising the good qualities of the other fellow. After I made the boys see this in the right light, each one of them proceeded to argue that the other one is the best man, and they are now having a friendly rivalry to see which can do the most for the other and find the most to brag about in the other fellow."

"It's a fine thing, it is," sez I, "but it's beyond me understanding." Then I goes home and meditates considerable, but concluding that this new Christmas sintiment is like a new-fangled kiln, and takes an expert to handle it." I sez to meself, "we will set tight a day or two and see how she works out."

Time goes on and Tim and Pat keep being chums and saying good things about each other, but they don't come to see Katie no more, so they don't, and as it comes near Christmas, Katie, she gets impatient like and wants to know what's the matter.

"It's Mr. Phil's Christmas spirit," sez I, "they've both caught it and turned looney." Tim sez Pat's the best man and it wouldn't be fair to Pat for him to come see yez, and Pat sez no, Tim's the chosen one, and it wouldn't be fair for him to take advantage of Tim by coming, and there they go mooning and seesawing like a pair of locoed Nanny-goats.

When it gets through Katie's head just what was the mater, the things she sez didn't sound like a Christmas spirit, so they didn't, but more like the spirit of the mother when she and I have some heated arguments. After she had worked off the steam about fifteen minutes, she sez to me, "Daddy," sez she, "it's you that will be taking a note down to Tim for me, won't you?"

"Sure," sez I. "But what's the use. He'll say Pat's the best man, and you should send for Pat."

"It's the thick head you've got, Daddy," sez she. "It's meself that wants Tim to come down, so that I can help him plan and prove to Pat that he is the best man."

"I can't get that all through my head, but I delivers the note, and Tim, he looks puzzled for a minute, then he grabs his hat and lights out, and then I goes over to ask Mr. Phil how I am to raise the price of that silk dress, or get out of giving it.

After I have explained the situation to him, he sez to me, "Brickie," sez he, "you mean all right, but you are working in the dark. Different clays," sez he, "require different treatment. First, you have to analyze your clay, then you figure out what it is best fitted for, and the kind of treatment to give it to produce the desired result. "Now," sez he, "the mistake you made in bragging on Bridget, was in not figuring out first just what her good qualities are, and compliment her on them."

"Do you mean," sez I, "I should tell her she is a fine washerwoman, and ought to go into the business and take in washing?"

At that, Mr. Phil laughs ag'in, and sez, "Well, I don't



No. 1. Discharging End of Dryer at Cherokee Brick Plant, Macon, Ga.

know that that is the way to put it, but that's getting a little closer to it than you were, and if you will keep on studying about it you'll find some good qualities to compliment her on without causing yourself trouble."

"I don't know," thinks I, "it looks like a fine 'ruction I am going to get into yet, for when I begin to tell Bridget what a fine washerwoman she is she'll be after mopping up the floor with me, or else twixt the two of us, we'll break enough furniture to pay for a new dress. It's beyond me intirely, and so I goes home thinking I'll have Katie to help me out.

When I come into the parlor, sudden like, Tim and her looks like two school kids playing hookey, and just to make 'em feel more foolish, sez I, "Tim, what about Pat being the best man?"

"O, Daddy," sez Katie, lining up along side of him, "that's what he is going to be, best man. Tim and I have fixed it up between us, and Pat, we're going to have him for best man at the wedding, so we are."

"All right," sez I, looking at Tim, "and if you don't I'll lick you meself, so I will." Then I goes off and tells Bridget about it, so as to keep her mind off that silk dress for

awhile. But, I am still meditating and wondering how I am going to keep calling Bridget the fine woman without having to buy a silk dress, or have a 'ruction. Maybe it will work itself out, but it is beyond me intirely, so it is, and this Christmas spirit do be great and mysterious in its workings, and it's meself that don't understand it at all, so I don't.

DREAMER.

Written for THE CLAY-WORKER.

ARTISTIC BRICK BUILDINGS.

A FRENCH ARCHITECT of some standing lately visited this country, and expressed his disfavor with much that we had done or are doing. Among other things the gentleman seems to object to brick buildings, stating, with a contemptuous wave of the hand, that "bricks are good enough for Brooklyn."

The "American Architect" takes this traveler to task for many things, and adds, in reference to brick: "He might have said for Brooklyn, Venice, Vienna, Blois, and Versailles, without historical inexactitude. Far from being not good

Written for THE CLAY-WORKER.

A PROSPEROUS CLAYWORKING COMPANY IN THE SUNNY SOUTH.

The Cherokee Brick Company's Fine Plant.



LOCATED SOME THREE miles from Macon, Ga., is the prosperous plant of the Cherokee Brick Company, successors to the Stratton Brick Company. This factory is one of the oldest clay manufacturing plants in the South, and has quite a reputation for a high grade common and press brick. It is turning out an enormous quantity of brick, and although affected somewhat during the recent panic in the matter of marketing their ware, they did not close down, but piled their stockyard full of brick, and are now realizing the benefits of their toil by the increase in demand. This company has a capital stock of \$50,000, and is incorporated under the laws of Georgia. It is not only one of the oldest, but also one of the largest

plants in the South, having a daily capacity of over 125,000 brick.

The plant is equipped with all modern machinery, has an abundance of raw material, and excellent railroad facilities, so that it has every advantage in the manufacturing and shipping of their high-grade product.

The location of the plant is especially fine on account of its unsurpassed railroad facilities, the Central of Georgia and Georgia Southern and Florida Railroads passing in close proximity to the plant. A spur from the former runs in front of the kilns, and a spur from the latter leads to the rear of the plant, used for unloading purposes. A track leads to a coal chute, which enables the company to unload their coal by opening the traps in the bottom of the coal cars, which unloads the fuel at convenient distances from the furnace doors.

The clay mines are located about one and one-half miles from the plant. The clay is of fine quality and burns to a superior color. The raw material is mined by means of a Thew automatic steam shovel, which has been in use for three years, and has given excellent service. Mr. W. E. Dunwoody, vice-presi-

dent and secretary-treasurer of the company, declares he would not be without this shovel, for it is a great money-saver for them, besides mixing the clay in its shoveling, giving them an average of material not obtainable by any other method. The clay is dumped from the bucket of the steam shovel into 6-yard Western wheel scraper side dump cars, and transported to the plant by means of a 12x16 locomotive engine.

One of the illustrations (page 618) of this article shows the clay mines and a deserted clay pit full of water. Mr. S. T. Coleman, the president of the company, is standing on the clay bank. The locomotive also shows with two of the 6-yard cars and a third car loaded with coal for the steam shovel.

A general line of Chambers machinery is installed at the plant, which has given this factory the South's record for the number of brick turned out in one day on a single machine. The brick are taken from the off-beating belt and placed on dryer cars which, when loaded with green ware, are pushed into an American Blower Company waste heat dryer, which the company reports has a capacity for 25 per cent. more brick than it was guaranteed it would dry, and is



No. 2. Receiving End of A. B. C. Dryer on Cherokee Brick Plant.

enough for New York, New York is not good enough to appreciate red brick. As long as we love red brick faced with white, we may take as a symptom that we are a sturdy race. Brick may be inelegant to modern French eyes, but so is the natural sun-burned complexion. No amount of adverse criticism against brick building will convince us that we are too good for it until we have an altogether superficial and feeble view of life."

That journal might have also added that brick is one of the oldest materials with which man has built, and is the best preserved of all the materials of antiquity. Moreover, it has ceased to be not only in this country, but in Europe as well, the substitute material it was some years ago, being used only there where granite, marble, and the other expensive stones were too costly. It is a material now chosen for its artistic effect, and in preference to those other more costly building mediae. Wonderfully beautiful effects and colors are secured in brick work, and architects are today vying with one another with designs, particularly for domestic buildings, that will best bring the subtle and artistic effects that can only be obtained in that material.



General View of Cherokee Brick Company's Plant.



A View of the Rich Clay Mine Showing Steam Shovel and Dummy Engine.



A Glimpse of Cherokee Plant Showing Kiln Sheds.

in every way thoroughly satisfactory. The brick are burned in eleven up-draft kilns, each of 450,000 capacity.

One of the illustrations on page 618 shows the two-story building and the locomotive with three loaded cars of clay. The office is just beyond the locomotive, and the kiln sheds are seen in the distance. This view also shows the water tank, brick machine building, engine and boiler rooms, and stacks to boilers. Illustration No. 2 shows the front end of the dryer, with a car of brick standing in front of the first dryer built by the company, which is still in use. This is a five-stack dryer, in which a Sturtevant fan is used. On the left is the American Blower Company eight-stack fireproof dryer, by far the better dryer, using the A. B. C. waste heat system. The company unhesitatingly pronounces the dryer the best they have ever seen, being constructed of brick, cement and steel. View No. 1 is a picture of the discharge end of the dryer, with the A. B. C. fan house located in the right of the picture. The fan used is a 12-foot direct-driven steel fan, and has been running over two years without a single repair.

The last illustration is a view of the plant taken from a neighboring hill, and shows a general view of the yard in the distance, while in the foreground is a patch of cotton which has developed and is ready to be picked. Between this cotton patch and the yard is a swift stream of water, which the company expects to use for a dam proposition with which to furnish the water supply of the plant. On the right of the picture can be seen the tracks used for transporting the clay from the clay mines to the plant.

During the past summer the plant was running at almost half capacity, due to the recent panic and lack of building in the South. During this time they stocked up brick on nearly every available space on the yard. The building trade has improved lately, so that the company is now quickly cleaning their yard of the surplus stock of brick, and the demand is more than sufficient to take care of their output.

EVENING SCHOOLS FOR VOCATIONAL WORK.

At the recent meeting of the National Society for the Promotion of Industrial Education, Louis Rouillion, director of educational work of the Mechanics' Institute, of New York, made a plea in his round table talk for the evening school. He says that in Great Britain the evening trade or vocational school is wielding so large an influence that attempts at day training are almost eclipsed. The evening school, he says, does not interfere with the pupil's present capacity or with daily work. It only asks for some of the time that would otherwise be lost in idleness or pursuit of amusement. In vocational training of boys already employed somewhere, he says, there is an advantage in that they don't have to force the average boy to select this trade or that trade, but finding him already employed as plumber, mason, or carpenter, and his ambition aroused, they teach him the practical application of the work in which he is engaged. He takes the position, too, that the evening school is not necessarily a matter of hardship or self-sacrifice on the part of the pupil, but is really a form of recreation and training that makes him all the better and healthier. In short, while the point is not specifically made, one might assume from this logic that to a certain extent the trade school might take the place of some of the athletic training that is recommended for evenings to help develop the physical man, and at the same time trains the hands to specific vocation. This is a new viewpoint that will be especially interesting to those who are not able to take advantage of what might be termed the regular day school for teaching the trades, yet it is doubtful if evening or night school in this country will ever assume the same prominence as in Europe, because the average American works faster and learns faster, and will

manage somehow when properly aroused to get the training in the day, except where it is essential for boys to be bread-winners and get training at the same time.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



BUILDING OPERATIONS in Kansas City continue to be active, but the activity at the present time is more pronounced in the frame building than in the brick building line. The permits for the month of November show that the total value for the month is \$632,665, or \$21,335 more than for the corresponding month of 1907, but only \$216,600 of this was for brick buildings, as compared with \$344,300 in 1907. There were twenty-one brick building permits this year, as compared with eighteen in the same month last year, showing that while the investment in this class of buildings was not so large there has been more buildings erected, and the brick buildings this year covered 300 more feet of ground than they did last year. Take frame buildings, on the other hand, and they covered twice the front feet in November that they did in the same month of last year, and were over twice the value.

Contractors have again been hampered to a limited extent by their inability to get brick as fast as they needed them, for there was still another flood in the Kansas gas belt. It is very unusual for a flood to visit that section in the fall of the year, but this year they had a flood in October, and another one in November, and it stopped the shipment of brick to a very great extent in each case.

The winter business is very problematical. Building material men say they will be well pleased if they can do as good a business through the winter months as they did last winter, but there is no surety that this will be the case.

The Buffalo Brick Company, of Buffalo, Kans., has discontinued the manufacture of brick, and has turned its entire attention to paving blocks, having orders already booked for blocks which will require their entire output until next May, even by running all winter and turning out from 60,000 to 80,000 paving blocks per day. This shows what the plants are able to do which have the shale which will make good paving brick. The Buffalo blocks are standing the test, and the demand is so much greater than the plant can supply at present capacity that the doubling of the plant is now under serious consideration.

The rapid developments in Oklahoma are causing a big demand for all kinds of brick, and pavers are wanted in many localities where they can not now be delivered. In these new towns they have in many cases had very satisfactory experiences with brick paving, and are in favor of it above all other kinds of paving.

The Standard Brick Company, of Coffeyville, Kans., is putting in a number of down-draft kilns.

The Pittsburg Vitrified Paving Brick Company reports having booked in the last month an order for 1,300,000 of their paving blocks for H. L. Miles, to be used in Wichita, Kans., and one from the Jarrett Construction Company, of Springfield, Mo., for 700,000 blocks. They also have the contract to furnish 500,000 of their paving blocks to the city of Beaumont, Texas, which seems to be doing its own buying.

The Cherryvale Brick Company is putting in some down-draft kilns at its plant, and preparing to increase its output.

There is reported to be a considerable over-production of cement in this field at this time, and the railroads have made a rate of 35 cents to the Pacific coast to help relieve it as much as possible. The rate on brick to the Pacific coast is 60 cents.

To show the volume of the brick business in this city, and passing through it, one day recently the Missouri Pacific Railroad alone had seventy-five cars in the yards here.

The Eadie Building Supply Company is reporting its business to the present time as being considerably ahead of last year.

K. A. W.

Written for THE CLAY-WORKER.

BRICK PAVEMENTS ON THE PACIFIC COAST.



OMPARATIVELY FEW PEOPLE in California have much familiarity with vitrified brick for street paving, due almost entirely to the fact that no brick of this class have been produced anywhere in the State except at Los Angeles, where the only deposit of clay suitable for this purpose has been found.

Throughout the eastern cities, however, this form of pavement has been rapidly adopted after varying degrees of dissatisfaction and failure with every known kind of paving material. Before proceeding further, let us consider briefly what constitutes a good quality of paving brick. The speci-

Angeles Pressed Brick Company, who have frequently had tests as low as 12 and 13 per cent.

The first brick pavement put down in Los Angeles was about four years ago, when Fourth street, from Spring to Main, was paved, three-fourths being of vitrified brick, and the balance asphalt. The latter was laid by one of the large asphalt companies, and is undoubtedly the best piece of that kind of paving ever put down in Los Angeles. Not long after the completion of the pavement, the brick part was cut through the entire length of the block to allow placing a conduit with connections to the buildings, but today there is no evidence of the pavement having been disturbed. In every respect it is as good as the day when laid. The short strip of asphalt is now showing chuck holes, and patching will soon be in order. Los Angeles and Seattle now have many miles of brick pavement, and are now using millions



A Fine Example of a Well Paved Brick Street After Many Years' Use.

fications adopted by the National Brick Manufacturers' Association, and approved by leading municipal engineers, require all brick to be not only first-class and thoroughly vitrified, but to withstand the very severe rattler test prescribed by the association; they must be tough as well, not brittle like glass.

The standard rattler or tumbling barrel is made up of cast iron staves about one-half inch apart. Eight per cent. of the cubic contents, or ordinarily ten of 3¼-inch blocks, weighing eighty-five to ninety pounds, together with 300 pounds of sharp iron cubes, some of which outweigh the brick, are placed in the rattler, and after one hour of thirty revolutions per minute shall not exceed 20 per cent. loss of weight. A large proportion of paving brick used does not exceed 14 to 17 per cent. This case applies to the Los

of vitrified brick annually in laying permanent streets and roadways.

It may be interesting to note the experience of some eastern cities, for instance in Geneva, N. Y., a brick pavement was put down many years ago under a guarantee by the contractors for a term of fifteen years, which provided that the street be kept in repair for the first five years without cost to the city, the second five years at 2 cents per square yard, and the succeeding five years, 3 cents per square yard. At the end of ten years the city authorities voted to discontinue the guarantee, as the pavement showed no perceptible wear, and, in their estimation, would continue to last for from twenty-five to fifty years. The pavement is subjected to heavy traffic, fifteen ton loads frequently traversing it. At

one time a steam roller of that weight passed over it with cogs in the wheels, but caused no injury.

The expense of keeping asphalt streets in repair became so grievous a burden upon the taxpayers of Binghamton, N. Y., that the citizens voted to do away with that kind of paving entirely and in the future use nothing but vitrified brick. Canton, Ohio, has nothing but brick pavements, which have been in use for about seventeen years. The engineer of that city states that the cost of repairs are practically nothing, and estimates the life of brick under heavy traffic from twenty-five to thirty years; under light traffic, indefinite.

Vitrified brick is in such popular esteem in Cleveland, Ohio, that approximately twenty-five million are used each year. Not only are the business streets, where heavy and continual traffic prevails, paved with brick, but many of the residential avenues as well. All thoroughfares acting as arteries to the city have been paved to the limits, from where the County Commissioners have taken up the work and extended brick roads many miles into the open country. This latter is of enormous benefit to the farmers, as they are enabled to carry heavy loads at all times, being entirely independent of wear and tear and the elements which make other roads impassable.

Minneapolis and St. Paul, Minn., the latter city after unfavorable experience with wood blocks and asphalt, are large consumers of brick. Des Moines, Iowa, has upwards of seventy-five miles of brick pavements, which are preferred for heavy traffic and low cost of maintenance. The history of Newark, N. J., has been not unlike that of many cities of the Pacific Coast, wherein repairs to asphalt have cost \$1,000 per mile per year. In the case of Newark this enormous drain of public funds has been greatly diminished by the extended use of brick paving, and the entire elimination of asphalt. Philadelphia also believes in the merits of well-laid brick streets, having in good condition over 150 miles of that class of paving, part of which has been subjected to heavy travel for twenty years. Chicago, Galesburg, and Joliet, Ill., Lincoln, Neb., Indianapolis and Kansas City total hundreds of miles of brick streets. Further repetition is, we believe, unnecessary.

It is an established fact that a good class of brick pavement is as enduring as time, its freedom from dust, its non-absorption qualities, the perfect footing it affords to horses, all appeal strongly to progressive cities. Also, its appearance is greatly in its favor, for there is no finer looking pavement than a well-laid brick street, the soft color of which is in perfect harmony with the green of the lawns and boulevards. With the same expenditure of force, 40 per cent. larger loads can be hauled over it than over any other kind of pavement.

Other uses of paving brick than those above mentioned, are for gutters in place of cement. Formerly either cement or cobble stones were used. The first named soon gives out, and the latter not only is more expensive and very noisy, but is unsightly as well. Recently the Board of Public Works of Los Angeles adopted new specifications for vitrified brick gutters, to be used in the residence section where traffic is, of course, light, allowing 20 to 30 per cent. abrasion in the rattler test, as compared to 20 per cent. required for similar work in the heart of the city.

A foundation of 3 inches concrete is first laid, on this a sand cushion of about 2 inches, and then the paving blocks laid flat and grouted with cement. This does not cost more than cement, produces a beautiful effect, and will last for generations without any expense. Another growing demand for paving brick is for residential work, such as private driveways, walks, alleys, outside chimneys, etc.

In conclusion, we will mention Syracuse, N. Y., where a brick pavement was laid on West Water street in 1890. This street leads to the New York freight houses, and by actual count more than 1,500 heavily loaded drays pass over

it every day. A photograph taken in 1906 shows it to be in perfect condition, and not one dollar has been expended in repairs. Can any other kind of pavement show such results?—The Architect and Engineer.

Written for THE CLAY-WORKER.

FRENCH ACCOUNT OF AMERICAN BRICK ROADS.

An Amusing Bit of Misinformation

TERRA COTTA STREETS are made in America more than ever before, on account of the large increase of automobiles. American engineers have invented a very ingenious method for making cheap streets and roadways, which are very durable at the same time. According to "Gil Blas," the streets are laid out and leveled. Cross-cuts are made in the streets thus leveled about every 3 feet. These cross-cuts are filled with wood, and the clay is put on the top of this wood. On account of the cuts being filled with wood, these cuts form regular flues, and when everything is ready the fire is lighted under the wood. The wind will add to the draft, and in a short time the whole street will be a roaring furnace. The clay will be calcined and burned in a short time, and after all the wood is burned up and the fire extinguished the street is ready to be rolled, and after that is ready for traffic. In order to prevent dust, the streets are tarred also. In Mississippi there are built several of these roads, which are cheap in construction, and only cost about \$800 per mile.—Tonwaarenfabrikant, No. 21, 1908.

Written for THE CLAY-WORKER.

PAVING MATERIAL AS SEEN BY THE FOREST SERVICE.

The Forest Service sometime since issued a circular on the subject of wood paving in the United States. According to the figures of the Forest Service, the average cost of wood paving material has varied from \$2.40 to \$3.50 per superficial square yard, laid. As the table shows, the average cost per yard for all cities reporting was \$3.10.

In this connection a table is published, showing what is termed the comparative values of different paving materials, which brings to light some peculiar figures. The table has a percentage column in which the various qualities desired are assigned what is termed proportionate values, the total being 100 points. The pavement ranking first in any given quality is given the full quality percentage, the rest grading down from this in proper proportion. This table is an example of the queer results that can be produced by figures, notwithstanding the old axiom that they will not lie. It shows wood taking the ranking place as to the total number of points, which is 80 out of 100, with asphalt block coming next, and brick showing more points than either sandstone or macadam. There is one peculiar feature about this table under the brick column, in that counting the average cost per square yard, brick is the cheapest paving material in the list, with the exception of macadam, and sandstone the highest.

There is another astonishing point about the table, too, for in the matter of durability, granite, which is given a ranking percentage of 20, is followed closely by sandstone, 17.5, asphalt at 14, and wood at 14, with brick at 12.5. It will be news to the brick world to learn that asphalt block will outlast brick in the ratio of 14 to 12.5. There are several other things about the table that it would be well for some of our experts on brick paving to take under consideration and offer some correction to.

There is one good bit of logic offered under the subject head of Cost, which is that the basis of judgment upon a pavement should be the returns upon its total cost for the life period, considered as an investment. In Europe, it is said, this is done, but in the United States the first cost is in most cases given undue weight. For a pavement such as creosoted wood, the Bulletin continues, the first cost of which is high, this method of gauging by the first cost only is unfair, and reduces the pavement's total standing much below its service value.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



INETEEN HUNDRED AND EIGHT is going down into history not as the year of the panic, but as the year that all previous building records in Chicago were broken.

In spite of the hard times with which the year opened, it has been one of tremendous activity in the building line, and with the figures for the closing month still incomplete, it is estimated by the experts that the total cost of buildings for which permits have been issued in the past twelvemonth will run close to \$67,000,000. This beats not only the World's Fair year record of \$63,463,400, but the record of \$64,298,335, made in 1906, and up to this year the best in the history of the city.

Last year the total estimated cost of building operations was \$59,065,000, a figure which was counted fair enough even for prosperous times. For the eleven months of this year for which complete figures are obtainable, the cost of the buildings for which permits were issued by the city reached the huge total of \$62,919,230, November being the banner month, with permits involving an expenditure of \$10,879,850, a record month for three years. From the rate at which permits have been taken out thus far in the month, it is felt that an estimate of \$5,000,000 is conservative for December. It looks as though the totals for this year, therefore, on this basis, might be close to \$9,000,000 ahead of those last year, but a conservative estimate places the increase at \$8,000,000, and when it is considered that the cost of building during the present year has been about 15 per cent. cheaper than during 1907, the actual gain in the building operations for 1908 has been nearly \$17,000,000, or a total of about \$75,000,000 for this year if based on last year's values and costs.

This would be a remarkable record for "boom" times, such as characterized 1892, the year preceding the opening of the World's Fair, or a year like 1906, which witnessed the culmination of the greatest period of general building prosperity that this country has ever known. The fact, however, that the present year has been one of widespread industrial and financial depression, in which practically every class of business has shown a sharp decrease as compared with one and two years ago, gives to the problem an unwonted interest. The problem becomes more baffling when still another element in the situation is taken into consideration. Real estate and building operations are generally closely correlated, yet during the present year the volume of real estate operations shows a falling off of over \$17,000,000, practically as much loss as the builder's side of the record shows gain if based on costs and values of 1907.

Here is an interesting economic proposition, indeed, this great building record of 1908, which Chicago proudly presents to the scrutiny of the rest of the world. How, with general confidence at a low ebb all during the first part of the year, with money difficult to obtain, and with business men and manufacturers abandoning contemplated extensions and new ventures, does it happen that the city's building record has been smashed into small bits?

The answer is—"Flats."

Millions of dollars have been spent for an unprecedented number of flat buildings, and places of residence have been erected during less than one year for 100,000 people. Out of the \$67,000,000 estimated total, \$34,000,000 represents the amount involved in the construction of flat buildings alone, for which permits have already been taken out. The end of this month and the year 1908 will see this figure raised perceptibly. Last year was a good year for apartment house construction, too, but an investment of only \$21,000,000 was recorded in this line of building.

On the face of things this would indicate that the \$8,000,000 estimated total increase was more than accounted for by the increased activity in flats; in fact, that \$13,000,000 of the gain, approximately, could be attributed to this one phase of the building situation, or to put it more clearly, that the

tremendous gain in this department far more than offset the loss in mercantile and industrial building. When it is taken into account that the cost of an apartment building runs to a minimum of \$5,000, and rarely exceeds \$200,000 in cost, and that the average cost does not exceed \$30,000 or \$40,000, the wide scope of this kind of work during the year now closing may be appreciated more keenly.

While one explanation of this peculiar economic condition which has ruled the local building world this year is doubtless to be found in the cheap prices of building material and the favorable condition of the labor market, both of which operated as a great incentive to building, as did an easier money market in the latter part of the year, the prime cause of the strange movement was the pressing demand of a rapidly increasing business and correspondingly rapid increase in population.

One expert in the Building Department who likes to get up statistics along freak lines has it figured out that if all the flat buildings for which permits have been taken out were packed close together, they would have a continuous frontage of fifty-five miles, and asks, "Can you beat it?"

Needless to say, the brick trade has profited handsomely by this great amount of activity. Bonner & Marshall Co., the Hydraulic Press Brick Company, the S. S. Kimbell Brick Company, the Thomas Molding Company, and other dealers in pressed and front brick, report one of the most successful years on their books. The cut in prices did not hit the press brick end of the building market this year, and these manufacturers and dealers were therefore able to profit by the activity which the slicing in other building materials brought about.

Not so fortunate were the common brick men. Their total output, of course, was even greater than that of the dealers in higher grades of brick, and in the total number of brick delivered in 1908, ran well ahead of 1907. Unhappily for the makers and dealers in common builders, however, the common brick war is still on. All summer long, with business fairly "whooping," common builders have gone for \$4.75 delivered. In communing among themselves, both the Illinois and the National people aver that it is a crime, but that nothing better appears to be in sight until some kind of a truce can be arranged. And the average man of business will agree that it is a "crime" for common builders to go at those prices in such times. Few would consider a price of \$6.00 delivered exorbitant, and the common brick men themselves, remembering the blissful year when they were able to exact \$8.00 a thousand for their product, think that \$6.50 ought to be a minimum now.

It has been a great year for paving brick, too. Last year was a great year, and there is every indication that when the final figures are taken it will be found that the totals for 1908 exceed those of the previous year. All of the smaller cities in the State are coming around to the great truth about paving material gradually, and the light is beginning to dawn even in Chicago.

Many think that the next year will be the banner building year in the history of the city, exceeding even the records for the twelve months just closing. The new City Hall, the new County Infirmary, and other public buildings, will make a good start for next year. The new building for the gas company will also come in heavily on next year's orders and deliveries, as will the new Blackstone Hotel, at Michigan avenue and Hubbard court, which will probably require 800,000 pressed brick. The Chicago Musical College, 246-248 Michigan avenue, for which the Bonner Marshall Co. are furnishing red impervious brick—the Hanover reds and the Gloniger brick—is already taking deliveries, which will continue through the early days of the new year.

In addition, there will be undoubtedly new office buildings and skyscrapers in the downtown district, while a decided boom is looked for on the West Side. Not only homes and apartments, but factories, warehouses, power plants, and smaller mercantile buildings are due to be started in large numbers.

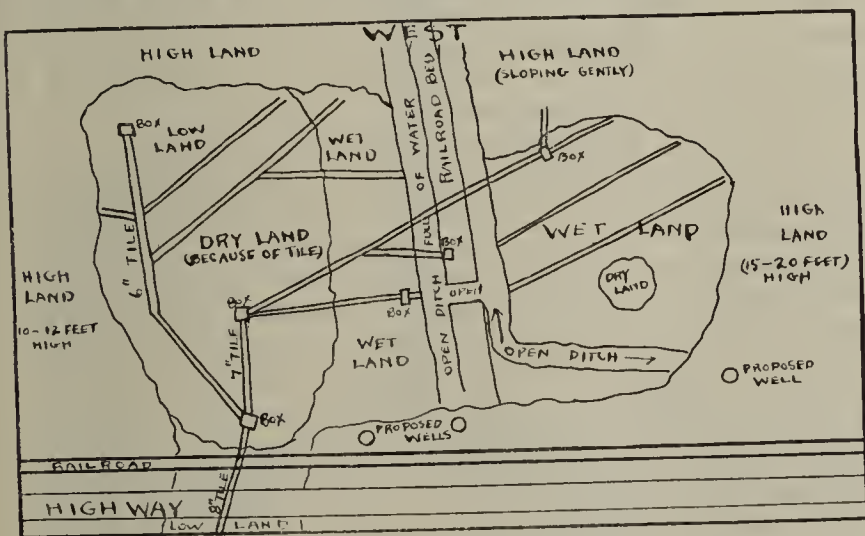
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In cultivating strength of character, it is just as important to learn when to say yes as when to say no.



A Drainage Problem.

I HAVE THIRTEEN acres of muck land," writes a subscriber from Tecumseh, Mich., surrounded by high land on all sides, except a low strip where there is an outlet under a railroad, where there is an 8-inch tile to carry off the water. The high land on the south, west and north embraces about eighty acres, sloping gently down to the muck land; with about 3 feet fall to the 100 feet, some places perhaps 3 feet in 1,000 feet, about 80 rods in extent. West of the muck is a gravel bank, where the railroad company has dug the gravel out down to the water level, so that the gravel pit now has about 3 feet of water in it. The high land is gravel, and the water seems to flow from the west to the east down to the river, the river being about 120 rods east of the muck land. The muck land is tiled as per diagram enclosed. All of the water must run out through the



A Drainage Problem.

8-inch tile leading from the muck land, across under the railroad track to the river. There is a very good fall now, as the water seems to flow from west to east through the gravel and muck. Is it feasible to dig a well on the east bank, brick it up, and by means of tile run the water off of the muck, and thus drain the muck land? Until the last year the 8-inch tile seemed to carry off the water, but the water level is now about 3 feet higher than usual, and the muck is quite wet and soggy. I have been advised to take up the 8-inch tile and put in 12 or 16-inch tile under the railroad. It will be very expensive. I have been advised that I can dig a well on the east side into a gravel knoll and run the water into it, that the water will disappear through the gravel down to the river. Do you think it can be done?"

This is a difficult problem to solve; the diagram is faulty for want of levels. It is evident that this is a case which must be treated as a special case, as the difficulty of giving advice without giving the land a personal examination is apparent to everyone. The writer very reluctantly gives advice on a mere statement of facts. The water level in the open ditch referred to in the statement as being some 3 feet higher than in some years past, will, if we fully understand the diagram, have much to do with the success of the work, in that it indicates that there has been a general rise of the water level, which may be lowered again in the next year. It may be that the source of the water entering into the muck land comes largely from the higher land surrounding the muck area. If so, a tile drain laid at the foot of the

sloping land on the side where the water enters into the muck land, would intercept the flow and carry the water to an outlet and away, or it may be that the water in the muck land can not drain away on account of a rim of clay surrounding it. If this be true, the rim of clay would necessarily have to be cut to allow the water to drain out at a lower level. Wells dug into banks of gravel have in many cases proved to be sufficient outlets, but we suggest that in this case provision should be made by means of open ditches for overflow water or the water of very heavy rainfalls. In our view of the matter, taking into account the watershed of the higher land, an 8-inch tile is not large enough to take all the water of heavy rainfalls in time to prevent damage to growing crops; a 12-inch tile would be much better.

As to the gravel bank outlet for the ground water, an actual test is the only certain solution of the problem. If the water enters the gravel above the water level in the ground, it is probable that the water would pass through the gravel to the river as suggested; or, if the gravel already passes all the water coming to it by percolation to the river, so as to prevent any excess of water accumulating and forming a water level in the gravel, then the working of the system proposed is practically assured. A few test holes put down at some points would serve to determine the general water level, and aid very much in the solution of this problem, and serve, possibly, in the better construction of drains and outlets.—[Editor.]

MANY WITNESSES FOR DRAINAGE.

A few uninformed writers for news and agricultural publications have claimed that tile drainage was largely the cause of our recent drouth, and that it seriously damages the growth of the crops during the drouth. Such statements are usually made by those who had had no experience in the use or benefits of underdrainage. They take it for granted that such would necessarily be the effect of drainage. Such writers do an injury to the agriculture interests of the country, in that their statements serve to discourage many in making this needed improvement to their soil conditions, through fear that there may be some truth in the claims urged, and wait for further developments and so delay the work.

It is sufficient, however, we think, to cite the fact that of all the men who have tile-trained their land, or even a part of it, and who have done the work well, there is not one of them that has in anyway, either over his own signature, or by the way of an interview, or otherwise, come forward to make complaint of tile drainage. Further, be it said that thousands of these men, the men who have been tile draining are men of marked intelligence, who could and would let the world know it if drainage was not beneficial to the soil at all times, in dry or wet weather. When these men speak out, they favor drainage every time. A great cloud of witnesses, because they know whereof they speak.

TILE-DRAINING CLAY HILLS.

It was an easy matter to convince farmers and land owners that their swamp land should be drained, and that tiling was the best method of doing the work; but it has been a difficult task to convince them that tile drains laid 3 or 4 feet deep were more effectual than when laid at half that depth.

But slowly the efficiency of large tile laid deep is gaining the confidence of farmers. They are satisfied with the results, and care but little as to why it is so. But few practical farmers are as yet convinced that it is good economy to spend money in draining clay upland which has inclination enough to afford surface drainage. The time is in the near future when farmers will be convinced by their own observations that a clay sub-soil will hold water enough to saturate the soil to within a few inches of the surface, even when the ground is quite undulating such saturation, even though it may be below the depth reached by the plow, will keep the soil cold by its evaporation until late in the season. In ordinary clay soils, a gain of two or three weeks in the length of the crop season may be accomplished by good tile draining.

R. T. B.

Written for THE CLAY-WORKER.

PITTSBURG AND WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS.



GENERAL BUSINESS conditions in our lines continue excellent, particularly when the time of the year is taken into consideration, and many of the plants in this part of the State report that they are busier now than they were all summer, and that they are better filled up with orders than they have been for over a year. Building all over the district goes on along about the same lines as it did in the early fall, which condition is almost wholly due to the dry and mild weather of this winter.

The fire brick business is now better than it has been since the beginning of the general business depression, which started over a year ago, and which is now a thing of the past. Manufacturers of all lines and grades of fire brick and other refractory material report that, although they are not in receipt of any unusually large orders for these classes of material, that they have been receiving a steadily increasing number and volume of orders that has permitted them to greatly increase the number of men at the various plants, many of which are now working to about their normal daily capacity, and with excellent future prospects for the remainder of the winter.

The vitrified paving brick manufacturers are also quite busy now, as their stocks have nearly all been badly depleted during the fall, so that with the rush of business that is expected as soon as the weather breaks in the spring, they will have to operate the plants to nearly the full capacity in order to have the customary stock on hand by the first of April, when the heavy shipments are sure to begin. The outlook for next year for these brick manufacturers is said to be particularly bright, in view of the fact that at least fifty of the smaller towns in this end of the State have decided to begin street improvements and brick paving as soon as the weather will permit in the spring.

The pressed and common red building brick demand is just as heavy now as it was three or four months ago, and promises to continue as such for several months longer at the very least, and possibly through the entire winter. There will be an unusually large amount of building in Pittsburgh and vicinity beginning early next spring, when many of the new building projects that were held over from this year will be started in earnest, and actual work commenced on the superstructures, the foundations now being under way.

The sewer pipe business is really the only branch of the clayworking industry in this vicinity that has started to show any signs of falling off, but this is only natural, as the ground will soon be in a frozen condition, and contracts for sewerage are generally being held up until the coming spring. Sewer pipe manufacturers report, however, that as the stocks of standard sizes and shapes on hand at the present time are generally rather low, they will be able to operate steadily this winter.

The Queen's Run Fire Brick Company, of Lock Haven, Clinton County, Pa., reports that although the plants are running to about three-quarters of the capacity, no marked increase is now looked for before the early spring. The company was very busy all summer, and for a part of the time was operating to capacity on both day and night turn. Good current orders are being booked at the present time.

The Bickford Fire Brick Company, of Curwensville, Pa., is operating the plant at that place to its capacity, and reports that the contracts and orders booked will enable the plant to continue to run on the same basis during the entire winter. The company, as was reported at the time in THE CLAY-WORKER, purchased the plant of the Curwensville Fire Brick Company, and after remodeling and enlarging this plant, and

installing a large amount of new machinery and equipment, placed it in full operation under the above name. An office has just been opened in room 1122 Farmers' Bank building, Pittsburgh, which is in charge of J. A. Bickford, treasurer and general manager of the company, and S. M. Bickford, secretary and general sales manager. Views and a description of this plant will be published in an early issue of THE CLAY-WORKER.

The United Fire Brick Company, of Uniontown, Pa., has further increased the capacity of the plant at Fair Hope, Pa., and has provided for additional power by placing an order for an additional 125 h. p. steam engine.

The Pittsburgh-Buffalo Company will build another large plant for the manufacture of sewer pipe at Johnetta, Pa., where the present plant of the company is located. Work will be started soon after the first of the year, and will be rushed to completion as rapidly as possible, in order that the company may place it in full operation during the summer. The company's brick plant at the same place will also be enlarged, and a large amount of new machinery and equipment added. This work will also be started soon after the first of the year.

The Monongahela Clay Manufacturing Company, of Monongahela, Pa., is making a large number of important improvements at the plant, which is located but a short distance from that city. Three new kilns of the down-draft type have been completed and fired, and three more of the same pattern are being erected. A large stack, which will be over 100 feet in height, is also to be built this winter. It will take care of the smoke and fumes from all of these new kilns. The interior arrangement of the plant has also been changed, and some new machinery is to be added. When these improvements are all completed, the capacity of the plant will be more than doubled.

The Perry Manufacturing Company, operating a large brick plant at Perryopolis, Fayette County, Pa., reports having received an order during the month that calls for the manufacture of about 800,000 9-inch brick, all of which are to be shipped to a local consumer as soon as manufactured. The company has also a number of other good orders on hand, and the entire plant is being operated to its capacity.

The Grapeville Fire Clay Company, of Mt. Pleasant, Pa., has just completed a number of important improvements at the plant at Bolivar, Pa., the total expenditure for which was over \$100,000. Much of this went into new machinery and equipment, and the plant is now one of the most complete and modern in this part of the State. It is in operation at the present time, although not being worked to its capacity, but the company advises that the outlook is such that it will be necessary to put at least 250 additional men at work in the early spring, as orders are already assured which call for large numbers of brick for paving in that vicinity.

The business of the North Bend Brick Company, of Renovo, Pa., has increased so rapidly during the past month that the officials decided to put the men on a straight five days per week turn for the present.

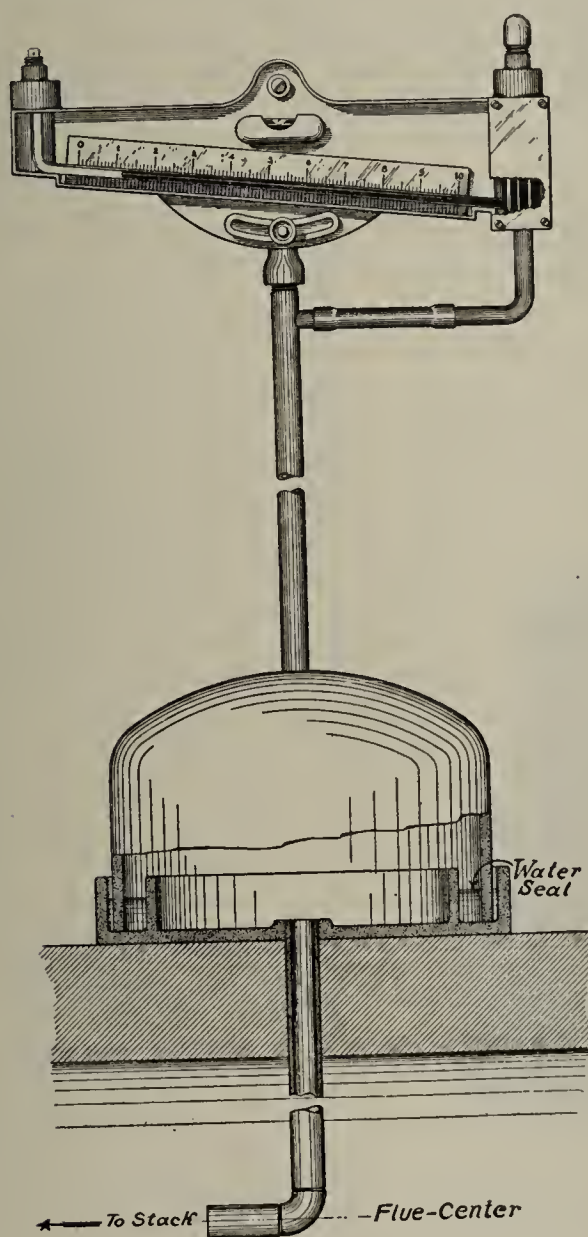
The plant of the Tempest Brick Company, Ltd., Gallatin, Pa., which was formerly operated by steam, has been entirely remodeled, and electrical equipment installed throughout. The change from steam to electricity was made on December 1, in the presence of a large number of officials and friends of the company, and was most successful in every respect. The capacity has been increased by the change, and several new machines for the molding and cutting of brick installed. The old steam power plant will be kept as it is for the present, or until the company builds its own private electric plant, and will be used in case of any emergency that may arise through shortage of power.

The Royal Brick Company, of Connellsville, Pa., is the name of a new concern that has just been organized, and which will be incorporated later under the laws of this State by F. M. Richey, Jr., of Pennsville, Pa.; C. O. LaClair, of Uniontown, Pa.; Thomas Jones, of Mt. Pleasant, Pa., and E. L. Sherrick, Ewing P. Richey, and George Hatfield, all of Connellsville, Pa. The capital stock of the new concern will be \$75,000, all of which has been subscribed by the above gentlemen, and the erection of the plant will be started immediately after the first of the new year. It will be located

a short distance from Connellsville, in Bullskin Township, where a tract of several hundred acres of high-grade clay land has been secured. The plant will be placed in operation early next spring, and will be one of the most modern mechanically in the Pittsburgh district. A. SMOKER.

A NEW DRAFT GAUGE FOR CERAMIC KILNS.

The advantages of using the draft gauge in controlling the burning of clay products are known to only a few in the United States, though in Germany the draft gauge is commonly seen on brick kilns. The Ceramic Supply and Construction Company, Columbus, Ohio, in addition to making the standard German gauges, are making an improved gauge, which they have called the Ohio draft gauge. This page, shown in our illustration, consists of a glass tube bent up at one end, through which there is an opening to the atmosphere, and having a definite angle with a vertical bulb at



the other end, which is connected with the flue of which the draft is measured. The glass tube is mounted upon an aluminum case, highly polished, in which is a level glass and a scale reading in hundredths of an inch of the water column. Each gauge is standardized and guaranteed to be correct.

The gauge is supported upon a bell stand, through which connection is generally made to the kiln, flue or stack. When used on periodical down-draft kilns, connection is generally made just outside of the kiln to the flue leading to the stack, and in the manner shown in the illustration. A special casting is furnished with the gauge to receive the bell and provide a water seal and a threaded connection for the flue pipe. The draft of kilns that have no outside stack can be measured through the kiln walls near the floor. On continuous kilns the bell sets over one of the feed hole castings, at a certain uniform distance ahead of the fire. For prices and other information of this new gauge, see the

advertisement of the Ceramic Supply and Construction Company on another page of this issue.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

WHILE ALL LARGE cities of the Pacific northwest showed some decrease in the amount of building done for the month of November, Seattle leads all of them this month. There is an increase of over 300 per cent. over the amount of the corresponding month last year. Last year there was only issued \$453,923 of permits, while November just passed has been credited with \$1,151,180. The number of permits issued amounted to 1,066, while only 871 were issued last year. There was, however, issued only one permit for a large business building. This building was the Armour building, which is now commenced upon, opposite the King street depot.

The increase over last year is the most pronounced gain ever seen in local building. This is partly due to the fact that building fell off sharply last year, owing to the panic. The great increase is explained as due to the part of the great building movement which has been in full force during the entire summer, and brought about by the relative low cost of all building materials.

The building in Portland was rather slow, and only 286 permits were issued, aggregating \$922,260. Spokane permits were approximately \$473,000, and Tacoma a little over \$300,000 for the past month.

The brick business has been fairly good all through the month. Prices are still holding up—local red front brick sells for \$25, Eastern for \$45, and local white and grey for \$40. Common building brick has been quoted from various yards at \$7.50 per thousand, while some selected quality has been selling just a little higher. Paving brick is quoted at \$20. The supply is limited, and there is a pronounced shortage on nearly all contracts. The Denny-Renton Clay Co. has been able in the last few weeks to deliver most of its paving brick on local jobs, since their large contract on North Yakima has been completed. This firm secured the paving of Fourth street in Portland last week in competition with the Barber Asphalt Company. Their agent, W. C. Mitchell, handled the petition before the Council.

That it does not pay local contractors to get their building supplies from eastern points, when they can get the same just as good at home, has found a fine illustration in the terra cotta which was ordered from the East for the Kin-near Apartment House. The foundation and all the steel has been on the job already for the terra cotta for over three months, and still the terra cotta is not delivered on the job as yet.

The Building Inspector has issued a permit to the Dinham Brick Company, allowing this concern to erect a brick kiln and drying shed within the city limits.

The Redondo Clay Company was incorporated with a capitalization of \$30,000. The interested parties will start first a small plant and manufacture common brick. Their clay has been tested, and pronounced as being good for paving brick manufacturing.

The different plants in the Inland Empire are preparing for a large business next year. The plant erected by the Washington Brick and Lime Manufacturing Company is nearly completed, and the damage done to their works by being burnt is nearly entirely repaired.

The Inland Clay Products Company, which was organized with a view of taking over the old Palouse properties, have decided to move their plant to Spokane. They have selected a location close to the Northern Pacific, and will start very shortly moving the machinery from Palouse to their new factory. The company owns seven and one-half acres of plastic clay near Onaway, Idaho.

The American Fire Brick Company, of Mica, will also greatly improve their plant. A new power plant will be erected, several large kilns, and a brick machinery outfit for the manufacturing principally of paving brick and other hard-burned brick. The output will be doubled after the improvements are completed.

Seattle, Wash.

SIWASH.



OFFICIAL ANNOUNCEMENT.

**TWENTY-THIRD NATIONAL CONVENTION TO BE HELD
AT ROCHESTER, N. Y., FEBRUARY 1-6, 1909.**

The Eye of the Continent for the N. B. M. A.

AFTER A VERY careful survey of the entire field, and considering fully the points of vantage offered by the different cities to which the N. B. M. A. has been invited, it has been deemed best to select Rochester, N. Y., for our next place of meeting, so our Twenty-third Annual Convention will be held there February 1 to 6, 1909. In reaching this decision, we have been mindful of the fact that 1908 is an "off year," and on that account a city centrally located and easily accessible from all quarters is particularly desirable as a convention point. The geographical position of Rochester fills the bill. Nearly midway between New York and Chicago, it is the center of the best train service on the continent. Indeed, it is coming to be known as the "Eye of the Continent." It may be reached by a large majority of our members in a few hours, and with ease and comfort, too, regardless of winter weather.

The Seneca Hotel Headquarters.

Solid comfort awaits the visitor after arrival, for Rochester now boasts of the best hotel accommodations of any city of its size in the world. Two large hotels, elegantly furnished, have been built there within the past year. The newest, largest and best of these is Hotel Seneca; it is a fire-proof structure, splendid in every appointment, and will afford ample and cozy quarters for all sessions. Its beautiful banquet hall will accommodate our entire membership and enable us to have an associational dinner or banquet, a function in which many take great pleasure. Suitable assembly halls will be at the disposal of each and all of the auxiliary associations. The Seneca is exclusively European, and the rate will be from \$1.50 per day up, according to character and location of rooms.

The city of Rochester is now the proud possessor of a great convention hall, which it offers free for convention purposes, and which affords unsurpassed facilities for the ex-

hibition of machinery, etc. It is located but two blocks from Hotel Seneca, a very short walk. Street cars pass the doors of each so in case of very inclement weather or sleety, slippery pavements, those who choose may ride back and forth.

Rochester's Exhibition and Convention Hall.

Those who desire to make exhibits are requested to apply to W. N. Durbin, secretary National Clay Machinery Association, Anderson, Ind., stating the character of exhibit intended and the amount of floor space required. Also, whether wall space is desired. Electric power can be had for operating machines or models. A direct current of 117 voltage is used for lighting the building; for power services it is double that voltage. Shipments may be made to the Rochester Cartage Company, and if duplicate bill of lading is sent them, they will look after the consignments and install same in the convention hall for the usual charge incident to such work. Shipments should be made so that consignment will reach Rochester on or before February 1st.

The American Ceramic Society will meet Monday, Tuesday and Wednesday forenoon, as in former years.

The National Paving Brick Manufacturers' Association will meet Monday and Tuesday, the 1st and 2nd, as will also the

National Clay Machinery Association. The N. B. M. A. sessions will begin Wednesday afternoon at 2:00 o'clock.

Reduced Railroad Rates

have been granted on the certificate plan as in former years. Delegates will pay full fare going and take a certificate for same, which will entitle them to the reduced rate returning. The arrangements for the entertainment of visitors by the clayworkers of Rochester and vicinity are being planned with great care. The clayworkers of western New York propose to form an association for the purpose of welcoming and entertaining those who attend the convention.

Those desiring to make any suggestions in regard to the programme, or who wish further information on any feature of the convention, requisite of membership, etc., are requested to communicate with the Secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,
M. E. GREGORY, Pres.
THEO. A. RANDALL, Sec.

CONVENTION NOTES.

The American Ceramic Society will meet in annual convention at Rochester, N. Y., Monday, Tuesday and Wednesday, February 1st, 2d and 3d. For complete program, write Prof. Edward Orton, Jr., Secretary, Columbus, Ohio.

The National Paving Brick Manufacturers' Association will convene in one of the assembly halls at the Hotel Seneca, Rochester, N. Y., Monday afternoon, February 1st, 1909. Those desiring information as to requisite of membership, etc., are requested to communicate with W. P. Blair, Secretary, Indianapolis, Ind.

The National Clay Machinery Association will hold its formal sessions in one of the assembly halls of Hotel Seneca, Rochester, N. Y., beginning Tuesday morning, February 2d, 1909. For further particulars, address W. N. Durbin, Secretary, Anderson, Ind.



The Splendid Hotel Where N. B. M. A. Delegates Will Rendezvous Feb. 1 to 6.

ILLINOIS CLAY MANUFACTURERS TO CONVENE AT CHAMPAIGN.

The Thirty-first Annual Meeting of the Illinois Clay Manufacturers' Association will be held at Champaign, Ill., January 19th, 20th and 21st, 1909. Although we are unable as yet to announce the complete and official program, we are assured that the officers of the association are doing everything within their power to make this meeting fully up to the high standard set in previous years.

Tuesday morning, January 19th, will be devoted to the enrollment of members, and the first regular session will be called to order on Tuesday afternoon. The final adjournment of the association will take place on Thursday noon, the annual banquet being held on Wednesday evening, January 20th. The Illinois Clayworkers' Institute, which meets in conjunction with the clay manufacturers, holds its first meeting on Wednesday afternoon, its second on Thursday afternoon, and its succeeding meetings on Friday afternoon. All of the institute meetings will be held at the university, with the exception of the Wednesday meeting, which is to be held at the Elks' Hall. Both at the institute and Association meetings most excellent papers will be given, among other subjects treated being, "The Working of the Illinois Joint Clays," which will have a vital interest for every surface clayworker of the State. Prof. A. V. Bleininger, ceramic chemist in charge of the United States Geological Survey Laboratory at Pittsburg, Pa., and formerly instructor in ceramics at the University of Illinois, is among those on the program; as are also Messrs. Stull and Knote, present instructors in the university's ceramic department.

The meetings of the Clayworkers' Institute will be under the able supervision of Prof. C. W. Rolfe, director of the department of ceramics at the university, and a ceramist who holds a warm place in the hearts of clayworkers the State over. Some forty members took in the entire course of institute meetings last year and acquired much practical, scientific instruction of value. A cordial invitation is extended to clayworkers of Illinois and adjoining States to attend both the institute and association meetings.

Headquarters will be at the Beardsley Hotel, which has recently been remodeled and now has sixty additional rooms. Rates are from \$2.25 to \$3.50; reservations should be made in advance. The meetings will be held in the Elks' Hall, immediately adjoining the Beardsley, and there also will be stationed the exhibit room, in which it is desired that all members take an active interest. The association desires to make a special feature of this department, and requests the hearty co-operation of all clay product and clay machinery manufacturers to that end. Many excellent exhibits are already assured. The banquet on Wednesday evening will be held at the Beardsley. Space in the exhibit room can be obtained by application to Geo. H. Hartwell, secretary of the association, 303 Dearborn street, Chicago, Ill.

Written for THE CLAY-WORKER.

BRICKMAKERS WANT A LIEN LAW IN TEXAS.

At a recent meeting of the brickmakers of Texas, held in San Antonio, the question of a lien law which would hold the property for all material used in its construction, was thoroughly discussed, and that body decided to work for the passage of such a law at the hands of the coming Legislature.

Under the present law, it is contended by the Texas brick manufacturers, the owner of a building under construction or just finished, is not liable for the material used in the building. Irresponsible contractors and builders, therefore, sometimes defraud material men. It is, therefore, proposed that a new law be obtained requiring owners of buildings to force contractors to show receipts proving that all

material in the building is paid for before he settles finally with the contractor. Under such a provision, the brick men claim no losses would be suffered by the material men. They add that no honest contractor has grounds to object to such a law, and they expect to have comparatively easy sailing in securing such an enactment.

Lumbermen, plumbers and others will be asked not alone to endorse the idea, but to engage vigorously in its support.

The following committee was appointed to wage the campaign, instructed to secure copies of such laws in other States, and prepare a bill for the next Legislature: W. M. Standiforth, Gainesville; Dupont B. Lyon, Sherman; O. H. Cross, Waco, and Jim Harry, Dallas.

Written for THE CLAY-WORKER.

CINCINNATI BRICK AND BUILDING NOTES.

THE BUILDING OPERATIONS in Cincinnati for November this year exceeded those of the same month last year by nearly \$400,000, according to the report issued by Building Inspector Kuhlman. The improvement in business conditions noted throughout the country is reflected in the increased activity in the construction line locally. The figures for the month of November in the two years are:

Year.	Permits.	Improvements.
1908	385.....	\$935,625
1907	298.....	536,298

According to these figures, Cincinnati has entirely recovered from the financial depression, so far as building is concerned.

The building trades were put on the anxious bench last month by the publication in a local paper of the rule that between the first of December and the first of March no permits would be issued for the opening of streets without specific application to the Board of Public Service for its approval. Builders, contractors, real estate men, and every trade affected sent representatives scurrying to the City Hall with a protest. They seemed to be under the impression that no permits to tear up the streets would be issued in any event, and one builder protested that such a rule would tie up \$1,500,000 worth of building. The board then told them that there had been no subject more complained of than that of opening streets, and the failure of contractors to restore the paving. President Laidlaw said he would not favor the granting of a permit except it be shown in each case that the cut could not have been made in good weather. The delegation was also told that in opening a new street they would have to get the waiver of the paving contractor, who was charged with the maintenance of the street for from two to five years. They were told that for three months, December, January, and February, a permit could not be issued from the Street Repair Department, but must be made direct to the Board of Public Service.

Newport, Ky., across the river, has just finished paving Tenth street with brick from Washington to Grand avenue.

The new steel and brick twelve-story structure on Vine and Seventh streets, being erected and to be occupied by the Provident Savings Bank and Trust Company, is going up at a very rapid rate. Excellent weather in general has greatly helped in the work so far, and the builders are hoping to get the outside work finished before real bad weather sets in.

Price Hill residents are tearing their hair and saying things over their new \$35,000 Branch Library building. They declare the specifications call for a smooth pressed brick, but the contractor is using an ugly, rough brick with white mortar. One of the residents said it would look like a stable when the matter was presented to the Library Trustees at a special meeting. A committee submitted a report from outside architects and builders to the effect that the brick being used is inferior and entirely out of place for the white marble to be used with it. The price to be paid for the brick was \$17 a thousand. One lot of smooth pressed brick was delivered on the ground and rejected by the builders before approving the brick now used. The board is investigating.

C. L. O.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF THE KENTUCKY METROPOLIS.



WITH THE CLOSE OF the year there is a well-defined hope in the coming of a better demand for clay products in this locality. The indications are pleasing enough now for a better business in the next twelve months than has been so for a long period, and the brick and allied clayworkers are sanguine as to the future. While the past year has not been as favorable as it might have been, there is not much room for complaint, and the amount of business is at least as great as could be expected.

The number of large buildings constructed here this year has been limited, and this will account for a considerable lessening in the number of orders for this line of brick. Street and fire brick, sewer pipe, and other lines are improving slowly, and the demand has been at least as great as could be counted upon, when the situation is viewed in the proper way. The percentage of increase in building here in November was about 97 per cent. greater than it was a year ago, and this looks significant. While the number of permits was smaller this year than last, the increase in the cost of the buildings was much greater, and the results are favorable.

The local brick manufacturers are in a peculiar position now, on account of the new law pertaining to smoke that went into effect a few weeks ago. As it is impossible to make brick without a certain amount of heavy smoke arising from the kilns, the manufacturers here are in a peculiar predicament. The smoke consumers are of no avail in instances of this kind, and the matter has been transferred by the Smoke Inspector to the Board of Safety for further consideration. The brick people have explained their position, and as there has been no move made as yet by the municipal authorities, the matter has been quietly resting where it is, and the outcome is at this time uncertain.

John W. Jacquemin, son-in-law of the late Patrick Bannon, and yard foreman of the P. Bannon Sewer Pipe Company, died rather suddenly of heart trouble several weeks ago. He was stricken while performing his duties at the yards. He was forty-five years of age, and had lived in this city nearly all his life. He leaves a widow and six children. The funeral was held from St. Cecilia's Catholic Church, and the interment was in Cave Hill Cemetery.

The Knights Templar are making extensive improvements at their new home on Broadway, and among these is the erection of a two-story brick addition that will cost \$15,000. This portion of the building will be used as a drill and banquet hall. Rommell Bros. have the contract.

The Kentucky Vitrified Brick Company say that there is still a reasonable demand for their product, though this is the season when there is always a decline in the demand for this kind of brick. They expect to operate in a limited way during the remainder of the winter, and are of the opinion that the new year will bring a good volume of business.

The Hydraulic Brick Company are now operating only one of their plants, the others being closed down for the winter. They say that the past year has not been as favorable for them as they wished, but that it could have been less active, and that there is really nothing to complain about now. There is every reason to figure on a much better demand in the year 1909, and they are very much inclined to take a satisfied view of this prospect.

The Falls City Brick Manufacturing Company are pleased at the way the demand for building brick has been holding up with them, and say that they are still busy shipping out

about all they can manufacture. The past year has been most pleasing to them, because they have been able to do a large business, despite the fact that the demand has generally been slow. They are not in the least worried as to the coming month's demand, but, on the contrary, feel that the new year will be in every way a good one for the clay brick people.

The Louisville Brick Company say that while the business has shown some decline in the past few weeks, taken as a whole, the year has been about as pleasing as they could look for under the circumstances. They look for a better demand in the next few months, and believe that there will come a change for the better in the new year.

The Kentucky Fire Brick Company, at Haldeman, Ky., are still doing a very fair business, and are also making considerable headway with the large improvements that they begun some months ago.

C. O. Smith says that he has nothing to complain about as to the past year's business, and that there has been a very nice demand all along. He hopes for a better year in the next twelve months, and is strongly of the opinion that it will materialize.

The West Point Brick and Lumber Company, West Point, Ky., are shipping out a large quantity of brick each day from their plant. They have closed down for the winter months, and say that at the rate they are now disposing of brick that their surplus supply will very soon be exhausted. They are arranging now to install another down-draft kiln and other improvements that will greatly increase their capacity. They have found the last half of the present year (about the time that they took hold of the plant) to be most satisfactory. Their business has been improving steadily, and they are now winding up a most prosperous season. According to the indications, there will be a large increase in the demand in 1909.

The Louisville Fire Brick Works, at Highland Park, Ky., find that there is a gradual increase in the demand with them for their output. They say that the past year has been very fair, and in the past seven months there has been an improvement. They feel that the worst is now over, and that there will be a further increase after the new year.

The P. Bannon Sewer Pipe Company are still operating their plant, and are endeavoring to do so during the winter months. It was thought last month that they would soon close down for a time, but they feel that there will be enough business to justify a continuation of operations in the next few months, and are satisfied that the new year will improve conditions.

The Louisville Pottery Company say that they will be busy until after Christmas at least, though they look for a quiet period for a month after that time. They are pleased at the way the demand has held up this year, and have no cause for any complaint. The aspect is now about all they can count on, and they are operating full time.

The Southern Brick and Tile Company are finding conditions to be very fair with them, and they are still disposing of a very fair amount of both brick and tile. They have had a good year, when the matter is taken in the proper light, and they feel that there is really no opportunity to find fault with the conditions. They say that there is reason enough to hope for a better demand in the next year, and they are satisfied that this will be forthcoming.

The Burrell & Walker Clay Manufacturing Co. are still operating their plant at Owensboro, Ky., and while the demand is not great, they manage to do a nice business all the time. The past year has been somewhat slow, though there is always room for conditions to be worse, and this is one way that they view the matter now. Everything points to a better demand in the next year.

C. O. L.

If every man could have his way in the world, the ways of humanity would be even more devious and complicated than they are now.

Burned Clay Versus Concrete Construction.

IF CONCRETE IS GOOD IT ISN'T CHEAP.
IF ITS CHEAP IT ISN'T GOOD.

THE DANGERS OF CONCRETE CONSTRUCTION RECOGNIZED BY FEDERAL GOVERNMENT.

In an interview given the "Washington Herald," Mr. James Knox Taylor, Supervising Architect of the Treasury Department, said, referring to the dangers in the use of reinforced concrete construction: "I would favor the further use of reinforced concrete in the construction of Government buildings if it were possible for us to get a sufficient number of expert superintendents to take charge of the work. It requires careful and expert watching. I am afraid that we shall always encounter, or for a long time at least, the same difficulty that we find now in its use, namely, that while we can easily get superintendents, we can not get a large enough number of them who are highly trained in the use of concrete. There is too much danger in the indiscriminate use of concrete to permit us to try to make it a common material in the construction of Government buildings unless, or until, this danger can be in some way eliminated." Mr. Taylor is the highest functionary in the United States Government, as far as building construction is concerned, and his opinion is of great value. In this case it is simply a reiteration of what so many experts have contended. Reinforced concrete is a most attractive-made construction theoretically, and splendid results have been attained—from laboratory tests. But it is so variable a quantity, and is so susceptible to tribulations in its handling, that, spite of the arguments of its votaries, the gentlemen who have cement to sell, it is the most unsafe medium of construction known. All other materials are completed and can be subjected to tests, and are, in a degree, tested in handling before being brought upon a building, while reinforced concrete can only be tested after the structure is completed, when it is usually too late to remedy the defect. The large number of concrete collapses further illustrates this point. Another Government officer, Engineer Humphrey, of the Geological Survey, (who, by the way, is also president of the cement organization, which fact gives still greater force to his statement) adds that after an examination of most of these collapsed concrete buildings, he is convinced that certain inherent troubles existed in them all, and he fears that similar troubles exist in many that have not yet collapsed, and avers that it seems a miracle to him that more concrete buildings have not collapsed.

REINFORCED CONCRETE.

Architects and owners of buildings contemplating the use of reinforced concrete must, if they read at all, feel a bit of trepidation in deciding to "take the chance." Particularly when they read such editorials as this from the "American Contractor," that, incidentally, carries a great deal of concrete and cement advertising, and must, therefore, really feel serious alarm or it would not jeopardize its advertising columns by such comment:

"That there is consolation, at least a certain compensation, in the misfortunes or miscarriages of others, is doubtless true. On this principle we may congratulate ourselves that construction failures of concrete work are not confined to this country, but are as widely distributed as is that mode of construction. From all European countries come accounts of failures of this kind—Germany, Austria, Spain, Switzerland, Russia and Poland. These take a wide range, extending from mere floor failures to the utter collapse of heavy roof girder construction . . . and are attributed to quite a wide range of causes, poor cement, poor design, and defective exe-

cution being the chief reasons given. . . . Whenever reinforced concrete construction work is done, failures occur. . . . Meantime there is something of consolation in the knowledge that failure in this line is not peculiar to the United States, where it is being reported with almost alarming frequency. . . ."

A committee of the Philadelphia School Board recently reported again the use of concrete for that city's school buildings, saying:

" . . . Correspondence with the leading architects shows very conclusively that this type of construction is too much of an experiment at the present time to warrant the risk of using reinforced concrete only as a building material. . . . Almost without exception the leading architects of this city consulted advised against this form of construction. No money can be saved by using it. . . . While at the same time the chances would be that an unsatisfactory and unsafe building might result. . . ."

Capt. Sewell, of the United States Engineer Corps, is probably the highest reinforced concrete authority that that system's advocates can point to, and always with pride. As we have before mentioned, this gentleman being studious and capable of seeing things as they are, has been influenced by years, and has become more conservative. For instance, in 1903, he stated:

" . . . As for cinder concrete, it contains much partly burned coal; it is not only not fireproof, but actually combustible. But if it is made of cinders and ashes and good Portland cement, and properly applied, it will not only develop reasonable mechanical strength, but will outlast under fire and water tests the best class of commercial hollow tile work. . . . Concrete will ultimately gain the victory. . . . Because it will furnish the same strength and fire protection as steel frame and hollow tile."

But later, in 1906, this authority modifies this opinion, and says:

" . . . It would not be surprising, however, if the future tendency in the more important buildings would be to treat reinforced concrete as a structural material, pure and simple, and protected much as steelwork is now protected. . . . It seems more than probable that the better appearance of the concrete floors (after the San Francisco) fire will cause a great many people to ascribe a fictitious value to the fire-resisting qualities of reinforced concrete. . . ."

And later still:

" . . . I would like to suggest, in the matter of fireproof construction, that reinforced concrete should be treated as a structural material, superior in many respects to steel, but one demanding protection from fire. It seems to me that the logical line of development is reinforced concrete covered with terra cotta. . . . A relatively small thickness of terra cotta would prevent concrete on the inside from becoming heated enough to damage it. . . ."

New York's celebrated architect, Mr. Geo. B. Post, gave us his opinion of concrete at one of the conventions of the Institute of Architects at Washington:

" . . . Now it is possible with regard to stones and other materials, as with long-leaf yellow pine—certainly with regard to reinforced concrete—that the formulae published by the representatives of patented forms of construction are equally defective. If so, the result will be quite disastrous. . . . At the World's Congress of Architects, I told those gentlemen (who had listened to papers by representatives of certain forms of construction that gave the inference that the special forms they advocated were accepted as the best and only practiced in the United States) that while as an

economic form of construction we were forced to use it, we looked upon it with a certain amount of suspicion, and were using it in an amateurish way. I further stated that our predilections were strongly in favor of materials that had attained their strength before being brought into the building, and of which we could definitely calculate the strength, rather than materials which we had to test after we had constructed with them. . . ."

At the same meeting, Mr. Norman S. Patton, of Chicago, stated that he viewed with suspicion all forms of reinforced concrete and their agents. He cited cases where these latter had put in work much heavier than had been required by their formulae, and yet actual tests then showed that the information was absolutely false and that the floors would not stand the load, and he expressed the opinion that:

" . . . There are many (concrete) buildings erected which have not fallen down only because they have not been subjected to the loads which they are theoretically supposed to be capable of bearing. . . ."

ARTISTIC BRICK WORK.

The "Architectural Record" of September editorially comments upon the possibilities of brick construction. It calls attention to the value of brick as a structural material and as a fire-resistant, showing how it has been used in places where heavy and difficult construction is called for, and points to the excellent state of preservation of the brick buildings that passed through the Baltimore and San Francisco fires. It adds that it would be difficult, in fact, to name a better structural and protective building material which presents, at the same time, so many advantages to the decorative artist. It comments upon the fine appreciation of burnt clay that existed at the time of the Assyrian ascendancy, and traces the use of artistic brick work all down the history of nations to our own time.

For years in this country brick buildings were resorted to where the expense of stone and granite and marble barred the use of these materials; it was looked upon as of secondary nature. That time has gone. Today brick is regarded as an indefinitely better material structurally than is any of those others, and its beauty and adaptability are rapidly becoming keenly appreciated by our architects. Instead of being a mere substitute, it is used today in preference to everything else. The manufacturers of brick have absorbed this artistic spirit and amply second architects' efforts. Brick are made in all kinds of shapes and colors, and beautiful effects are obtained by the use of even the roughest products, that, a few years ago, were used only in foundations, rear walls, and in such inconspicuous places. We have indeed reached a burnt clay period. Our ablest architects are not only designing their most beautiful decorative work in fine terra cotta, but are seeking, particularly in domestic architecture, to make all of the exterior of brick, using the different colors and working up the patterns into quaint and attractive designs; and the result is that all over the country we see beautiful buildings of brick that will equal the work executed in that material, and equal to anything that has been done by the English or the Flemish or the Assyrian architect, and far more dainty and pleasing and artistic than the nearby work that has been wrought, at infinitely greater expense, in granite and marble and stone.

Written for THE CLAY-WORKER.

"IS CONCRETE-STEEL A PERMANENT CONSTRUCTION?"

IN THE "Scientific American" of November 28, Mr. J. A. Fitzpatrick very pertinently asks this question. What prompts him to do so is that the Eastern Power House of the Brooklyn Heights Railroad, built in 1890, was showing signs of weakness that caused an investigation. The floors were of steel beams 15x7 inches, with reinforced concrete arches between the 7-inch beams. A section of arch was removed and it was found that "the steel had corroded to such an extent that the web and flanges had disappeared entirely, leaving only rust on the adjoining concrete. The floor, in-

stead of being supported by the steel framing, was in reality carried by the 3-inch slab of concrete covering the tops of the arches!"

Illustrating this investigation, Mr. Fitzpatrick presents a startling photograph showing a fragment of steel beam that was left in the concrete scarce one-tenth of its original dimension.

He attributes this special case to the fact that in the operation of the condensers some saltwater found its way through the spongy concrete to the steel, and there created this condition. And so it goes. Another investigator will find that cinders in concrete will affect the steel with equal virulence, and then something else will develop. The fact is that the absolute action of concrete under any conditions is unknown. The whole thing is in an experimental stage. All that is absolutely definitely known is that it is the most hazardous material that has ever been used in construction. Anyone who plays with it is experimenting, toying with something that may mean the destruction of many lives and much property.

The "Scientific American," in the same number, calls attention to the errors that were made in the Quebec Bridge that led to its destruction, and comments upon the fact that it has been found that the design for the Blackwell's Island Bridge, in New York, is defective, and that the bridge is not calculated to stand the load that it is planned for it to carry. Now, then, steel is a known quantity. It is positive that a beam of such a size, or a rod of such a size, will sustain such a load with absolute certainty. There is nothing problematic about it and involved as there is in concrete work. Some of the best engineers in the country were called upon in the design of these bridges. If they can make such errors in their calculations, and with a material so standardized and understood as is steel, then how much more certain is it that the gravest kind of errors are being made, and will be made by even the best concrete engineers, endeavoring to get the very maximum strength out of the minimum quantity of the material that is so uncertain, whose action is so mysterious and varying as is concrete? It is bad enough to have this material handled by skilled engineers, but the great mass of it is done under the direction of the most ordinary talent, if not indeed by the cheapest labor.

SHURS OIL BURNERS HIGHLY RECOMMENDED.

We are pleased to publish a letter received by the Illinois Supply and Construction Company which is full of praise for the Shurs oil burners, for which that well-known clay manufacturing machinery firm is the selling agent. This letter is but one of the many letters of similar tone received by them:

UNION BRICK AND GAS COMPANY.

CHERRYVALE, KANS., December 3, 1908.

Illinois Supply and Construction Company, St. Louis, Mo.:

Gentlemen—We confirm the following telegram of even date: "Express us forty-six oil burners, No. 1. Letter follows."

Day before yesterday we received your letter of the 30th, and yesterday we tried the two burners you sent us on a down-draft kiln, and also a half-dozen others. The No. 1 burners, with a hood, did the best work of the lot, and we are sure we can handle this burner in a down-draft kiln. We also believe that it will work in an up-draft kiln with thirty-eight arches. We seemed to have the best results in our test of yesterday with hot fuel oil. at a pressure of fifteen to twenty pounds, and air at about twelve to fifteen pounds.

We note your timely suggestions and will follow them.

Yours very truly,

UNION BRICK AND GAS COMPANY,
(Signed) Per W. H. Withington,
Secretary-Treasurer.

The Albert Lea (Minn.) Brick and Tile Company has suspended operations for three months, in order to make many needed repairs and install new machinery. Three large additional kilns will be built, and everything will be in readiness for the handling of a large business when spring comes. The plant this year could not handle all of the orders that were received, and M. F. Rushfeldt, president of the company, states that they had to turn down many orders which they could not fill.

FAULTLESS FACTORY FACILITIES.

The accompanying cut is from a photograph taken in the erecting room of the American Clay Machinery Company, at Bucyrus, Ohio, and shows the powerful electric crane with a massive No. 65 auger machine raised ready for loading and shipping. This auger machine is by far the heaviest machine of its class on the market, yet it is handled by this powerful crane as easily as a toy. A good idea of the size of the No. 65 machine can be gained by a comparison of sizes shown on the photograph. The traveling crane shown in the cut is one of the most improved type, and it traverses the full length of the 330-foot erecting room. It has a span of 70 feet, and is operated from the company's own generating plant.

This is only one of several of this type of crane which are in use about the American plants.

Two more of the American's Eagle represses, sold to the Purington Paving Brick Company at Galesburg, Ill., during the past sixty days, ought to be an indication that repressed brick are increasing in popularity, notwithstanding the reports to the contrary which have been circulated by those who would have been glad to see the repress relegated to



Electric Crane in Erecting Room, American Clay Machinery Company.

the rear. The Eagle "makes good" in more ways than one—it makes good brick and it makes good its reputation. Both should interest clayworkers.

IOWA MOUNDS YIELD MANY CURIOUS POTTERY PIECES.

Excavations in the mound at Boone, Iowa have been completed and during the final stages of the excavations over 2,000 pieces of pottery were discovered bearing all sorts of marks and decorations, and giving evidence of being many hundreds, if not thousands, of years old. The find so far as Curator Harlan, of the historical department, is able to ascertain, is one of the richest in America, and the excavation will be left some days so as to permit expert archaeologists to come and examine the finds if they wish.

The method used in opening the mound was to cut off the sides like slices cut from a cake. In the center was found the room with the stone floor, about 21 by 26 feet, and the walls of stone 12 to 14 feet high. All of the pottery and many human bones were found inside this room. The roof of the room had been made of timbers thrown across, with stones placed on them. This had caved in,

which had smashed the pottery and skeletons, too. In addition to the skeletons and pottery there were found a few flint tools.

The fragments of pottery are very interesting. Some of these showed a good deal of decoration. Some pieces about the top showed little raised places on the outside and it was easily seen that these were made by taking a sharp stick and punching through from the inside while the clay was wet. In one instance the maker had punched too hard and had punched through. He had pressed the clay back into place with his thumb and the markings of the thumb were clearly shown on the piece of pottery which had been subsequently burned.

The mound was one of the largest known. It was 190 feet long by 110 wide and raised 15 to 16 feet above the level of the surrounding ground. On top of it grew two elm trees and an oak of great size. Numerous clam shells of a species not now found in the river near by were found in the mound. Three or four feet under the surface of the mound was found a soil of unusual character. It was very dense and hard and it was impossible to penetrate it with a pick.

As to the age of the mound no one has yet been found to hazard a guess. For many years a dead man, buried in the mound in 1850 has stood guard over it and prevented the excavations. Relatives objected to his remains being moved. It was found that he had died of smallpox and the state law prohibited opening the grave. This was finally arranged, however, and the last legislature appropriated the money for the work.

Written for THE CLAY-WORKER.

PAVING BRICK MANUFACTURERS PRESENT CAUSE OF BRICK ROADWAYS TO GOVERNOR HUGHES.

THIRTY OF THE prominent paving brick manufacturers of the country attended the quarterly meeting of the National Paving Brick Manufacturers' Association, held at the Hollenden Hotel, Cleveland, on December 10 and 11. W. S. Purington, president of the association, and head of the Purington Paving Brick Company, of Galesburg, Ill., presided, and Will P. Blair, the secretary, of Indianapolis, was on hand.

Before visiting Cleveland, these two gentlemen, accompanied by about twenty other manufacturers, waited upon Gov. Hughes at Albany, N. Y., in reference to the use of paving brick in the construction of the 2,500 miles of model roadways, for which the sum of \$50,000,000 has been voted by the State. Gov. Hughes received the delegation most courteously, and promised to keep paving brick in mind when the selection of a material is made. It was pointed out that excessive use, and especially automobile traffic, would be very severe on the proposed highways, but properly constructed brick streets would withstand such use, with scarcely any effect, thereby eliminating the great burden for maintenance.

Reports from different parts of the country to the association showed that good work is being done in the training of contractors to do good work. Model brick pavements mean more brick pavements, and a benefit to everybody concerned.

On the second day of the meeting an inspection of the brick pavements of Cleveland was made. Favorable comment was made on the way in which the roadways are laid in the city and adjoining country, and some of them were held up as a model of fine work. A couple of the Cleveland brick plants were also visited.

In addition to President Purington and Secretary Blair, there were present: Charles S. Crook, of the Bessemer Limestone Company, of Youngstown, Ohio, the treasurer, and representatives from many States, including three from Alabama. They were: Mr. Ingles, of the Copeland-Ingles Co.; Harvey Matthews, of the Graves Shale Brick Company, and Josiah Scott, the southern representative of the association.

The next meeting of the association will be held in conjunction with the other conventions at Rochester, in February.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

New York Brickmaker Has Good Prospects For 1909.

Editor THE CLAY-WORKER:

Enclosed find check for \$4.00 for subscription to THE CLAY-WORKER to August, 1910. This would have been attended to earlier but for the writer's absence. I find very much of interest in your publication, and wish you many prosperous and happy years in your good work. Prospects for a good year to come in our industry in this section are bright.

HENRY C. BROWN.

Does Not Want to Miss a Single Copy of the Clay-Worker.

Editor THE CLAY-WORKER:

As I have succeeded in organizing a company at this place for the purpose of manufacturing vitrified paving brick, and also face and common building brick, and expect to be located here for some time, I desire to have my CLAY-WORKER sent to my new address, which is Room 320, Bankers' Trust building, Tacoma, Wash.

It is almost impossible to operate a plant without the CLAY-WORKER, so please see that I do not miss a single copy.

Yours truly,

Tacoma, Wash.

M. S. STORER.

Sand-Lime Brick Not Found a Good Fireproof Material in Germany.

Editor THE CLAY-WORKER:

Herewith I send you some notices of sand-lime brick which have gone through fire. Hope it will be of some interest to your readers.—K. DUMMLER, Editor Deutsche-Topfer und Ziegler-Zeitung.

Sand-Lime Brick in Fire.

The Association of Sand-Lime Brick Manufacturers has issued a little booklet, entitled, "The Sand-Lime Brick, Its Manufacture and Use." In this book are to be found illustrations of buildings put up of these brick after fire. Illustration No. 52, for example, shows a two-story house at Libau. The fire did not even disturb the wooden stakes of the outside walls, therefore it is not strange that the sand-lime brick were not disturbed and withstood the fire.

Illustrations Nos. 53 and 54 show a building, only one story high, after a fire. The outside walls of sand-lime brick are tumbled down, though the middle wall (built as panel work) still stands, and the wooden stakes of this middle wall are undisturbed.

Illustration No. 55 shows a factory building at Bramshe after a fire. The walls of sand-lime brick are almost entirely tumbled down; the walls of brick are still standing.

A short time since there was a fire at Coswig, about which I received the following:

"The factory of Dr. Augustine & Co., at Coswig, was a three-story affair, built entirely of sand-lime brick, which had previously been tested with burned clay brick, and showed very little resistance against fire. In spite of the fact that the entire sand-lime brick work in the roof story was destroyed, and the face of the outside walls, which had been exposed but little to the influence of the fire, peeled off in large pieces, and these same walls cracked from the top to the ground. The judges decided that this was caused only from the faulty consistency of the sand-lime brick, and not by the expansion of the iron construction. These same judges insisted upon the opinion that the failure of these

damaged walls need not necessarily apply to any other building. Nevertheless, the new building which is being put up to replace the old one ruined by fire, is built entirely of burned brick."

Busy Days for H. Brewer & Co.

Editor THE CLAY-WORKER:

Business with us during the past season has been better than the average of the last ten years, although not as good as 1907, which was our best year in fifty. Up to the first of August, 1908, our business was running ahead of 1907, but a short quiet period during the summer has brought it down to a little above the average. Just at present, inquiries and sales are coming along very nicely, and we look for a good year in 1909.

Just at present we are about the busiest people on earth. Our new manufacturing plant is just about completed, and we are on the verge of moving. We are running both plants now after a fashion; that is, some heavy work is going on at the new plant which it is inconsistent to do here. We expect within the next sixty days, or ninety at the most, to be entirely moved, and then if you happen around this way we will show you what we believe to be the most modern and complete clayworking machinery manufacturing plant that there is in this country; perhaps not quite as large as the largest, but much larger than any with the exception of two.

We are all very well and very happy as well as very busy. We expect, however, to take time for all coming conventions, and will see you without any question.

Yours very respectfully,

CHAS. BURRIDGE.

Milwaukee News Notes.

Editor THE CLAY-WORKER:

Milwaukee members of the Wisconsin Clay Manufacturers' Association are looking forward with interest to the annual convention of the association, to be held here February 10, 11 and 12. Secretary Oscar Wilson was in the city a short time ago to make some arrangements, and while here the St. Charles Hotel was selected as the headquarters. The State association has been successful in making plans for a program which promises much splendid information for all who attend the convention. It has been given the co-operation of the Wisconsin Geological Survey, and there will be brought to the convention, as prominent speakers, Prof. A. V. Bleininger, ceramic chemist, in charge of the United States Geological Survey, at Pittsburg, who will speak on the subject of preparations of clays. W. D. Richardson, consulting engineer of the firm of Richardson-Lovejoy Engineering Co., of Columbus, Ohio, will speak on the subject of the burning of clays. Strong efforts are being made by the officers of the association to increase the membership, and it is with that object in view that it has prepared a program of unusual excellence.

A mammoth piece of reinforced concrete work has been going on in Milwaukee for some months in connection with the erection of the new Auditorium, which occupies the site of the old Exposition building. The building, when completed, will be one of the very largest concrete buildings in this country. Recently some very severe tests have been made of the concrete thus far erected, particularly that portion which is to support the immense roof girders, weighing many tons. The test given was one of the severest that could be applied, and it was satisfactory in every respect, which is said to be a remarkable achievement inasmuch as the concrete has not had really the amount of time for setting that it should have, or that would insure a really fair test.

Considerable brick paving has been done in Milwaukee during the past year, and there is a growing sentiment in favor of that kind of pavement in Milwaukee, particularly in the districts where there are grades and there are a good many districts of that particular character. It is observed that teamsters carrying heavy loads seek streets on grades that are paved with brick. Local dealers are report a renewed activity in inquiries, and are looking for substantial returns in satisfactory orders.

Building operations have continued very satisfactory in Milwaukee, notwithstanding the conditions that have prevailed, as everywhere, during the past year.

BADGER.

Written for THE CLAY-WORKER.

PROGRESS OF THE A. F. AND M. WORKS. THE LATEST ADDITION TO THEIR LINE OF SOFT MUD MACHINERY.

The Anderson Foundry and Machine Works, Anderson, Ind., is too well and favorably known to the readers of THE CLAY-WORKER to require an introduction, but it is sometimes well to note the progress made by an old-fashioned firm. From a modest beginning, in 1872, it has steadily grown until its mammoth machine shops, boiler shops, foundries and offices cover approximately five acres in the thriving manufacturing city of Anderson, Ind. A close corporation and always conservative, its capital stock was not increased until 1908, when it was raised to \$200,000, the new stock being all subscribed for by the original stockholders. Upward of \$50,000 was expended in 1908 in the erection of new buildings and the installation of additional equipment, in order to take care of the increased business. The old engine and boiler originally fired from a gas well on the premises now stands idle, having been replaced by powerful electric motors, which drive the enormous lathes and planers, and operates the ponderous electric cranes which pick up machines weighing scores of tons and deposits them about the shops. The foundry is equipped with two cupolas, electric cranes, and all modern labor-saving appliances for the economical manufacture of castings, the policy of the company being to manufacture all the equipment it sells. The pattern and carpenter shop is a substantial brick structure, approximately 50x200 feet, with a full complement of modern woodworking machinery, all of which is motor-driven; it is here that the trucks, barrows, molds, and other wooden accessories to the modern brickyard are manufactured.

In order to meet the demand for a better soft mud brick machine, the new 1909 model Anderson Giant machine (which is illustrated on page 680 of this issue), was brought out and placed on the market. This machine is the result of over thirty-six years' experience in the manufacture of soft mud brick machinery, and embodies principles and improvements which promise to revolutionize the manufacture of bricks by the plastic process. It has a maximum of clearance between the molds and plunger, which can be decreased or increased at will by a simple device on the front of the machine. This permits of a large volume of clay at all times between the plunger and die, permitting it to equalize and become uniform, and insuring equal density in the outside molds. The gearing is simple, consisting of but two gears, and is driven by an improved friction clutch pulley. The mold-pushing device is simple and effective, and the adjustment readily accessible. The bearings for the main shaft are set off from the front and rear heads in such a manner as to render it impossible for any possible leakage to get into them. The mold table is simply and strongly constructed, and is supported on an eccentric shaft operated by a lever, which enables the operator to instantly lower and remove a mold from the machine while under pressure. The safety or stone door is held in position by a lever and weight, which releases under pressure and prevents the breakage of the mold, and also provides immediate access to the die for the removal of grass, roots, or other obstructions. In the event of an excess of clay in the pressing chamber, a valve opens automatically and the surplus material is discharged back into the machine. This machine is entirely self-contained, with the exception of the outboard bearing for the main drive shaft, and its weight and construction renders it unnecessary to bolt it to the foundations. The pugging capacity is enormous, but can readily be reduced when desired.

The new Anderson is a modern upright power brick machine, but of less capacity, and for small yards the new Anderson horse power machine is very popular.

Recognizing the growing demand for a more modern dry

press, an exclusive contract was entered into several years ago with the patentee of the Berg four-mold dry press. This press instantly sprang into popular favor, and has easily retained its lead from the start, owing to its simplicity, strength, and economy of maintenance, and to the further fact that it is entirely self-contained, being driven by a friction clutch pulley immediately in the rear of the machine, which admits of its being shipped completely assembled, no bolts or guys being required, as is the case with machines having outboard bearings, and is ready to slide onto its foundations, belt up, and start on its arrival at the plant.

Increased interest in reclamation of flat and wet lands by tile drainage creating a demand for an improved tile machine, the 1908 model New Departure was brought out to meet this demand.

This machine embodies many new improvements, prominent among which is the replacing of the old-fashioned thrust collars by patent frictionless roller bearings, to take the end thrust of the auger shaft, resulting in an actual saving of 50 per cent. in power. The pugging cylinder is made extra heavy, and is provided with internal ribs, which prevents the backlashing of the clay towards the feed hopper, so common in the old style machines. The augers have also been greatly improved, resulting in an average increase of 50 per cent. in capacity. This machine has an extremely wide range, making tile from 3 inches to 24 inches in diameter, thus taking the place of two machines of limited capacity. It also possesses the advantage of being self-contained, and is shipped set up ready to slide onto foundations and start on arrival. A friction clutch pulley is also provided, admitting starting or stopping the machine without shutting down the remainder of the plant. It is claimed that this machine can be operated at a lower cost for labor and power than any tile machine on the market.

The "A. F. and M.," as it is familiarly called, also manufactures a complete line of barrows, trucks, molds, kiln doors, shutters, grates, and yard supplies of every description.

A flourishing southwestern branch was recently established, with headquarters in the Wilson building, Dallas, Texas, in charge of Mr. E. A. Westerfield, who was formerly manager of their New York office.

Written for THE CLAY-WORKER.

ANNUAL MEETING OF THE HAYES RUN FIRE BRICK COMPANY.

The annual meeting of the stockholders of the Hayes Run Fire Brick Company was held at the general offices of the company at Orvis, Clinton County, Pa., on Friday morning, November 13. Judge Ellis L. Orvis, president of the company, presided, and W. O. Bentley was secretary.

The first business taken up was the exhaustive report of the Pittsburgh Audit Company, which showed that the company was in a most flourishing condition, has a large amount of new and advance business on the books, and orders and contracts are being received weekly in such volume that the full operation of the entire plant is now practically insured for the coming year.

It was decided to increase the number of members on the board of directors from five to seven, and the following gentlemen were then elected to serve during the next year: Judge Ellis L. Orvis, John R. Stevenson, George R. Thompson, B. F. Brown, W. O. Bentley, W. I. Harvey and Charles R. Kurtz. These directors then met and organized, electing the following officers for the year 1909: Judge Ellis L. Orvis, president; John R. Stevenson, vice-president; W. O. Bentley, secretary; I. L. Harvey, treasurer, and Carroll Keller, general manager. Mr. Keller was elected general manager to succeed W. I. Harvey, who was forced to resign this position on account of poor health. Mr. Keller is very well known in the fire brick manufacturing world, and for a number of years past has held a responsible position with the Queen's Run Fire Brick Company, of Lock Haven, Pa., leaving this concern to take up his new duties, which he assumed on the first of this month.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICK MANUFACTURERS.



IT IS A PLEASURE to watch the animated spirit pervading business at present. Nearly all of the brick and terra cotta companies in the East are busy, and cheerfulness and good will generally are in evidence.

The Conkling-Armstrong Terra Cotta Co. have all they can do for the next five months, and feel more than sanguine regarding the prospects for the year 1909.

Theirs is one of the largest and best-equipped plants in the country, and their reputation for good, conscientious work is unquestioned. Such work speaks for itself, and bears fruit accordingly. They have many operations just now, and are running full time with a full force of men, their contracts covering a long range of country, from Washington, D. C., to Los Angeles, Cal.

Following are some of their important contracts: The Weehawken Trust Company, Weehawken, N. J., calling for glazed terra cotta with colors; apartment house, New York City; Trinity College, Washington, D. C.; Chelsea M. E. Pa.; Benj. Franklin Insurance Company building, Pittsburg, Pa.; warehouse for the Johns Hopkins Hospital, Baltimore, Md.; New York Press Club, New York City; residence for B. F. Jones, Pittsburg, Pa.; Christian Science Church, Los Angeles, Cal.; school at Mystic, Conn., and the W. P. Story building, Los Angeles, Cal. The last named is a large contract for enameled terra cotta, and deserves particular mention.

A call upon James C. Dobbs elicited the following information: While the general depression in business throughout the year has materially affected the building trade, yet the year's sales have been quite satisfactory. The dwelling house operations have been small, and to offset this it has been necessary to make an effort to secure orders on large work in and around this city. They have been successful in this, having served the material required in the large office building erected at Fifth and Chestnut streets for the Girard Estate, the filter plant for the city erected at Torresdale, a large apartment house at Forty-fifth and Walnut streets, and many minor contracts. Mr. Dobbs has succeeded this year in introducing in this market with most satisfactory results, what is known as a single texture face brick, the Girard Estate having erected a number of handsome residences at Eighteenth and Porter streets. These houses are commanding widespread attention, and are the latest product in face brick. Mr. Dobbs has also sold about 2,000,000 paving block, making shipments to Philadelphia, Wilkes Barre, Atlantic City, and Ocean City.

Mr. Beam, general manager of the Aldan Brick Company, reports that business with them is fairly good. Their yard has been busy up to the present. They have just finished a contract for 2,000,000 brick for three-story houses at Overbrook, one of Philadelphia's picturesque suburbs. Their local contracts have been fair, and their orders for brick in the city of Philadelphia have been mostly from the northern section.

Chambers Brothers Company, of Philadelphia, through their Chicago representative, Mr. E. R. Frazier, has closed a contract with the Kansas Buff Brick and Manufacturing Company for a stiff mud outfit of brick machinery and pug mill. This will be one of the Chambers large heavy auger machines with cut steel gearing, and their celebrated eight-wire rotary side cutter. This cutter has attracted a great deal of attention, and some criticism, but it goes right on cutting clean, square brick, one at a time, and, strange as it may seem, the cutter does this at a speed of over 10,000 brick per hour. The selection of this machine and cutter was made after an extended visit to brick plants by Mr. S. B.

Miller, president, and Mr. B. W. Ballou, general manager of the Kansas company.

Chambers also reports that their indenting round-corner cutter, designed originally for paving brick manufacture, is finding an increasing use among some of the more progressive brick manufacturers, for the production of round-edged, round-cornered building brick, to be laid up with sunken joints. Some beautiful effects in brick architecture are being produced by the use of these brick. The Western Brick Company, at Danville, Ill., and the Purington Paving Brick Company, at Galesburg, are among the concerns making this use of the cutter. Mr. Frank W. Butterworth, general manager of the Western company, was recently in Philadelphia and showed some very beautiful photographs of buildings in which their material had been used.

M. E. LOCKINGTON.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



CONDITIONS IN AND about New York have not changed materially since last reports. Building has continued upon substantially the same scale as indicated last month, and projected buildings are still quite as numerous as they were then. Sales have been larger and the price has held up better.

Actual building permits issued in New York during the month have been much ahead of the previous month, and the projects include a number of important structures. The detailed figures are not at hand, but it is said that they are nearly double those of the corresponding month a year ago. And the end is not yet. The fact that development along these lines has begun is undoubtedly going to cause others to undertake operations which have been delayed for various reasons, and will now be put through as soon as arrangements can be made.

The brick market of the city has improved to this extent, that prices are about \$1.00 to \$1.50, higher and the tendency is still upward. It is impossible to buy Hudson River common much below \$6.00 now, only in exceptional circumstances. The general feeling is that the upward tendency will continue. At least it will hold good during the winter, even though actual building operations must fall off somewhat after cold weather sets in. The fact is, so far, it has been an exceptionally good season for building without any freezing cold, and with no long storms. Consequently, building has continued unabated until now.

More brick are coming down the river now than were shipped during the summer months. This is partly due to the fact that manufacturers are getting rid of all they can before navigation closes, and partly to the fact that there is more demand for them.

Along the Hudson River the makers are getting ready to go into winter quarters. The last burnings are being closed up, and the winter work and time schedule is gradually being adopted. The actual business done during the season has not been up to the average, yet possibly the manufacturers haven't lost so much after all. They have paid expenses and something besides.

One manufacturer, in speaking of the situation, said that the year was not closing so badly. He may have been conservative in his conclusions, but he seemed to think that he had made more money during the past year than he had when business was done in larger volume.

Paving in New York will scarcely be brick during the coming year unless business in that direction takes on an entirely different appearance from what it has now. Conditions are not wholly favorable, though here and there a slight demand springs up for brick paving. As a whole, however, the demand amounts to practically nothing, and the brick business suffers accordingly. Perhaps it will be better during the coming year; perhaps it will not. The latter proposition is the more likely, and unless brick men combine to exert a more powerful influence than they ever have yet, there will be no increase in brick pavements in New York the coming season.

BURTON.



Written for THE CLAY-WORKER.

"Same to You"

A CHRISTMAS MEMORY

Long ago, on Christmas mornin', when
de darkies rose
Fo' de break o' day, an' dress up in der
Sunday clothes—
Jus' to gether roun' de great-house—'till
de white folks rise—
Standin' dar er-listenin', an er-waitin' wid
longin' in der eyes—

Dreckly, hyah come Marster, smilin',
flingin' presents out.
Den come Missis an' de chillun,
throwin' gifs about.
An' dey holler: "Merry Christmas to you,
evvy one!"
An' we answer: "Same to you all!"
Den begin de fun!

Darkies eat all day, an' frolic. Got
no wuk to do;

Set aroun' an' laugh, or dance, an'
pick de banjo too.
Evvy-whar I meet de white folks,
any time dat day,
Dey says: "Merry Christmas to you!"
"Same to you!" I say.

I know I'm jus' made out o' clay,
as black as it can be,
But 'twas de chunk de good Lord
took to make a coon o' me;
An' maybe, too, He's color-blind, an'
maybe He don't mind—
Maybe He grabs jus' any kind o' clay
His hands kin find.

Den, maybe He jus' loves to see
how dis black kind will wear—
He handles it as careful as de kind
dats white an' fair.
An' puts it jus' as careful thro'
dis world's hot furnace fire,
An' if it stands de test o' heat, He
takes it, too, up higher.

So, if I go thro' good an' strong,
an' come out whole an' true,
I'll go back to my Maker—an' dat's
what I spects to do!
I'm thinkin' how He'll be right proud
o' this old well-burnt clay,
An' how I'll love to spen' with Him
come many a Christmas day.

An' when I gets to Kingdom-Come, whar
it's Christmas evvy day—
An' all de wuk I has to do is jus' to
sing an' pray;
When I totes a golden cane, an' walks
de golden street—
Golden music in my hand, an' gold shoes
on my feet;

De Lord an' me we'll take a walk
beneaf de golden trees,
An' pick de golden apples off, as many
as we please.
But fust He'll say: "Good mornin', Ephrum,
Merry Christmas, too!"
I'll get down on my knees an' say: "Thank
God, de same to you!"

—MARGARET ANDREWS OLDHAM

Written for THE CLAY-WORKER.

SOUTHERN NEWS LETTER.

BUILDING IN MEMPHIS and the South gives indication of being very good this winter. Much work of the autumn season was deferred until after the presidential election. Numerous jobs are discussed with reference to being projected next spring. The difficulties in the way of city ordinances, etc., for the new Union Railway Station here have been satisfactorily adjusted, and it looks as if this structure would be started within the next ninety days.

Among the most popular building material supply companies in Memphis, and one which has always enjoyed the entire confidence of patrons and employes alike, is the Memphis Brick Supply Company, whose offices are in the Southern Express building. The president, Frank H. Reid, is one of the sterling business men of Memphis. Col. Robert A. Speed, who is vice-president, is one of the best-known and most popular men in the whole city. John J. Bishop, secretary, is a man who has grown up in the brick supply business, and enjoys a reputation among the contractors and wage-earners second to none in the South. The Memphis Brick Supply Company's output amounts to almost \$150,000 annually, nearly a quarter of a million dollars. They enjoy an extensive trade in Memphis and vicinity, and are daily reaching into further fields.

The Cubbins Brick Company, in North Memphis, has burned several kilns this season, and is having a large trade locally and out of town.

The Alvin Brick Company has been incorporated at Alvin, Texas, with a capital stock of \$50,000. Edward B. Hill, Fred C. Pabst, and Chas. Cutler May are interest in the company.

At Macon, Ga., information upon the prices of making brick and maintaining a brick plant is being secured by the special committee of the City Council, appointed to solicit this special information with a view to having the municipality of Macon make its own brick. If the city finds that a brick-making plant is not too expensive, and that there are enough convicts on hand, it is very probable that the city will start to manufacture brick for paving purposes. Macon is lacking badly in the matter of paved streets.

Cook Bros.' Pottery Company, of Sterretts, Ala., is considering the establishment of a branch plant at Gadsden, Ala.

The Rockmart Brick and Slate Company, of Rockmart, Ga., has been incorporated with \$125,000 capital stock by S. A. Duncan, J. A. Scott, and J. E. Brown, all of Atlanta. Pressed brick will be made.

The Kreis & French Construction Co., of Knoxville, Tenn., contemplate the establishment of a brick plant with 80,000 daily capacity.

B. J. Cobb will establish a clay manufacturing plant at Naples, Texas. The site includes about 1,000 acres for plant and supply pits.

The pottery plant of J. A. & E. W. Hable, of Palestine, Texas, was destroyed by fire a few days ago. A heavy loss was sustained, particularly in the way of trade, as the ribbon cane syrup season is on and a large number of orders for jugs were carried.

Texas Clay Deposits.

With a view to determining the character and possible practical value of clays in Texas, Henrich Ries, Ph. D., professor of economic geology at Cornell, spent some time in Texas, and from his examination and the samples he took an interesting analysis was prepared, and an interesting bulletin has been issued by the University of Texas.

DIXIE.

Push is the name of an enterprising element in humanity that is too frequently used by man against his neighbor.

Written for THE CLAY-WORKER.

HARRISON E. ASHLEY APPOINTED ASSISTANT CERAMIC CHEMIST WITH U. S. GEOLOGICAL SURVEY.

THE NEW CLAY PRODUCTS Section of the United States Geological Survey, of which A. V. Bleininger was appointed ceramic chemist, and whose laboratories are located at the Arsenal grounds, Pittsburg, Pa., has been peculiarly fortunate in obtaining the services of Mr. H. E. Ashley as assistant ceramic chemist. Mr. H. E. Ashley is a well-known member of the American Ceramic Society, and has a host of friends in the East Liverpool (Ohio) pottery district. Up to the time of his appointment he had been in the service of the Homer Laughlin China Company, with which concern he has been connected for four years as foreman, chemist, and purchasing agent. The last few years he



Harrison E. Ashley.

was stationed at the Newell (W. Va.) plant of the company, which is the largest pottery in the world. Mr. Ashley was born at New Bedford, Mass., of Pilgrim and Puritan ancestry, and is a graduate of the Massachusetts Institute of Technology in the course of chemical engineering. After leaving college he was employed as engineer and chemist by the New Bedford Product Company, the Tremont Nail Company, West Wareham, Mass., and the Salem Iron Company, Leetonia, Ohio. After having entered the service of the Homer Laughlin China Company, he decided to take a course in ceramics at the Ohio State University, where he attended the classes of Prof. Orton for the greater part of the college year. He is the author of a considerable number of publications, among which might be mentioned: "Alloys of Antimony and Tellurium," "Slag Constitution" (which is the first application of the theory of solutions to silicate fusions), "A Logarithmic Three-Variable Diagram" (for the

graphic solution of gas engine problems), "Iridescent Stains on Glass," "Discussion on Variation in Body Composition," "The Testing of the Raw Materials of a White Ware Body," "Additions of Lime to an Earthenware Body," "A Comparison of the Different Makes of Seger Cones," "Pottery Plaster," and "Notes on Flint Blocks vs. Wooden Blocks for Cylinder Linings."

Mr. Ashley has entered enthusiastically upon his new duties, and is already preparing for the press a bulletin dealing with the measurement of the plasticity of clays from a new and very interesting standpoint.

CANADIAN CLAY PRODUCTS MANUFACTURERS TO CONVENE AT BRANTFORD.

It has been officially announced by Secretary D. O. McKinnon that the Canadian Clay Products Manufacturers will hold their annual convention at Brantford, Ont., Tuesday, Wednesday and Thursday, January 12th, 13th and 14th, 1909.

Arrangements have been made whereby several of the leading authorities in clayworking lines from the United States will deliver addresses at several sessions. This, combined with the innovation, "A Practical Experience Afternoon," wherein a majority of the manufacturers present will tell of their experiences and discuss many trying problems, should make this convention a most successful one.

The central location of Brantford makes it a very get-at-able point, so that a record-breaking attendance should be recorded.

CONVENTION OF WISCONSIN CLAY MANUFACTURERS' ASSOCIATION.

The Wisconsin Clay Manufacturers' Association will meet in annual convention at Milwaukee, Wis., February 10th, 11th and 12th, with headquarters at the St. Charles Hotel. This hotel is well appointed, so that the delegates will be well cared for. Both American and European plans are offered, ranging from \$2.00 per day up, and \$1.00 per day respectively. The sessions will be held in the hotel's convention hall.

An unusually attractive program has been arranged, including addresses by such capable men as Prof. A. V. Bleininger, ceramic chemist, in charge of the United States Geological Survey Laboratory at Pittsburg, who will speak on the subject of "The Preparation of Clays," and Mr. W. D. Richardson, consulting engineer for the Richardson-Lovejoy Engineering Co., Columbus, Ohio, who will deliver an address on the subject, "The Burning of Clays."

The announcement that two such prominent men will attend this meeting should bring to the convention every progressive clayworker in the State of Wisconsin, as well as many from the surrounding States.

Both Prof. Bleininger and Mr. Richardson are well-known contributors to the clay trade journals, and have established such names for themselves in the ceramic world as to make it unnecessary for us to tell what an unusually fortunate circumstance it is that enables both to be on the Wisconsin program this year.

The Wisconsin Geological Survey is largely responsible in obtaining these two high authorities in the clayworking lines, as the Survey has guaranteed the expenses incurred in getting these gentlemen for the principal speakers. It has been the aim of the officers of the Wisconsin association for the last few years to bring about a so-called 'Clayworkers' Institute in connection with their annual meeting, so that they are rightly proud of being able to make this one of the treats of the coming convention's program. Every clay manufacturer in Wisconsin should make a special effort to attend the convention, for no matter how learned or well versed he may be in his special lines, he will gain more helpful information by listening to the papers and discussions than he ever thought possible.

An exhibition room will be afforded the clay machinery

and supply firms for making displays, so that button-holing and lobby discussions will be in vogue. The coming convention will, without doubt, be the most successful ever held by the Wisconsin Clay Manufacturers' Association. For more complete information relative to program and membership, etc., the reader should write to the secretary, Mr. Oscar Wilson, Menomonie, Wis.

WANT SAMPLES OF CLAY.

The Technologic Branch of the United States Geological Survey is undertaking the study of the drying properties of clay, with particular reference to those materials which are giving trouble in industrial dryers. For this reason, the Survey is desirous of procuring working samples of 1,000 pounds (three barrels) of such clays.

Whenever one uniform deposit is being worked, it is preferred that the sample be taken where the clay is fed to the brick machine, but where a mixture of clays is being used the sample should be taken in the bank, and should represent only the troublesome material. The object of this investigation is to show the causes of the peculiar drying behavior of some clays, and, if possible, to find a remedy for the trouble.

All persons interested are invited to address the United States Geological Survey, Technologic Branch, Washington, D. C.

THE KING CALORIFIC KILN.

Mr. Edwin King, manager of the King Engineering Company, of Richmond, Va., brick dryer and kiln specialists, has invented a calorific kiln, which it is claimed has many economical features and advantages over other kilns. The invention relates more particularly to the constructive arrangement of air flues, furnace flues, and means for controlling the inlet of air into the air flues, so as to permit regulation of the heat from the furnace to any portion of the kiln where needed.

The arrangement of the kiln makes it possible to conduct at will heat and flames throughout the entire length of the arches formed by clay products, so as to insure uniformity of burning. The air inlet of the air flues is substantially located midway between the branch furnace flues, slides being used to control the entrance of air in each of the air flues, those displacing dampers.

This patent kiln has many interesting features which can only be thoroughly appreciated by studying the figures in the King Engineering Company's calorific kiln pamphlet. This company manufactures the six-track King radiated heat dryer, an advertisement of which appears on page 670 of this issue.

A NEW RICHMOND IN THE PAVING FIELD.

From over in Germany, where come lots of great chemical ideas, some ideas that are greater chemically than they are practically, there comes a report of what is classed as a patented artificial stone called Vulkanol for paving purposes. The foreword about it comes from Consul H. W. Harris, reporting from Nuremburg, Germany. He says that a firm at Wurzburg has placed a new artificial paving stone on the market, and in describing it says that it consists of crushed basalt or other similar rock, crushed and mixed with a small percentage of cement. So far it would suggest similar concrete mixture and the making of a form of concrete blocks for paving, but it is said the mixture is subjected first to a heavy hydraulic pressure, forming it into blocks, and these blocks are then subjected to a process of burning under high temperature in specially prepared furnaces, the burning being continued for ten or twelve days. This part of the process, the pressure and the burning suggest in a measure the making or paving brick of shale, but since crushed rock and cement

are the ingredients, it is a little difficult to understand the exact purpose of the burning. After burning it is said that the blocks are permitted to cool slowly, and when finished it resembles somewhat the volcanic rocks of nature from whence its name Vulcanol. Continuing the description, he says:

"The blocks are of a brown chocolate color, and show on a broken edge a similar color intermixed with white grains and small fragments of feldspar. The blocks are tough in structure, and, it is claimed, withstand all the ordinary tests as to crushing, frost, disintegration, and so forth, that they do not become smooth or slippery by use, and are as durable as natural granite. For much-traveled streets, where heavy loaded wagons are in use a 6-inch concrete foundation is recommended by the manufacturers, while for lighter traffic a foundation of macadam is regarded ample. On a concrete foundation, stones 6 centimeters (2.36 inches) in thickness are said to be ordinarily sufficient. On a macadam foundation stones of 8 centimeters (3.15 inches) in thickness are preferable.

"The manufacturers claim that by reason of its hardness and close-fitting joints pavements of this material are comparatively free from dust, that filth cannot penetrate to the ground below, that the pavements can be readily cleaned with a hose, and on sanitary grounds is unsurpassed by any other form of pavement. The claim is also made that the pavement can be readily fitted to street car tracks, is well adapted for automobile roadways, and is comparatively noiseless. Thinner tiles of the material are made for sidewalk purposes, the surface of those being grooved where required on grades, or for other reason."

This material, it is said, has been tried experimentally in Wurzburg, Munich, Bremen, Cologne and Bamberg, with satisfactory results, and it is compared with granite blocks and asphalt, but in the report no comparison is made between it and vitrified brick. Certain advantages are claimed for it that are common to paving brick, that is, that it has hard, close grain and neat fitting joints, and it is comparatively free from dust and easy to keep clean. The point that is difficult for us to understand, but probably will have a chemical explanation of later is how the burning aids cement in bonding the crushed stone together. If the bonding material used were silica it would be easy to understand it, but there are always new things being discovered and to be discovered. So we are waiting to hear more about it, and in the meantime are wondering a little why they don't burn clay or shale and get a regular vitrified brick, or if material for brickmaking is scarce in that locality.

CLAY MORE VALUABLE THAN GOLD.

Generally speaking, if we would ask any school boy what is the most valuable mineral product of the country, he would say, off-hand, "gold," or if he were making a special study of the geological and mineral resources of the country, he might name some more rare metal. He would be right about it, in a way, too, considering the metal by the pound, but when we take into consideration all the mineral products of the United States we find that the clay product, all told, is worth more than 50 per cent. above the gold product. In fact, there are several so-called mineral products which exceed gold. The leading one is coal, then comes iron, and copper, while clay products occupy the fourth place in the total value per year, followed by petroleum, then gold, stone, and cement, in the order named. This schedule is taken from the figures of the United States Geological Survey, which tabulates the mineral products in 1907, in which the total of clay products amounts to \$158,942,369, while the total of gold produced was \$90,435,700. In fact, at the rate we are going, it will not be long until the clay products of the country will be worth just twice as much as the gold product, notwithstanding the great wealth of gold that is mined each

year. When you think of it in this light, and go to comparing it with other products of the earth, brick and other clay products assume an importance even above that which has been accredited to them right along.

OBITUARY.

Jacob S. Salmen Succumbs to Wreck Injuries.

On November 21st, just ten days after being injured in a railroad wreck, Mr. Jacob S. Salmen, vice-president of the Salmen Brick and Lumber Company, Slidell, La., died at the New Orleans Sanatorium, New Orleans, where he had been taken immediately after the wreck. While it was known at the start that Mr. Salmen was very seriously injured, he rallied to such an extent that the physicians believed him out of danger, and friends were allowed to see him, and on the day before his death announcement was made that his condition was entirely satisfactory, but serious internal injuries developed suddenly.

"Jake" Salmen, as he was called by his intimate associates, was born in Handsboro, Miss., fifty years ago, and with the exception of a few years abroad, where he received his education, had spent his life in that immediate vicinity, having been associated with his brothers Fritz and Albert in the brickmaking and lumber business since 1879. In commenting on his death, one of the local papers says:

"No man ever imbedded himself more firmly in the hearts of people residing in St. Tammany parish and in New Orleans than did Mr. Jake Salmen. His whole life was devoted to the enterprising company of which he was the vice-president, and to the welfare of the people in his employ and those living within a radius of many miles of the big Slidell kilns. His life is described as unsullied and bristling with deeds that were characteristic of his inborn philanthropy."

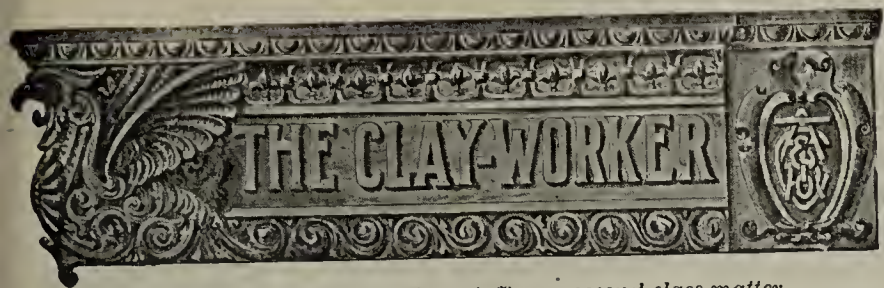
Mr. Salmen had never married, and the two brothers mentioned were his only near relatives.

WATER POWER VS. STEAM POWER.

The effect of variable flow upon the value of a water power is difficult to estimate "as regards the point of variability at which a water power becomes of no value." "I am firmly convinced," so says Mr. Chas. T. Main, engineer, of Boston, "that today there are a great many concerns located upon streams that are so variable as to require an auxiliary steam plant of a size equal to the water power plant, or nearly so, to which in the past such water power may have been a saving, but which now, if they could begin anew, could produce their power more cheaply from a single steam plant than from the double plant.

"It is true that fuel is saved, if steam is not required for other purposes than power, during such times as the engine is not run; but it is also true that as the engine is only to run for a portion of the time, it is probably deemed advisable to purchase a low cost steam plant in order to reduce the fixed expenses, which means a larger consumption per hour than there would be with a better plant. At times also the engine will be unloaded, which is not conducive to economy. To the running expense must be added the cost of maintenance of a double plant, so that the cost is almost sure to be more than that of a single new efficient plant.

"If the stream is variable and the water power plant is the only source of power, which must stop for a portion of the time, it would be of little value under such conditions except for a very limited range of business. No business, employing any amount of labor, carried on in such a way could compete successfully with concerns which have a continuous run."



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-FIFTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. L. DECEMBER, 1908 No. 6.

CURRENT COMMENT.

A Merry Christmas and a Happy New Year to every clay-worker.

* * *

Reform should begin at the place where the chickens come to roost.

* * *

If there were no burdens to carry, there would be no appreciation of rest.

* * *

Profits, promptness and collections are essential factors in any successful business undertaking.

* * *

Maybe we do need a more elastic currency, but if we had it more elastic would we be more likely to stretch it further and make the reaction more disastrous when it did come?

* * *

Santa Claus may not bring quite as full a bag of good things this year as usual, but there is one consolation at least, he won't have to put clearing house certificates in anyone's stockings in lieu of the real article.

* * *

If you have a good foreman, give him to understand that he is responsible and then give him a free rein, and if you have a foreman that it is not safe to give free reign to, the best thing to give him is the bounce; but, whatever you do, don't spoil a good foreman with a tight rein.

* * *

It is a little difficult to figure out just what the Government officials have done to or expect to do in the Standard Oil and Tobacco Trusts, but it seems that an organization or two of farmers down in Kentucky have won a fight against the Tobacco Trust, and have made it come down and pay record prices for tobacco. After all is said and done, it's the people that rule and count for things, and when all the people

or enough of them take a notion that something ought to be done, it is pretty likely to be done.

* * *

As Rochester is the home of the kodak, it would seem very appropriate for every man going to the brick manufacturers' convention to get his picture took.

* * *

The politicians and lobbyists may all have their eyes turned toward Washington now, but the brick manufacturers are looking more toward Rochester, which is to be the Mecca for brick manufacturers February 1 to 6, for the next annual meeting.

* * *

Reduced railroad rates to Rochester have been granted on the certificate plan, as in former years, with privilege of stop-over at Niagara Falls. A side trip may be made to New York City, for which a special rate will be made, depending on the number participating. If you want to visit the Big Town, notify the secretary.

* * *

The appearance of the average postman along about Christmas time with his pack does not suggest any need of additional encouragement to the parcels post idea. Then, besides all this, the country merchants think it is loaded with a mail order joker anyhow, and they don't believe in encouraging anything that helps the mail order business.

DO YOU NEED URGING?

The fact that the Twenty-third Annual Convention of the N. B. M. A. is to be held at Rochester, N. Y., February 1 to 6, has been pretty thoroughly announced, and now it is in order to ask if, after being informed of the time and place of the meeting, you need urging to put you in the humor for attending. It doesn't seem that there should be much need for persuasion or anything of that kind to induce every man in the business who finds it possible to make arrangements to attend this meeting. The benefits of association work generally, and of attending the brick meetings specifically, have been elaborated on time and time again, until everyone should be so well informed by this time that there is no need to say anything further. If, however, you feel the need of urging and having your spirits stirred up and enthusiasm aroused so as to get to the point of packing your grip and making arrangements to go, just turn back and read the reports of the last meeting. The rousing good time they had and the good words spoken of it by the members of the trade after they went home should awaken desires enough to take a man on a pretty long journey to attend one of these meetings. Each one seems to be better than the last one, so arrange your business to be gone a week, and pack your grip in time to be at Rochester and help make the meeting there the biggest yet.

LESSONS OF THE YEAR.

We have probably everyone of us personally learned some individual lessons during the year; each industry has learned specific lessons pertaining to it particularly, but the thing that stands out above all this as the important lesson of the year, if we have but learned it, is a sort of modern rendering of each man's being his brother's keeper. We have learned that the welfare of every industry is dependent considerably on the welfare of the entire country, and that just as States and nations organize armies for the preservation of peace and the protection of the country, so also should the industrial world keep in close touch—one industry with another, and organize if possible for the protection of the industrial welfare of the entire country, as well as for improvement of the individual lines of industry. We are given to centering our interests on our own families personally and on our own industry in

a business way, and in so doing frequently neglect to take that broader view which includes every other industry, and recognizes that all are dependent one on the other. It has been demonstrated this year that not only do all the industries of the country depend more or less on each other, but industries in other countries suffer when there is a lack of prosperity here. Out of all this we should get as the most important lesson of the year a proper conception of our duties as factors in the world, and while we may never get away from that law of nature that leads to self-preservation, we may find that in helping preserve the other fellows we are taking a step in the right direction, that will eventually bear good fruit.

1908—THE CLAY-WORKER—1909.

With this issue THE CLAY-WORKER closes its twenty-fifth year. The annual index, which is a feature of the number, tells how thoroughly we have covered the field during the past twelve months, both from a technical and a news viewpoint, and though we do not say it boastfully, we are very proud of the standing of THE CLAY-WORKER in the world of trade journalism, and feel that we justly deserve the confidence and cordial support of everyone identified with the clay industries.

Our Great Anniversary Issue.

We will, as usual, celebrate our anniversary by issuing an immense double number for January, which will contain a number of feature articles written especially for THE CLAY-WORKER and profusely illustrated, which alone will be well worth the year's subscription price. With the issue will be begun a series of articles on the manufacture of sewer pipe and other vitrious salt-glazed ware, written by one skilled in the manufacture of such ware. It will prove when completed a text book of great value to the trade. The building brick, paving brick, and pottery lines will, of course, be treated in the thorough manner characteristic of THE CLAY-WORKER. In brief, our anniversary issue will be a compendium of up-to-date, valuable, practical information that no live clayworker can afford to miss. As an advertising medium, it is in a class all by itself. Those desiring extra space should arrange for same promptly. It will also contain the program and final announcements relative to the National Convention at Rochester, N. Y., February 1-6, 1909.

BUILDING OPERATIONS.

Building operations which were hit first and hardest when the panic struck in the latter part of 1907, have, in the latter part of the present year, seemingly done more in the way of revival than any other industry. Strong effort was made to stimulate a revival early in the summer, but it took time to restore confidence and for the people to wake up, and by the time the people were awake to the advantages of building while material was cheap and plentiful, it was nearly the end of the season; and it was nearly the end of the year when the rush came. It looks from the figures available that building operations in November and December this year are in round numbers about twice what they were a year ago. This may be explained by the fact that it was in November that the first effect of the panic was felt a year ago, so that the work was not up to its regular gait, whereas this year the revival has been felt, and November and December have been up to the normal or probably better. It is a pity that the revival didn't come earlier, so that more could have been accomplished before winter weather interfered, but this makes the outlook all the better for next season. The entire country seems aroused now to the importance of building, and the campaign of education carried on by the trade papers, and taken up later by the newspapers, has resulted in creating a "Build Now" desire in the minds of so many people that there seems nothing else for it but that spring building will start off with

a rush, and earlier than usual. The great feature of building operations all year has been that it has been made up largely of home building. There was decided hesitancy about undertaking big office buildings, and large undertakings generally carried on by capitalists, and it was the home builders that saved the situation. The great rank and file of the American public has been building steadily everything from the simplest cottage to the family mansion, and it not only saved the building situation, but added permanent improvements to the country that are worth while, and in some respects it is more pleasing to contemplate the building in the past year than any other for many years. It has been pointed out before that it is the home builder who is the mainstay of the nation, and the past year the home builder has been so prominent as to be recognized as practically the whole thing. It looks like now that next year the home builder will not only continue the good work, but the volume of building operations will be augmented by many of the larger undertakings carried on by capitalists, and that the building season will begin early and with such magnitude as to furnish a banner year in building material.

ROOFING TILE SHOULD BE PUSHED.

There is no better indication of the general tendency of the building public to want a permanent roofing than is evidenced by the steady increase in the amount of slate used for this purpose. According to the advance bulletin from the United States Geological Survey, the amount of slate quarried in 1907 was valued at \$6,019,220, an increase of \$350,874 over the production of 1906. This increase was made almost entirely in the production of slate for roofing. In fact, it is stated that the majority of slate quarried in the United States was used for roofing purposes. Slate, therefore, has made steady gains in the face of the fact that never in the history of the country were there so many different kinds of roofing offered for sale. There is, in addition to the well known and long used species of roofing material, including wood shingles and metal, both in sheet form and in the form of shingles that have been in use, composition roofing of an endless variety of different brands offered to the public and widely advertised during the past few years. Still, slate has been making steady gains and there is no better evidence that people want a good roof, that is, a permanent one, even though it costs more money. This fact should lend encouragement to a further extension of the roofing tile industry and to the pushing of roofing tile products among those people who desire to build permanent homes.

The roof is in many respects the most important part of the building. No matter how substantial the walls nor how fine the interior, if the roof of the building leaks it soon becomes a pretty bad mess, and practically worthless unless attended to. Also the roof is a disagreeable thing to repair and people who have had to worry with leaky roofs prefer to pay even double the amount and get one that isn't forever calling for repairs or else leaking every time there is a hard storm. The only handicaps to a wide extension of clay roofing tile seems to be the cost and the weight. These same things to a certain extent have handicapped slate, and yet slate has been making steady progress. So has tile roofing also, but there is room for it to spread out considerably more. It is a little difficult to get at exactly the quantity and value of roofing material used annually because there are no estimates available on composition roofing or on metal roofing. Slate used for roofing seemingly represents over \$5,000,000 worth, and shingles are used annually to the value of about \$25,000,000. That is, \$25,000,000 represents the approximate value of the shingle product at the mill, and the freight and cost of handling added to this would probably double it, so that the value when it reaches the hands of the man who puts it on the roof is

probably \$50,000,000. When we add to this the composition roofing and metal roofing and the tile roofing already being made use of, we find that the roofing item of the country is quite a large one, and that there is not much chance of production in this line being overdone by the roofing tile manufacturers if they can only get their product before the trade in the proper manner. It takes mission work and push, but the game is apparently worth the candle, and there should be more effort put forth in this line.

WHAT ARE YOUR LIME KILN COSTS?

The Harbison-Walker Refractories Co., of Pittsburg, Pa., recently issued to their trade an attractive pamphlet covering very thoroughly the cost problem and proper selection of fire brick in the relining and repairing of lime kilns. The pamphlet will be most interesting to anyone studying utilization of fire brick. The Harbison-Walker Refractories Co. has shipped fire brick to all sections of the country, and has established an enviable reputation for a high-grade product. The catalog will be sent on request by writing the Harbison-Walker Refractories Co., Pittsburg, Pa.

NATIONAL SAND-LIME BRICK CONVENTION.

Some thirty of the faithful advocates of sand-lime brick gathered at Hotel Shoreham, Washington, D. C., December 15, to attend the Fifth Annual Convention of the National Sand-Lime Brick Manufacturers' Association. A number of papers touching on various phases of the business were submitted, but the chief subject of importance to which the most attention was paid was the anticipated action of the National Board of Fire Underwriters, touching on the fireproof qualities of sand-lime brick. A committee was appointed for the purpose of securing more favorable action on the part of the underwriters, if possible. Mr. S. O. Goho, of Waltonville, Pa., was elected president, and Mr. R. K. Irvine, of Chicago, Ill., was re-elected secretary.

CONVENTION DATES.

The Iowa Brick and Tile Association will hold its Twenty-eighth Annual Convention at Mason City, Iowa, Wednesday and Thursday, January 13th and 14th. Those wishing complete information should write the secretary, Mr. C. B. Platt, Van Meter, Iowa.

The Canadian Clay Products Manufacturers' Association will meet in annual convention at Brantford, Ont., Tuesday, Wednesday and Thursday, January 12, 13 and 14, 1909. Brantford is so centrally located that the attendance at this convention is expected to break all records.

The Illinois Clay Manufacturers' Association convention dates are January 19th and 20th. The convention is to be held at Champaign, Ill., with the Beardsley Hotel as headquarters.

The Wisconsin Clay Manufacturers' Association will hold its next annual convention February 10th, 11th and 12th at Milwaukee. The St. Charles Hotel will be convention headquarters.

SAYS IT'S THE "BEST ON EARTH."

The Dodgeville (Wis.) Chronicle has the following interesting article relative to the new brick plant at Holland:

"Mr. H. H. Smith, of Conneaut, Ohio, the new superintendent of the brickyard, arrived Monday, and work was resumed Tuesday afternoon. Mr. Smith has been running the United Brick Company's plant in his home city for seven years, and knows his business. The buildings are to be located farther from the track, in order to save work in handling the materials and products. An expert has been employed to build the kilns, which will be without grates. This saves on both coal and repair accounts. Most of the machinery is now ready for shipment, and will be shipped as soon as the sidetrack is built. Speaking of the brick machinery built by The American Clay Machinery Company, which is furnishing the machines for his yard, Mr. Smith says that in his opinion it is the best on earth. Mr. Smith had an opportunity to compare samples of dry repressed brick made from this clay with the Bradford product, and says that it is fully as good every other way, while the color is richer."

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 666.]

FOR SALE. WANTED, ETC.

FOR SALE.

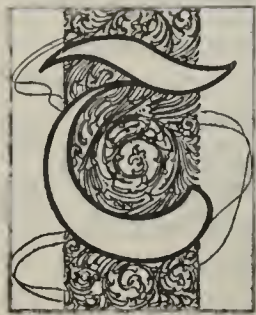
Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick, and gives valuable recipes. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. All or any of these books mailed postage prepaid, on receipt of price. Write for list of other valuable books for clayworkers. Address

T. A. RANDALL & CO.,
Indianapolis, Ind.

For Sale, Wanted, Etc., Ads Continued on
Pages 657, 658 and 659.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



HERE HAS BEEN considerable wet weather during the last few weeks, and the rainy season seems fairly to have set in, causing more or less delay in construction work on new buildings. There has been very little diminution in the business, however, and new projects are being started at a valuation of about \$500,000 a week. Last week's record, in fact, is somewhat above the average, the total valuation of contracts amounting to over \$536,000. At present the outlook for winter building is considered rather better than it was a month or two ago, as the financial situation is rapidly becoming easier. While rates of interest are still maintained, more money was loaned for building purposes in this city last month than during a similar length of time since last October. The record of building permits for the past month shows considerable decline, being about \$700,000 less than in October, but, on the other hand, some of the big buildings down town which have been held up for lack of funds are being rushed to completion.

The brick dealers state that they are figuring on a great deal more work than for a long time past, and new plans are being announced almost daily. In fact, it is becoming apparent to many owners of down-town lots that they can not afford much longer to let their property lie idle, and brick buildings are already beginning to appear in considerable numbers in the part of the burned district on which little work was being done a year ago. There is also a decided increase in plans for large structures, though it was believed for a while that most of the work for the next year would be on a smaller scale. Contracts have been let for the reconstruction of the City of Paris building, at the corner of Gearey and Stockton streets, at a cost of \$212,500, and work is expected to begin in a short time on the Crossley and Rialto buildings, six and eight stories high respectively. Plans have been announced for a new wing for the St. Francis Hotel, to be twenty stories high, but this work is not likely to begin for several months. The Real Estate Board is endeavoring to have the fire limits along Van Ness avenue moved one block west, to prevent the erection of unsafe and unsightly wooden buildings on the west side of Van Ness avenue. This would cause a considerable addition to the amount of brick construction in the next few years, and would result in a magnificent avenue of fireproof structures.

The brick business for the past month has been in a rather better condition, on the whole, than for many months previous. Actual improvement has been most strongly felt in the common brick business, as the demand has increased materially, while a few of the plants around the bay have been shut down. Most of the kilns, however, are now running full blast, and the market has been strong enough to bring about an advance in prices. Surplus stocks have been pretty well cleaned up, and the present output is being moved without difficulty. The present price is \$8.50 on the cars, or about \$2.00 per thousand above that of two months ago, and most of the manufacturers are realizing a moderate profit, though some further advance is looked for during the next few months. Pressed brick continue to move fairly well, though the price on some varieties is a little weaker than it has been, some manufacturers quoting \$40.50 delivered. Local makes of white enameled brick, of very good quality, are moving at \$70.00 per thousand, and the demand is steadily on the increase. There is more business on sewer pipe than for a long time, and the prospects in this line are very good, as financial arrangements, which have been delayed, are about to be completed for a number of new sewer projects in this vicinity.

The United Materials Company, agents for C. I. invisible waterproofing for brick and concrete, report good progress in putting this article on the local market. A number of the large buildings in this city have been treated with this preparation, and some of the architects are specifying its

use on all their brick or concrete buildings. It has been found highly effective in preventing the absorption of moisture by brick or concrete walls, and prevents either the green discoloration of sand-lime brick in damp climates, the quick soiling of ordinary pressed brick, or the appearance of alkali stains on plastered walls. The United Materials Company is furnishing the white enameled brick, made by the Stockton Brick Company, of Stockton, Cal., for facing the new Elks' building. It is also furnishing the fireproofing for the new Sacramento Hotel.

A large part of the plant of N. Clark & Sons, in Alameda, Cal., is shut down at present, during the erection of a 150-foot smokestack at the kiln. This will be completed by the first of the year, and the plant will resume work as soon as possible. This company is furnishing a large amount of white glazed terra cotta for the facing of a six-story building on Market street, opposite Grant avenue. It has just completed deliveries of facing terra cotta for the new Hall of Justice at San Jose, Cal., and for the Commercial Bank at Redwood City, Cal. It is now furnishing the roofing material, a flat, salt-glazed tile, for the Royal Insurance Company's building. Spanish and Mission roof tiles are also being furnished for the new Wharfinger's office on the water front, and for several apartment houses. A very good sale is reported for a mottled Dutch tile, in sizes 6x6, 8x8, and 10x10 inches, which is in considerable demand for fireplaces and mantels in residence work. This company is also putting on the market a pure white pressed brick, made of natural clay, deliveries of which are being made on the Fisher building, on Market street, near First.

The Carnegie Brick and Pottery Company reports plenty of figuring at present, and looks for a decided increase of business after the first of the year.

Gladding, McBean & Co. have taken a contract for terra cotta work on the new six-story building of the San Francisco Gas and Electric Company's building for \$2,920. Mr. McBean, of this company, has returned to the city after an absence of several months.

Involuntary bankruptcy proceedings have been instituted against the Union Brick and Tile Company, of Santa Monica, Cal. An injunction was secured in time to prevent the disposal of the property by the constable in favor of a few creditors who had obtained judgments against the company.

The yards of the Central Brick Company, of Richmond, Cal., are now very busy, and the company has orders on hand for about 8,000,000 brick. Large orders have also been received recently by the Great Western Brick Company, and the Los Angeles Pressed Brick Company, of Los Angeles.

The Oroville Brick Company has bought a tract of land four miles south of Gridley, Cal., and is now erecting buildings and installing machinery for the manufacture of brick. The plant will be in operation early this month.

The Vallejo Brick and Tile Company, of Vallejo, Cal., is putting up a 100-foot stack at its plant on Napa Creek. The plant will be ready for operation by March 1. A special variety of clay will be shipped in from Glen Ellen, Cal.

The new kilns of the Wichita Falls Brick and Tile Company, at Wichita Falls, Texas, made their first run November 18. This is now about the largest plant in the State, having an annual capacity of 25,000,000 brick.

The first kiln of 100,000 brick were recently turned out by the plant of M. P. Castle, on Coos Bay, Ore. The result is highly satisfactory. The output can be laid down at the towns on Coos Bay for \$10.00 to \$12.00 per thousand. There are now several brickyards on Coos Bay, all having been started in the last year or two. Formerly, brick for that region had to be brought from distant points, and cost about \$22.00 per thousand.

Messrs. Brookwell and Pratley have established a pottery and clay works at Centralia, Wash. They are making a specialty of artistic flower pots.

Charles P. Oudin, manager of the American Firebrick Company, announces that \$75,000 will be spent on improvements to the plant at Mica, near Spokane, Wash. A power plant, brick plant, kiln, and dryer will be erected, with a capacity of 50,000 paving brick daily.

SUNSET.

San Francisco, Cal., December 5.

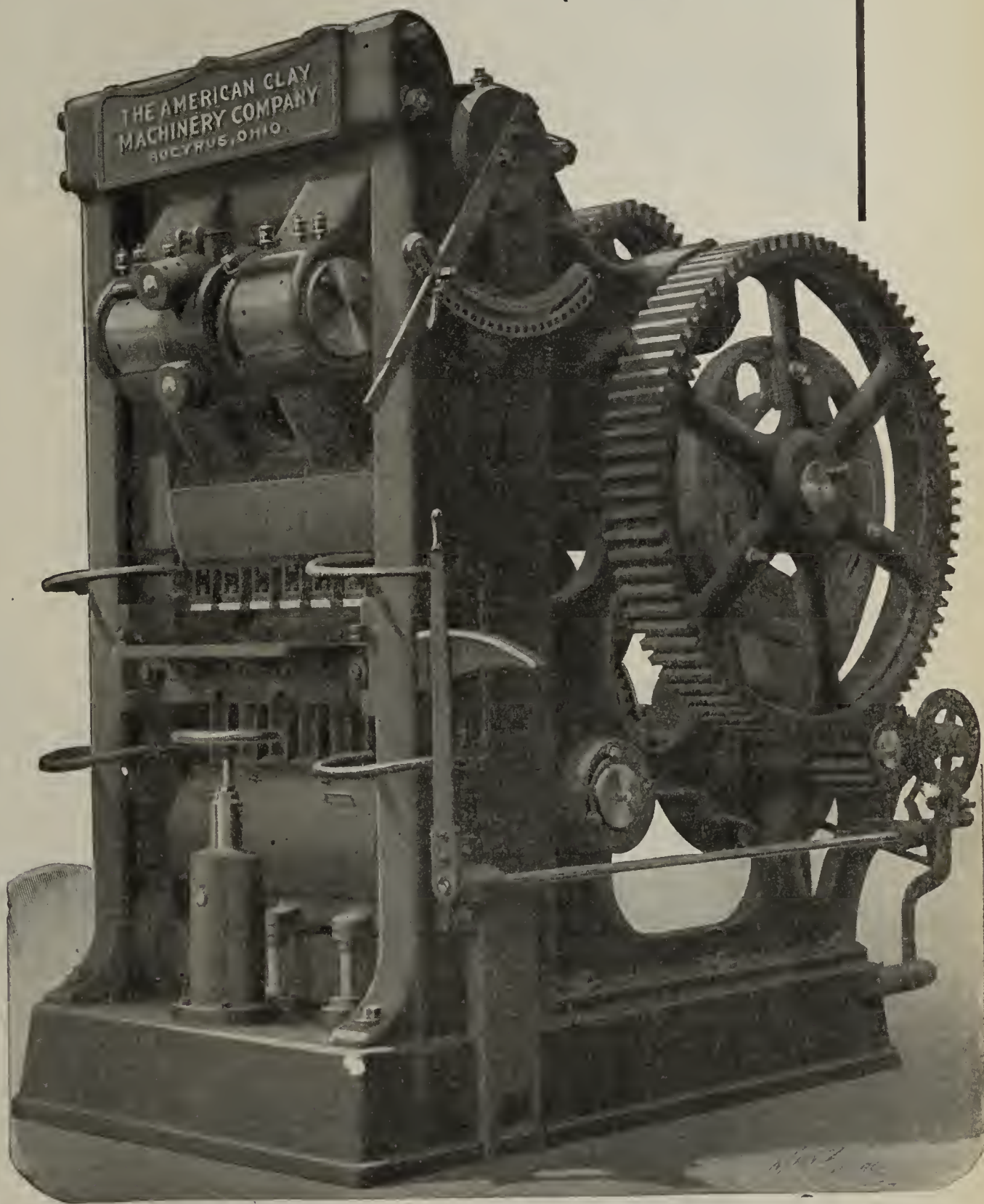
Six-Mold Dry Press Machine.

We Build the Most Extensive and Complete Line of Presses on the Market.

So complete is this line that we can exactly meet the needs of any plant without the necessity of overloading a press or without unnecessary investment in a capacity not needed.

Write for our New Catalogue describing and illustrating our complete line of Presses and other "Built Right Run Right" Clayworking Machinery.

Presses range from one mold to six.



The above illustration shows our **No. 515 Six Mold Dry Press**. In this press we have the highest type of Strength, Durability and Capacity. Although very heavy and massive in all its parts, nevertheless the 51,500 pounds of iron, steel and other metals entering into its construction, have been so proportionately distributed that none of the details are unnecessarily heavy, all have an ample factor of safety, and all movements are smooth and in good balance. All shafting and tension bars are made of high grade steel forgings of our own make, and all other parts which sustain the great strains of pressing the brick are of open hearth steel castings. Full description for the asking.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



LONG THE Hackensack River makers have practically closed for the winter, though the warm weather, which has been a marked feature of the fall, has enabled the work to continue several weeks later than usual. Now, however, it is becoming impossible to do much, for, notwithstanding the fact that the days are warm, the nights are cold, and anything freezable is sure to spoil, even though it seems summery and pleasant during the day. The only work now being done is to clear up the yards and put them in shape for winter, and to get out the last small burnings. One or two makers are still busy making a few brick to fill some belated orders, but in the main the work is done for the year. Some brick are being shipped, and schooners are in use getting them down by water as rapidly as possible before navigation closes. Most of the yards are distant from the railroad, and must ship their brick across the river by water to load them on the trains, consequently there is always lively work for the men in the yards when the river is about to close for the winter. It is expected that more business will be done the coming year than was the case last year, and undoubtedly an enlarged output will be required in providing for the wants of the consumers.

The total expense of paving in Newark during the year just passed has aggregated \$750,598.97, of which the total of brick paving has been \$309,598.97, leaving almost half the entire amount to be divided between several other varieties of paving, including the granite block for the streets where traffic is heavy, and considerable Telford and bitulithic Brick has always been the favorite paving material in Newark, and the present year has been no exception to the general rule. All the City Engineers Newark ever had have advocated brick on all but those streets where traffic is heaviest, and the people have demanded it where the engineers have specified something else.

Building permits in Newark have increased to almost double what they were two or three months ago. Among them are several important brick structures, one or two of which are specified with terra cotta trimmings.

Paterson is issuing more building permits than at any time for some months, possibly years, and plans are being drawn which will develop the building operations still further. A number of good-sized buildings are provided for, and there are other features of the building enterprises which seem to promise an active development all through next year.

William Burgess, of Trenton, chairman of the executive committee of the United States Potters' Association, has been in Washington recently attending the annual convention of that organization. He made an elaborate report upon the work of the association, as shown in its work during the past year.

The strikers at the National Fireproofing Company's plant near Perth Amboy created a good deal of disturbance before they were finally quieted and returned to work. Some 500 were out before the strike was over, and it required the service of the militia to restrain them. Several skirmishes occurred, and the guardsmen fired into the mob a number of times. It cost the State over \$20,000 before the fracas ended. Then the men returned to work at the scale offered by the company at first. The difficulty is laid to the influence of pre-election promises, which were not fulfilled the next day after Taft was elected. Perhaps these men were not so much to blame if this is true. It shows how carefully politics and election promises should be handled when discussing them for the benefit of such men, who are disposed to accept these promises as literal.

The discussion of the tariff question has kept the Trenton potters interested since the hearings begun at Washington. The officials of the association were there and presented their case, as outlined in last month's CLAY-WORKER. Of course, it is too early yet to determine what influence the arguments

presented will have upon the situation, but as Mr. Taft is warmly in favor of the changes which the potters advocate, there seems to be reasonable ground for believing that if any change is authorized it will be in favor of the American manufacturers. The difficulty is not in direct competition with foreign manufacturers, but in the undervaluations and the alleged falsification of invoice values which are reported as common in the case of manufacturers in some foreign countries. Conditions seem to be shaping themselves to obtain further protection for the American manufacturer where he needs it most.

A. L. B.

Written for THE CLAY-WORKER.

BUFFALO BRICK AND BUILDING NEWS.

STATEMENTS MADE by the various brick manufacturers would indicate that Buffalo has practically emerged from the so-called panic period, and is facing a year which promises to be marked with genuine activity in the brick trade and other lines associated with it.

L. D. Walrath, of the Queen City Brick Company, is among the leading brick men of Buffalo, who believe that there will be a great revival of business in 1909. "We feel more optimistic for the coming year than we did a year ago," Mr. Walrath said to THE CLAY-WORKER representative. "One of our biggest brick contracts was in connection with the United States Marine Hospital, which is now under way here. Of our contracts for 1909 I do not care to speak at this time, but you can say that our business shows a healthy tone."

Bonds amounting to \$70,000 have been issued at Niagara Falls, N. Y., for the extension of the tunnel trunk sewer from Sugar street to the Echota factory district in that city.

Fire recently visited Hooker's Brickyard in Welland, Ont. The loss was not heavy.

A report from Bradford, Pa., says that the Northeastern Terra Cotta Company of that city has been declared bankrupt in the United States Circuit Court at Pittsburg. The report further says that the liabilities are said to be upwards of \$40,000, with assets to more than cover the amount. The company enjoyed a good business, but, it is said, was handicapped by lack of capital.

Representatives of the National Brickmakers' Association and the National Paving Brick Manufacturers' Association have recommended to Gov. Hughes, at Albany, N. Y., the use of vitrified brick instead of macadam in building improved roads in New York State.

Secretary James M. Carter, of the Buffalo Builders' Exchange, has expressed the opinion that, according to every indication, the spring of 1909 will be as good a building season as Buffalo has seen in a long time.

Thomas F. Connelly, who is at the head of a real estate company in Elmira, N. Y., says that the concern is planning to erect fifty modern, good-sized houses, which will call for a goodly quantity of brick.

It has been estimated that the building operations in Schenectady, N. Y., during the past year will have amounted to \$1,302,775, including \$197,550 spent in alterations.

It has been officially announced that in Toronto, Ont., last month (November) building operations in that city represented an expenditure of \$1,379,649, an increase of \$741,499 over the figures in November, 1907.

In Rochester, N. Y., last month, 163 permits for buildings were issued, the total estimated value being \$417,108, as compared with \$344,260 for November last year.

J. Foster Warner, a Rochester (N. Y.) architect, has been requested to draw plans for a new \$80,000 school in LeRoy, N. Y.

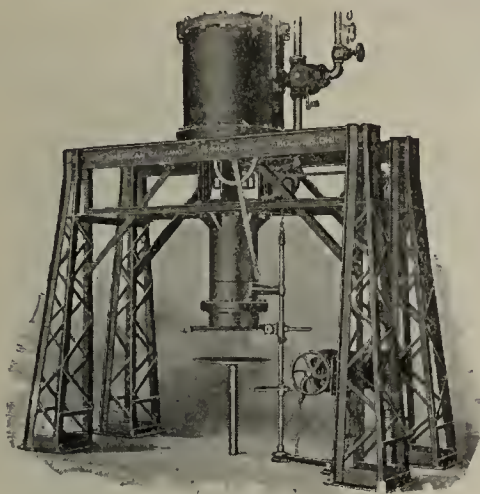
KNICKERBOCKER.

The Troy Brick Company, of Troy, N. Y., recently received an order for over 2,000,000 brick, to be shipped to Chelsea, Mass., to be used in rebuilding structures that were destroyed by fire about a year ago. This large order, in connection with a number of others recently booked, will keep the plant running full time for some time to come.

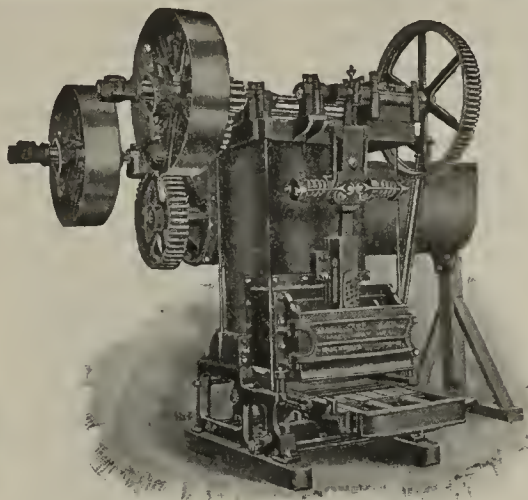
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

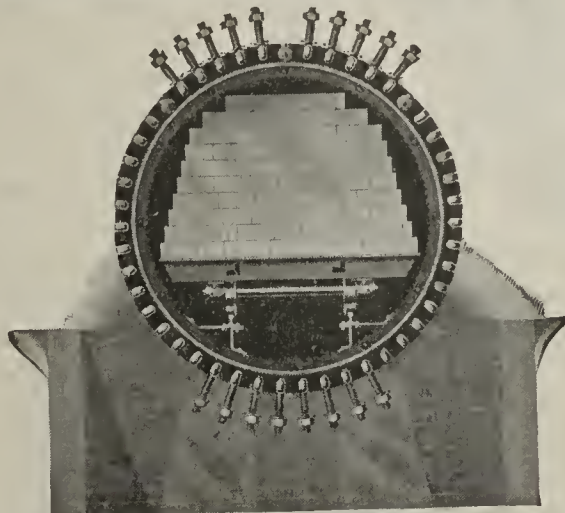
BUILT RIGHT RUN RIGHT



Sewer Pipe Machinery



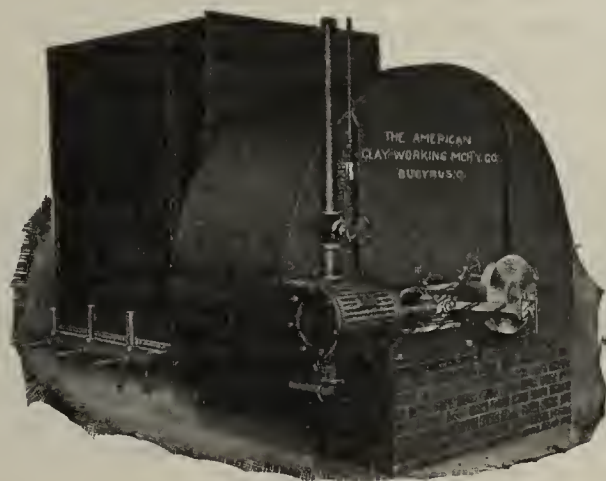
Upright Stock Brick Machine



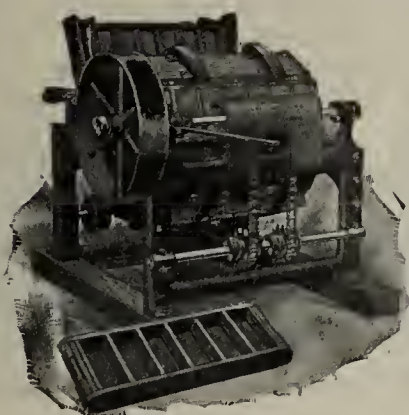
Sand-Lime Brick Machinery



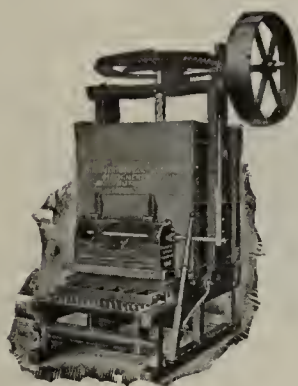
No. 64—9 Foot Wet Pan



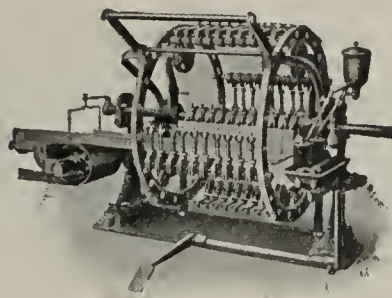
Blower Dryer Apparatus



Mold Sander



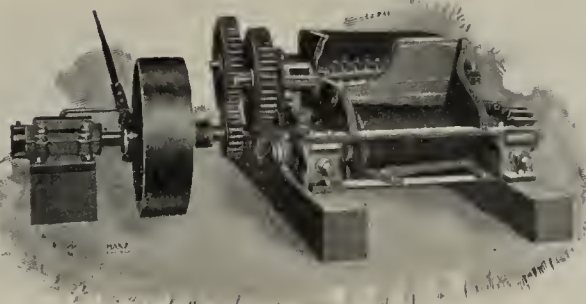
H. P. Brick Machine



No. 62 Hand Power Cutter



Dry Cars



No. 25 Smooth Roll Crusher

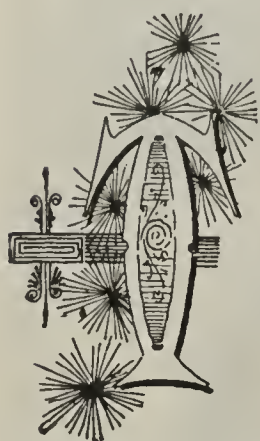


Winding Drums

We Are Much the Largest and Much the Most Extensive Manufacturers of Much the Best Clay-working Machinery in the World.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF THE TWIN CITIES AND THE NORTHWEST.



THE PAST MONTH has been a good one in the building business in this section, when compared with the average November of the last few years, although the total amount of work done has naturally fallen off heavily from the preceding months, as is always the case with the approach of winter. The outcome of the presidential election had an almost immediate effect on all lines of business, for, although the outcome was generally expected, much work was postponed until the decision of the ballots would be announced. As a result, work was rushed while the good weather lasted, and the total accomplished was by no means inconsiderable. The weather has been unusually favorable for so late in the season, and every minute of it was utilized to the fullest extent possible. There has also been quite an increase in the talk of new building projects for the coming year, and at present the outlook is for one of the biggest years in this section. Prices of building materials and labor are still comparatively low, and there is an inclination on all sides to take advantage of the present favorable circumstances to push matters which have been considered in the recent past. Material men report an already marked increase in the inquiry, as well as a good month in actual business done, and they generally look forward to a prosperous season in 1909.

The past year has seen a smaller decrease from 1907 than was expected, and, in general, the season has been a very fair one in nearly all lines. Although there were only a few large buildings erected, the amount of construction carried on as regards small and medium-sized structures has shown an increase sufficient to partly overcome this, and everyone has been kept fairly busy. The season for brick has been slower than in 1907, as there have been fewer than usual large contracts to figure on. A revival is anticipated, however, and the present inquiry indicates that the demand next year will fully absorb the present output of the various yards. Cement has also had a poor season, probably a poorer one than brick, as cement manufacturers did not have the early warning that the brickmakers did, and consequently the supply was increased with a lighter demand to absorb it. The result has been that there are considerable supplies to be carried over, while most of the brick has been disposed of.

Minneapolis.

The regents of the State University have accepted plans by L. A. Lamoreaux, architect, for the new men's building to be erected next year. The structure will be about 300 feet long, of pressed brick, stone, and terra cotta, and will cost about \$250,000.

A new athletic club, which was recently organized by A. F. Pillsbury, T. F. Wallace, Jr., and others, is planning to erect a club house and gymnasium at Second avenue, South, and Seventh street. It will be of brick, and will cost in the neighborhood of \$200,000.

Kees & Colburn, architects, are preparing plans for the foundation and lobby of the new Rogers Hotel, and work will be started in the early spring. The building will be erected in sections, so as not to interfere with the operation of the present hotel. It will be located at Fourth street and Nicollet avenue, and will be largely of brick.

A. T. Rand contemplates remodeling the Minneapolis Club building, and converting it into a store and office building. Among other brick buildings to be erected is an addition to the East High School, and a garage for H. Paulman & Co. The latter will cost \$25,000, and will be built by the Congdon Construction Company.

For the month of October, Minneapolis building permits were \$990,390, an increase of 7 per cent. In St. Paul during

the same month the total was \$711,610, a decrease of 29 per cent.

St. Paul.

Wm. C. Whitney was elected president, and L. A. Lamoreaux secretary-treasurer of the Minnesota Chapter of the American Institute of Architects, at a recent meeting held at St. Paul.

The St. Paul building code is to be revised, and Mayor Lawler has appointed a commission consisting of Geo. J. Grand, T. C. Vandanaker, A. F. Gauger, A. H. Stem, and S. A. Hill.

The Board of Education proposes the erection of four new high school buildings, and it is probable that work will be started next year. The total cost of the buildings will be about \$1,000,000.

Chas. Skooglum, contractor, has about completed the foundation for the new Masonic Temple. It will be three stories high, and will cost \$200,000. Twin City pressed brick will be used. Buechner & Orth, architects.

Wright, Barrett & Stilwell contemplate the erection of a wholesale warehouse at St. Anthony Park next season, at a cost of \$100,000. Another \$100,000 brick building under consideration is a new Central Police Station.

Northwestern Notes.

W. J. Sims, of Scranton, N. D., has been looking over the clay beds at Ismay, Mont., with the idea of starting a brickyard.

Louis Hartig, of Collegeville, Minn., contemplates establishing a new brick manufacturing plant.

The Zumbrota (Minn.) Clay Manufacturing Company will issue \$25,000 worth of bonds for the purpose of equipping its plant with the latest machinery.

W. S. Smith, secretary of the Twin City Brick Company, is spending the early winter on a visit to his old home in Holland.

P. A. Crissinger has sold his interest at Mt. Pleasant, Iowa, in the tile plant to his partner, H. W. Wilt.

The Lehigh (Iowa) Clay Manufacturing Company has filed articles of incorporation, with a capitalization of \$400,000. They will manufacture both tile and brick. L. A. Ingalls heads the board of directors.

G. A. Gillet has sold his brick and tile plant at Corning, Iowa.

The Minneapolis Sewer Pipe Company has completed its plant at West Minneapolis, and will begin the manufacture of sewer pipe at once.

A good bed of tile and pottery clay is reported discovered at Winnebago, Minn.

The new owners of the brickyard at Blakely, Minn., may put in a tile plant in the spring.

F. J. Passe has purchased the brickyard at Preston, Minn. John Hancock, of Benson, proposes to start a brickyard at Pine City, Minn.

Greiner & Corning have sold one of their brickyards at Chaska, Minn., to Klein Bros., who will make numerous improvements.

A. D. Stephens and others have purchased the Northern Pressed Brick Company's plant at Crookston, Minn. It is generally supposed that there is considerable Twin City capital interested in the deal.

T. WIN.

Trained men are in demand.
Give the boy a
technical education.
STATE COLLEGE of
CERAMICS.
ALFRED, NEW YORK.
Charles F. Binns, Director.
Catalog mailed on application.

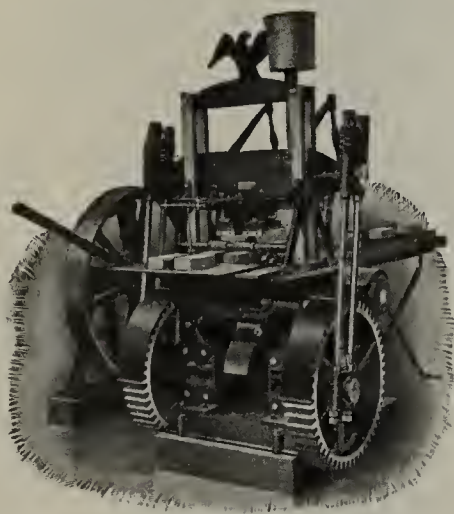
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

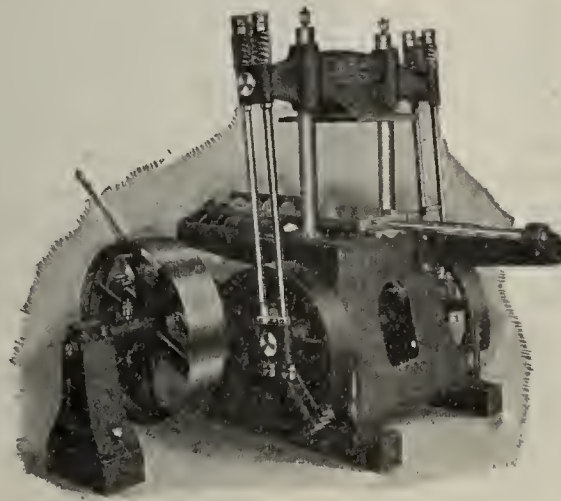
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RUN RIGHT



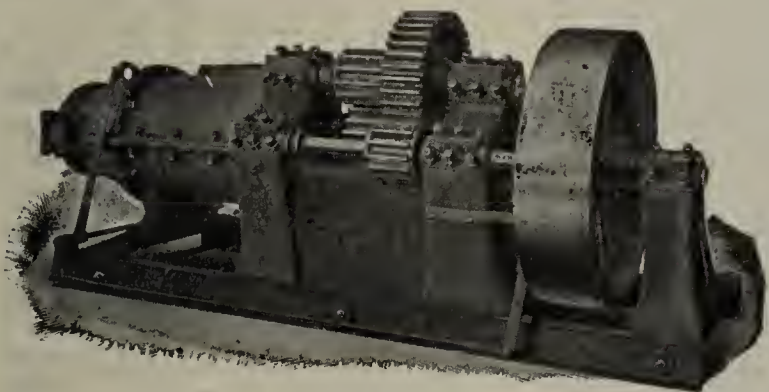
D-3 Dry Press



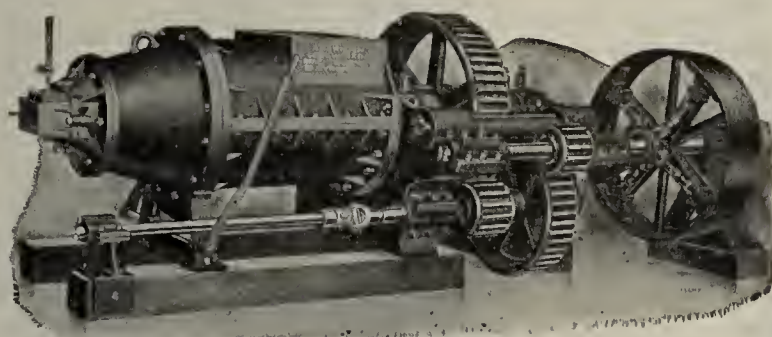
Eagle Repress



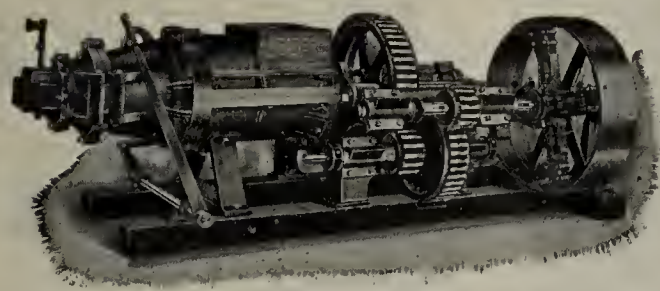
Roofing Tile Press



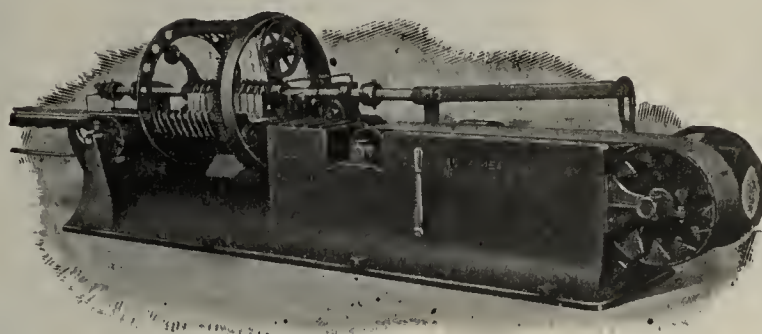
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Special Giant Brick Machine



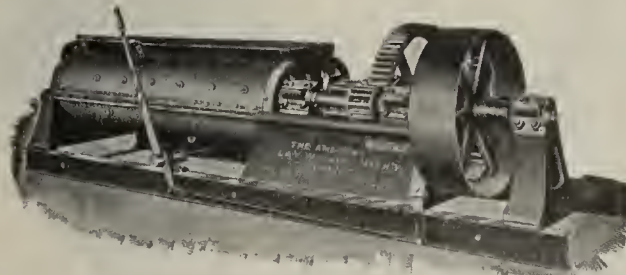
No. 2 Giant Brick Machine



No. 83 Automatic Cutter



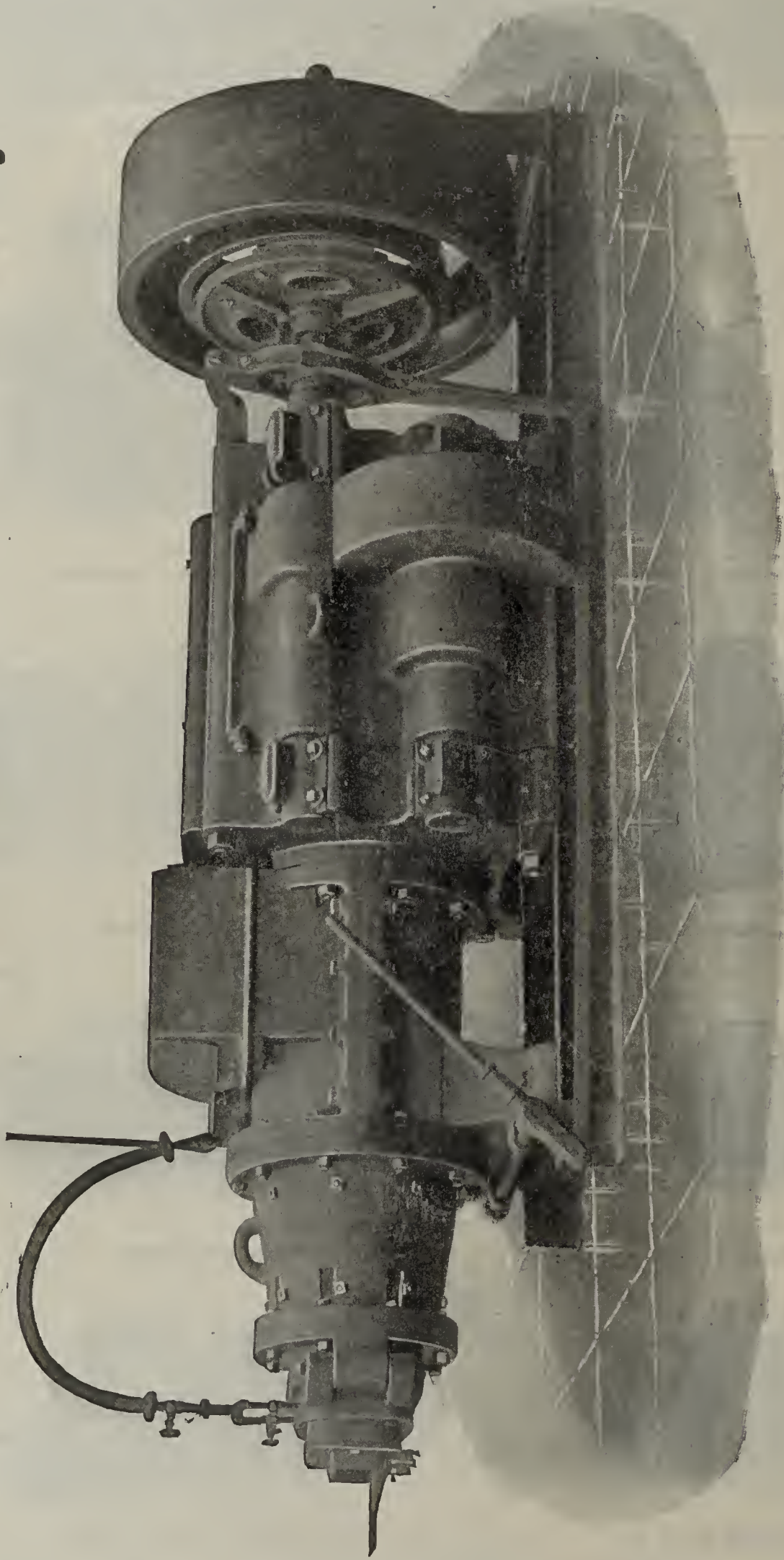
No. 51 Electrical Driven Pug Mill



No. 38 Double Shaft Pug Mill

We Build Every Machine and Every Appliance Needed for the Manufacture of Every Class of Clay Products by Every Process.

Modern Stiff Mud Brick Machinery.

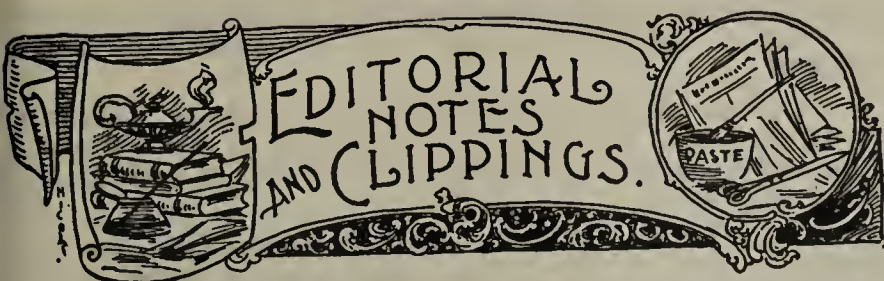


We've been building Brick Machinery a good many years and have naturally been brought into contact with a variety of clays and conditions and have been able to produce machinery more and more nearly adapted to the requirements of our customers. Our motto in this work has been "Prove all things and hold fast to that which is good." Consequently the features in our products which have not been found good have been discarded and improvements from time to time have been substituted.

Let us get acquainted with your troubles or your wants, and if we cannot do you good we will tell you so. We build Brick Machines in many sizes and patterns.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.



Henry Brinkman is making a number of improvements in his tile factory at Evansville, Ind.

G. Courtney and J. T. Skeene are interested in a brick and tile plant to be erected at Sidney Island, British Columbia.

J. C. Hogue, of Winfield, Texas, has organized a company with a paid-up capital stock of \$30,000 to manufacture fire brick and stoneware.

Wm. Kespohl, Hannibal, Mo., advises us that he contemplates establishing a brickmaking plant at that place, and would like to receive catalogs, etc., from brick machinery manufacturers.

The American Brick and Tile Machine Company, Morenci, Mich., write that they are in the market for a machine for the manufacture of large drain tile, and will accordingly be pleased to receive catalogs, etc.

The Nicholson Brick Company's plant at Steubenville, Ohio, was destroyed by fire early in the morning of November 30, which was supposed to have been of incendiary origin. The loss is estimated at \$5,000.

Frank Stiles, of North Haven, Conn., recently purchased at bankruptcy sale the plant of the late W. L. Davis at New Britain, Conn. The plant is regarded as an exceptionally good one, and will be operated in connection with the other Stiles plants.

The Weaver Clay Plant at Brazil, Ind., owned by McCrea-Brown Co., is being rebuilt and considerably enlarged. All the old buildings will be torn down, and modern fireproof buildings erected in their place. Four additional kilns will be built, making twelve in all.

Ross Guyer, manager of the Abingdon (Ill.) Brick Company, was quite seriously hurt recently while working about the engine. His clothing caught in the main shaft of the engine, and before he was released both shoulders were crushed and dislocated, and his entire body was badly bruised.

A charter has been granted the Rockmart Brick and Slate Company, of Rockmart, Ga. The incorporators are: S. A. Duncan, J. A. Scott, and J. E. Brown, all of Atlanta. The company is capitalized at \$125,000, and will manufacture and sell common and pressed building brick.

The clay pit of the Kreicherville Brick Works, Kreicherville, N. Y., caved in recently, and two employes, Thomas Dalligher and John Bercha, were drowned by the inflow of water, while a third narrowly escaped a like fate by leaping to a ledge, whence he was rescued by some other employes when the water had risen to his neck.

At a recent meeting of the stockholders of the Pittsburg and Malven Clay Company, held at Moundsville, W. Va., it was decided to move the general offices from that city to the local offices, which are in the Farmers' Bank building. A branch office will now be conducted at Moundsville, with general offices at Pittsburg. H. B. Shidel is secretary.

The stockholders of the Crawfordsville (Ind.) Shale Brick Company held their annual meeting Friday evening. The following were elected directors for the ensuing year: J. C. Herron, J. E. Evans, W. T. Whittington, J. A. Gilbert, G. B. Lockett, J. T. Ferguson and T. E. Nolan. The directors elected officers as follows: J. E. Evans, president; J. A. Gilbert, vice-president; G. B. Lockett, secretary-treasurer, and J. T. Ferguson, superintendent.

John Dodson, one of the best-known practical brick manufacturers of western Pennsylvania, died at his home on Kelley street, Pittsburg, on November 18, at the advanced age of seventy-nine years. But eight days prior to his demise, Mr. and Mrs. Dodson had celebrated the fifty-eighth anniversary of their marriage. He was in excellent health until two days before he died, and had always spoken of the general good health that he had enjoyed all his life. He was the superintendent of the plant of the McFeeley Brick Company, at Latrobe, Pa., until a few years ago, when he returned to Pittsburg, and devoted his time to looking after his per-

sonal business affairs and various properties in which he was interested.

The plant of the Billings Press Brick Company, Billings, Mont., is to be considerably enlarged, owing to the increased demand for their product.

E. C. Baldrige, who has had years of experience in the manufacture of brick, has purchased a site at Manhattan, Kans., on which he will construct an up-to-date brickmaking plant.

Mecusker Bros., of Jamestown, N. Y., contemplate engaging in the brick manufacturing business at Sedalia, Mo., where they have discovered a fine deposit of clay. A company will probably be organized to develop the clay property.

L. C. Davis, an experienced brick manufacturer from Vermont, has purchased a tract of clay land at Jacksonville, Ill., where he will erect a large brickmaking plant, which will be equipped with modern machinery. His sons will be associated with him in the enterprise.

John McDowell, superintendent in charge of the plant of the United Fire Clay Company, at Ferguson, Fayette County, Pa., was seriously injured on November 30th by a fall of clay at the company's clay mines near the plant. His chest and back were badly strained, and his right leg broken. He was removed at once to his home at Dunbar. It is a curious circumstance that the same leg was broken at about the same time last winter and in a similar manner, while he was located at New Haven, Pa.

The Hastings (Neb.) Pressed Brick Company's plant is being torn down and the machinery is being shipped to Fremont, Neb., where it will be placed in a new building, and where it will be operated as soon as the machinery is put in place. A. M. Baugh, who has been foreman of the Hastings plant for the past three years, and will remove to Fremont and personally superintend the construction of the new building and the placing of the heavy machinery of the local plant. Sand-lime brick are manufactured by this company, and the move to Fremont is made because a better grade of sand can be obtained at Fremont than at Hastings.

(Continued on page 654.)

Wilful Waste Makes Woeful Want

If you should like to know how we can save you money by re-vitalizing your set plaster-of-paris, drop us a line, or, if you should like to know how to make money by operating a territory on a royalty basis we will be glad to furnish full particulars upon request.

We operate under U. S. patents and have patents in all of the principal foreign countries.

All of the by-products of gypsum familiar to the trades are manufactured by us, and we are supplying a large demand for special materials.

Eastwick Plaster Co.,

Works:
East Falls,
Philadelphia, Pa.

New York City.

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City Office:
Builders' Exchange,
Philadelphia, Pa.

Washington, D. C.

EDITORIAL NOTES AND CLIPPINGS—Continued.

The name of the firm will be changed to the Fremont Granite Brick Company.

The Wise County Brick Company is constructing a brick plant at Bridgeport, Texas, of 30,000 daily capacity. J. V. Montrieff is secretary and treasurer of the concern.

M. Heckard & Sons recently closed their brick factory at Canton, Ill., for the winter. They report the past season to have been very satisfactory. Despite the period of general depression, they had a very good business.

Hervey Haigh, Catskill, N. Y., writes that he is quite well satisfied with the past year's business. Among recent orders he has received is one from the Marion Brick Works for a continuous kiln, in which they expect to burn 100,000 paving block per day at their Montezuma (Ind.) plant.

The Indianapolis headquarters of the Western Brick Company has been moved from the Builders' Exchange in the Castle Hall building, to Rooms 625 and 626 Indiana Pythian building, where they have a fine display of medium-priced face brick, laid up in panels showing the wall effect, which they will be pleased to show to visitors.

Thomas McCarty, a well-known brick manufacturer at Pana, Ill., was seriously injured in a runaway accident recently. With his little son he was driving home from the plant, when the horse became frightened and ran away, throwing out both Mr. McCarty and the little boy. The latter escaped uninjured, but Mr. McCarty's recovery was doubtful for some time.

William Brennan, night engineer at the plant of the Diamond State Brick Company, Wilmington, Del., was scalded recently at the plant by the blowing out of a flange on the main steam pipe line. His right leg and both hands and the left arm were scalded, and he sustained a wound on his head by coming in contact with a piece of machinery, which he could not see at the time, because of the escaping steam.

Wm. Roth, the well-known brick manufacturer of Allentown, Pa., died November 28th, from a complication of diseases, the chief of which was heart failure. Mr. Roth was seventy-five years old, and had been in poor health for two years past. Until a year ago he was general manager of the Allentown Paving Brick Company. He was an influential citizen in the community in which he lived, and will be mourned by a large circle of friends. A widow and six children survive.

James H. Noel, superintendent of the Savage Fire Brick Company's clay mines at Williams, Pa., died very suddenly at his residence in Hyndman. He had recently recovered from a serious illness and resumed the duties of his responsible position. On the day of his death he directed the work of his large force of miners five miles west of Hyndman, and returned to his home in excellent spirits. Mr. Noel had been associated with the Savage Fire Brick Company for thirty years. A widow and five children survive.

Percy Coleman Hamilton, a well-known expert in the manufacture of fire clay devices, and until a short time ago a resident of Pittsburg, died on December 9 at the Manhattan State Hospital, in New York City, N. Y., in which institution he had been confined for about three weeks prior to his demise. Mr. Hamilton was born at Dunkirk, N. Y., about forty-four years ago. He was one of the organizers of and heaviest stockholders in the Atlas Clay Material Company, of this city, and also vice-president of the National Fireproof Company, of this city.

The following extract from a letter recently received from one of their customers by the Ricketson Mineral Paint Works, Milwaukee, Wis., should certainly be very gratifying to the Milwaukee, Wis., should certainly be very gratifying to that firm:

"In our thirty-five years of experience, and the tons of red and other color we have used during that time, we find what we had from you gives us better satisfaction than any. We have tried your color in heat, acid, and cold test, and all is satisfactory. Nothing but Ricketson's after this."

One of the few yards on the Pacific coast, or at least in the northwest, where oil is being used for fuel in burning brick is that of the Columbia River Brick Company, at Kenewick, Wash. Mr. C. L. Williams, who has had experience in burning brick with oil in Texas, is superintendent of the plant, and is well pleased with the burns he is obtaining. While the first cost of installation is expensive, Mr. Williams claims there is no comparison between the use of oil and

other fuels for burning brick, as the fuel costs less, the item of labor is reduced, and the time of burning is greatly lessened.

The plant of the LaHarpe Shale Brick Plant, located at LaHarpe, Kans., was completely destroyed by fire November 20th. There was no insurance, and the loss is estimated at about \$25,000.

The El Dorado Brick Works, of El Dorado, Ark., has filed articles of incorporation. The capital stock is placed at \$30,000, of which \$9,625 has been subscribed. The incorporators are: J. R. Randolph, L. S. Fitzgerald, and Aylmer Flenniken.

Aug. Dombrook, proprietor of the brickyard in the town of St. Croix Falls, Wis., died November 20 from a stroke of paralysis, the third from which he had suffered. Mr. Dombrook was one of the oldest and well-respected citizens in that community. He leaves a wife and three sons.

The Brown Clay Works, of Ft. Salonga, L. I., N. Y., has certified to the Secretary of State that the amount of capital stock of the corporation has been increased from \$35,000 to \$75,000, consisting of shares of \$100 each. Of this amount, \$50,000 is to be 7 per cent. preferred stock. The directors include Henry C. Brown and Hiram Thomson.

A new company, of which Jesse B. Hart is at the head, has purchased from the receivers the Central City Brick Company's plant at Macon, Ga., and will operate it, beginning January 1. The machinery is being overhauled, side track relaid, etc. Edward Cox, a brick manufacturer of many years' experience, has been secured as superintendent of the plant, which has not been in operation for three years.

The Ohio Iron and Steel Company, of Lowellville, Ohio, has decided to erect a large plant for the manufacture of fire brick and other refractory material and shapes. The plant will be located at Carbon, Pa., where the company has large deposits of both fire clay and limestone. The foundations will be started this winter, and completed in time in the spring to commence the erection of the plant proper as soon as the weather will permit. Full equipment of brick manufacturing machinery, including crushing, grinding, and pressing and conveying machinery, will be required, and for which orders will be placed during the present winter.

For the National Convention
at Rochester,

Feb. 1st to 6th, 1909,

The New York Central Lines

offer to the members of the

National Brick Manufacturers' Ass'n

and their friends

Unexcelled Service

Perfect Equipment

A Comfortable Journey



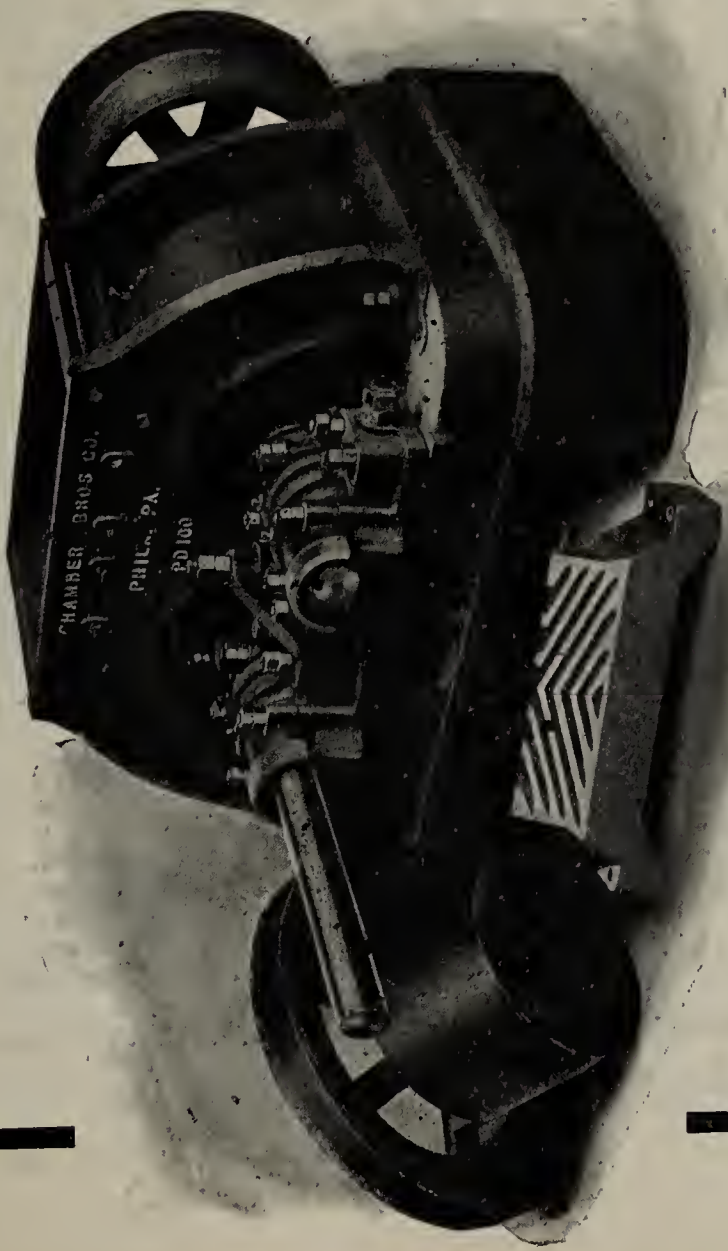
"AMERICA'S GREATEST
RAILWAY SYSTEM"

From New York, Boston, Chicago, St. Louis, Cincinnati and all principal points East and West.

Ask your local ticket agent for full information.

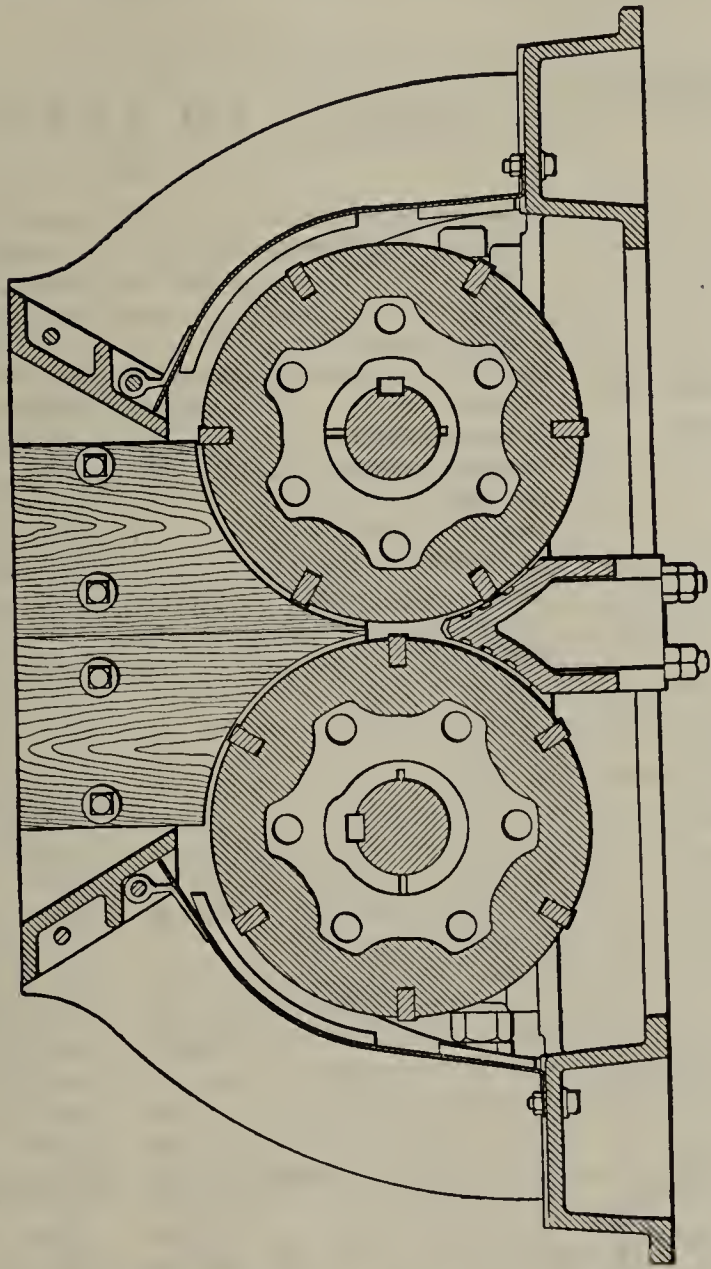
WARREN J. LYNCH,
Passenger Traffic Manager,
Chicago.

Keystone Double Disintegrators.



No. 30 Size Keystone.

For Grinding Clays, Wet
or Dry, With or Without
Stones, Pieces of Ore, etc.



Patents Applied For.

Grinding Tests Made on
Full Size Machines for
Intending Customers.



CHAMBERS BROTHERS COMPANY,
CHICAGO, ILL.

PHILADELPHIA, PA.

(See Ad on Page 579.)

NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.

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FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FIRE BRICK.

Will sell or lease land near Cincinnati; suitable clay for manufacturing fire brick, etc. Address BOX 424, 12 1 cm Care Clay-Worker.

WANTED—A competent man to superintend a new paving brick plant. One able to make a small investment preferred. Address BOX 815, 12 3 dm Care Clay-Worker.

WANTED—To interest a practical man, with \$2,000, to invest in a well-established brick and tile business. For particulars, address

MARENGO BRICK AND TILE CO., 12 1 cm Marengo, Iowa.

FOR SALE.

Complete four-mold dry press brick machine, slightly used. Also pulverizer, dry pan, power, etc. Address

B-K BRICK CO., 12 1 c Denver, Col.

FOR SALE.

A central Iowa brick and tile plant in fine condition. Abundance of shale. Earning from \$10,000 to \$15,000. Offered by owners for \$50,000. Address C. B., 12 1f d Care Clay-Worker.

FOR SALE.

Will sell at a bargain, two Martin side-delivery pug mills. For full information, address A. C. & F. G. BURNHAM, 12 1 cm Montague City, Mass.

WANTED—A first-class pug mill man in a vitrified paving brick plant. Wages, \$2.50 per day. Address

BURKE BRICK CO., 12 1 d Ft. Smith, Ark.

WANTED—A manager and general superintendent for a brick plant of about 30,000 daily capacity. Address

LOUCK & HILL CO., 12 1 dm Richmond, Ind.

WANTED—Position as salesman or superintendent of tile or brick plant—dry press or stiff mud. Good references and reasonable salary. Address

FRED DAY, 12 1 cm Care Clay-Worker.

WANTED—A general manager for a well-established and well-equipped brick plant making a high-grade face brick. Must have some capital to invest. Rare opportunity for right man. Address OHIO, 12 1 1p Care Clay-Worker.

CLAYS.

I have an immense clay bed, recently discovered; millions of tons, inexhaustible supply, purest kind, easily worked. Tested and found suitable for tile, brick, terra cotta. Lumber of the finest kind. Any party interested, write to owner.

P. D. McMILLAN, 12 1 cm 223 Central ave., Minneapolis, Minn.

WANTED—Expert brick shader and sorter; steady employment to right party. In answering, give experience and reference, also wages expected. None but strictly sober and experienced men need apply. Address LEGG BRICK CO., 12 1 dm Calhoun, Ga.

SITUATION WANTED.

As superintendent of a brick plant. Understand the business thoroughly in all its details, and can give good references. Am forty-five years of age, habits are good, and not afraid of work. Address

WORKER, 12 1 cm Care Clay-Worker.

FOR SALE—Second-hand machinery cheap, including 25-ton Ref. Wolf ice machine. Chambers brick machines, pug mills, drying cars, repress, line shafting, boilers, engines, fan pumps, feed water heater, electric locomotive, etc. Address

ANTHONY & BUCHANAN, 11 6 cm Kewanee, Ill.

FOR SALE.

A rare opportunity to purchase an established brick business or an interest in same. One of the latest improved brick manufacturing plants in the State. Located near Philadelphia. Shipping facilities to all points. Address PENN, 12 3 c Care Clay-Worker.

FOR SALE.

A valuable deposit of fine yellow ochre or chrome, also black. One hundred and twenty acres near the Southern Railroad in Virginia. Get a sample. A bargain for a quick buyer. Write to

J. L. CONNELL, 12 1 dm 621 Thirteenth st., Washington, D. C.

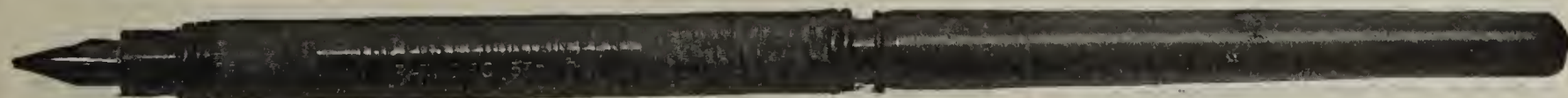
Continued on page 658.

REMARKABLE OFFER.

We will send this famous Gold Pointed pen, post paid, and The CLAY-WORKER for one year, to any address in the United States and Canada for

\$3.00

"POST" SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen.

NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.

Guaranteed by Makers.



The Old Way.

Gen. Lew. Wallace: The author of "Ben Hur" writes, "I have tried every kind in the market and unhesitatingly give the preference to the 'Post.'"
Judge Luther L. Mills, Chicago: The "Post" Fountain Pen is the Best I have ever used; simple, reliable, durable.
Dr. Josiah Strong: The great author of "Our Country" says: "I have been hunting for twenty years a perfect fountain pen; have tried many, and they have tried me; but the 'Post' leaves nothing to be desired."

The CLAY-WORKER, INDIANAPOLIS,
—INDIANA.



The New Way.

WANTED.

Fifteen thousand second-hand kiln floor tile. Must be in good condition. Address
INDUSTRIAL BRICK CO.,
12 1 cm Mt. Vernon, Ind.

FOR SALE—One No. 10 Chambers latest improved machine with extra attachments. One Bensing side-cut cutter. Reason for selling, changing from stiff mud to soft mud. Address
THE KING ENGINEERING CO.,
12 L. tf Richmond, Va.

WANTED—Position by a man thoroughly competent to take charge of any yard. Has been connected with some of the largest plants in the country, and can give first-class references. Address
ST. LOUIS,
12 1 d Care Clay-Worker.

WANTED.

An experienced and thoroughly competent superintendent for a Pacific coast paving brick company. Only men who have proven successful need apply. State fully age, experience, salary required and references. Address
"PAVER,"
12 1 d Care Clay-Worker.

FOR SALE.

Sufficient grate doors and frames and irons for two eight-arch kilns, two clay grinding wheels, and a lot of barrows. They are nearly new, having made but 1,000,000 brick. Address
WOODBURY,
12 1 dm Care Clay-Worker.

WANTED.

Position by first class man as head burner or assistant superintendent on a dry clay, press brick, down-draft kiln plant. Can guarantee results if proposition is not fundamentally wrong. Address
RESULTS,
7 tf d Care Clay-Worker.

FOR SALE.

Matthews gravity 12-inch brick carrier, nineteen 8-foot sections, one 6-foot, five 4-foot, three 7-foot, curves, seventeen adjustable jacks, two aprons, eighteen extra rollers. Good reason for selling cheap. Address
THE HEIDECKER BRICK CO.,
7 6 c Sharonville, Ohio.

FOR SALE—One Leader Manufacturing Company brick machine, one Kells machine, one Big Wonder, and one Quaker. All in good running order. Also three engines and three boilers. Each from 40 to 50 h. p., which I desire to sell outright or trade for engines of more horse power. For full information, address D. P.,
12 6 cm Care Clay-Worker.

FOR SALE.

One Standard "T" all iron and steel 9-foot dry pan, with bottom unloading device; one improved Acme auger machine, hourly capacity two to three thousand brick; three hollow block dies, respectively 8x8, 5x8, and 5x4; one Standard No. 3, Style "F" pug mill, and one No. 8 down-cutting board delivery table; one piano wire screen, Adams patent; one No. 1 agitating clay feeder; 26 feet of 2x15x16 steel shafting complete with journals; four all iron pulleys, 76x16x2 15-16, 32x8x2 15-16, 26x12x 2 15-16, and 28x8x2 15-16. Entire outfit is the make of the American Clay Machinery Company. Practically new; have made but 250,000 brick, and must make room for a large equipment. Will sell all cheap. Address
POCATELLO PRESSED BRICK AND MFG. CO., LTD.,
12 2 d Pocatello, Idaho.

ATTENTION—GENERAL MANAGERS.

Correspond with an experienced brick plant engineer, who can design new plants, reconstruct old plants, install machinery, and superintend construction and make drawings for machinery repairs. Eight dollars per day. Address
WILSON,
12 1 1 pm Care Clay-Worker.

WANTED.

A first-class, expert pressed brickmaker, who can buy stock, to correspond with us about taking charge of our plant. Would sell entire plant outright. No brick made within 100 miles. Address
Secretary Chamber of Commerce,
Room 1221,
Astoria, Ore.
12 2 cm

FOR SALE.

20,000 white pine pallets, racks and covering for same; 3 clay carts, 4 trucks, 1 clay gatherer, shafting, belting, wheelbarrows. Cheap. Address
J. H. M., care Clay-Worker.
12 1 d

BRICK PLANT FOR SALE OR LEASE.

Good clay, on railroad in rapidly growing southern town of 25,000 population. Success soft mud machine, Standard steam dryer; also racks, engine, two boilers, hoisting engine and incline, commissary, clay cars, and small equipment. Owner is civil engineer, and has not time to run the engineer, and has no time to run the
WALTER G. KIRKPATRICK,
12 1 dm Jackson, Miss.

A FINE BRICK PLANT IN CALIFORNIA.

I have 176 acres of very fertile land on the Sacramento river, the only clay that makes good brick in this vicinity, with sufficient wood to burn several million brick. Brick bring a wholesale price of \$11.50, retail \$15.00. I want a good practical brickmaker with \$10,000 to buy half interest, or will sell entire for \$18,000; one-third cash, balance as you can make it. Country is growing and progressive.

Address
12 6 cm

D. MADIGAN,
Chico, Butte Co., Cal.

ON THE BARGAIN COUNTER
FOR QUICK BUYER.

A Chambers No. 5 End-cut Auger Brick Machine, capacity 40,000 daily. Has Automatic Sander, End Cutter, Automatic Edger, with 16 feet delivery frame. Our customers purchased a large Chambers End-cut Machine and we took the smaller one in trade. Machine can be seen and shipped from the brick works of L. J. Haskins, Sergeant Bluffs, Iowa. Apply to
CHAMBERS BROTHERS COMPANY,
Fifty-second and Media St., 59 West Jackson Blvd.,
Philadelphia, Pa. Chicago, Ill.

An Opportunity of a Life Time.

Will Sell at a Low Figure and on Easy Terms.

An up-to-date brick plant located on the James River, Va., and in easy touch by water with eight rapidly growing cities.

Brick bring \$7.00 at kiln and future outlook is excellent.

The outfit consists of Henry Martin soft mud machine, 50,000 per day capacity, with latest patent steam drier. Also J. D. Fate Co.'s stiff mud outfit 25,000 per day capacity, with Scott's patent cars. All practically new.

New and commodious dwellings for manager and laborers. Not a better equipped yard in the state. Twenty or more acres of finest plastic clay, average depth fifteen feet and burns cherry red in five days. Cheap fuel and labor, with low freight rates and a mild climate offer a combination seldom met with. The improvements have cost \$16,000. Reason for selling, am not myself a brickmaker; bought to protect my own interest. Write for full particulars. Address

BOX 5, Care Clay-Worker.

Uniform Wires

Loops Double Twisted
Wires Straight—Ready for Use



Cutting Wires For Brick Machines



Chambers Bros. Co., Philadelphia, Pa.

ANY GAUGE, ANY LENGTH OF WIRE MADE TO ORDER
Send us your specifications for our quotations

DOVER FIRE BRICK CO.,

509 Cuyahoga Building, Cleveland, Ohio.

Operating plants at North Bend, Clinton County,
Pa., and Strasburgh, Ohio.

"NORTH BEND." "DOVER." "BUCKEYE."

We have been furnishing fire brick for kilns
for over forty years.

WRITE US FOR PRICES.

THE SOUTH DEMANDS!

The Best

FIRE BRICK

FOR KILN CROWN AND LININGS.
WE MAKE THEM!

SOUTHERN CLAY PRODUCTS CO.,

Chattanooga, Tennessee.

The Improved Flue System.

The most profitable kiln on the market
for burning any clay product.

Absolute Draft Control. Economy of Fuel and Time.
All Hard Brick.

Kiln and Yard Rights, with Plans, Specifications, etc., sold at very reasonable
rates. Booklet, estimates and full information cheerfully furnished.

GEO. E. SNOWDEN & CO.,

[Formerly J. P. Bradley & Co.]

New Cumberland, W. Va.

FOR SALE.

One Taplin & Rice 9-foot dry pan, steel
frame. Has been used only a short time.
A bargain. Address H. H. WOLF,
12 1 cm Muncie, Ind.

WANTED.

To interest a practical man in our brick
and tile plant. Well-established business.
Correspondence solicited. Address
"BELL,"
9 4 cm Care Clay-Worker.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CON-
TRACTING CO.,
10 tf d Zanesville, Ohio.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want
to buy, sell or exchange any kind of real
estate or business anywhere, at any price,
address FRANK P. CLEVELAND,
965 Adams Express bldg.,
11 tf d Chicago, Ill.

FOR SALE—A well-equipped soft mud
brick plant at Princeton, Ind. Daily ca-
pacity, 25,000. A bargain. Present owner
recently stricken with paralysis. Address
CHAS. READ,
10 3 cm Oakland City, Ind.

FOR SALE—Brick manufacturing plant at
Athens, Pa., one mile from the large
Lehigh shops at Sayer. An abundance of
good shale. Railroad siding, machinery
and some buildings. Address
119 East Second st.,
11 2 c Cornlng, N. Y.

FOR SALE.

6 "Little Giant" Traction Shovels.
Dredges for clay swamp, ½ yd. to 2½ yd.
Locomotives, cars and rails for up-to-date
clayworkers.
We buy and sell.

THE MALES CO.,
26 Cortland Street, New York, N. Y.,
1508 First Nat'l Bank Bldg., Cincinnati, O.

WANTED.

Clayworkers who are having troubles of
any sort in the operating features of their
plant, whether in the making, drying or
burning, to know that my experience of
twenty-five years enables me to give val-
uable practical advice that will prevent
further loss and trouble, if skill and knowl-
edge as a practical worker and chemist
can accomplish that purpose. Terms rea-
sonable and contracts made contingent upon
success. Address J. J. KOCH,
5 tf L 3325 Caroline st., St. Louis, Mo.

FOR SALE—ENGINES AND BOILERS.

—Engines—

Corliss and Automatic—20x42 Allis, 18x42
Hamilton, 18x36 Wright, 16x32 Buckeye,
14x24 Atlas; also 12x30, 10x30, 13x16,
13½x15, 12x18, 12x14, 12½x12, 10x10,
etc., etc.
Throttling—18x26 H., S. & G., 18x24 Erie
City, 16x20 Chandler & Taylor, 14x24
Atlas, 14x14 Vertical, 12x18, 11x16, 10x
16, 10x12, 10x10 Vertical, 9x12, 8x16, 8x
12, etc., etc.

—Boilers—

Horizontal Tubular—84x18, 78x16, 72x18,
72x16, 66x16, 60x16, 60x14, 54x16, 54x15,
48x14, etc., etc.
Fire Box—60, 50, 40, 35, 30, 25, 20, 16, 14,
12 and 10 horse power, etc., etc.
Vertical—55, 35, 30, 20 and 15 horse
power, etc., etc. Pumps, heaters, tanks,
saw mills and general machinery.
THE RANDLE MACHINERY CO.,
1735 Powers st.,
10 tf d Cincinnati, Ohio.

Continued on page 456.

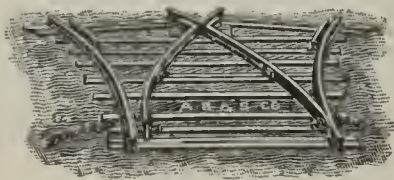
FOR SALE.

One two-mold Simpson dry press machine.

One E. M. Freese & Co. board delivery cutting table.

Address
DUNLAP MFG. CO.,
Bloomington, Ill.

10 tf d



SWITCHES FOR SALE.

Right and left-hand one, two and three way switches of various gauges, radius and weight rails at special prices.

THE ATLAS CAR AND MFG. CO.,
Cleveland, Ohio.

DO YOU NEED
MODELS or MOULDS?

We can furnish you with them for any line of clay products, ornamental or plain. Plaster-blocks and cases made to order. First class work guaranteed.

IRONTON CLAY SPECIALTY CO.,
Ironton, Ohio.

See additional ads under Table of Contents.

Terms
reasonable.

First-class
references.

If you have trouble with Clay, Machinery
or Kilns, then consult

THE BRICKMAKERS' ADVISOR,

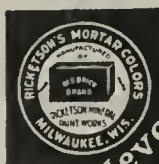
Julius J. Koch,

(25 years practical experience)

3325 Caroline Street, St. Louis, Mo.

Special attention paid to dry clay press processes and down-draft kilns.

Contracts made contingent upon success.



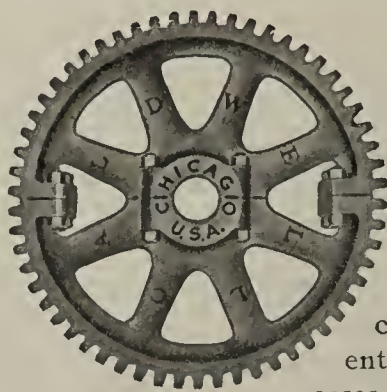
They Never Fade

Twenty
Long Years
of time and weather
have tried out Ricketson's
famous Red Brick brand

COLOR

For Mortar, Brick,
Cement, Stone, etc.
Proved to be absolutely
permanent. Red,
Brown, Buff, Purple
and Black.

Ricketson's Mineral Paint Works,
MILWAUKEE, WIS.



Machine-Molded Gears

One to 6-inch pitch and larger. Our machine-molded gears last longer than others, give higher efficiency under actual scientific tests, and in many cases cost no more than inferior gears. Catalogue 27 for all gear users.

H. W. Caldwell & Son Co.
17th St. and Western Ave.
CHICAGO

NEW YORK CITY
Fulton Bldg., Hudson Terminal,
No. 50 Church Street.

CHICAGO RETORT AND FIRE BRICK CO.

Fire Brick for
Building Kilns.

Factories:

CHICAGO, ILL.
Brickton No. 1 }
Brickton No. 2 } Ottawa, Ill.

General Office:

45th St., Clark to LaSalle Sts.

CHICAGO, ILL.

'Phone Yards 525.

Evans & Howard Fire Brick Co.

ST. LOUIS, U. S. A.

Sewer and Culvert Pipe. Locomotive Tile.
Furnace and Boiler Tile. Fire Brick and Cupola Blocks.
Flue Lining and Chimney Pipe.
Sanitary Earthenware. All kinds of Fire Clay Products.

"Mitchell St. Louis No. 1"

Brand of

FIRE BRICK

Awarded Gold Medal at St. Louis for
Kiln Construction.

— Made by —

MITCHELL CLAY MFG. CO.,

5627 Manchester Avenue.

ST. LOUIS, MO.

\$2.00

THE CLAY-WORKER,
ONE YEAR, (IN ADVANCE)

\$2.00

THE WEBB WIRE WORKS

MANUFACTURERS OF
MUSIC WIRE NEEDLE WIRE

NEW BRUNSWICK, N. J.

We manufacture BRICK AND TILE CUTTING WIRE, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.



C. A. SHOOP, Pres.

N. R. WITHERS, Sec. and Treas.

H. L. JACOBS, Gen. Mgr.

SUFFOLK CLAY COMPANY,

MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

Marion Machine, Foundry & Supply Co., Marion, Indiana:

Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

Very truly yours,

SUFFOLK CLAY CO.,

H. L. Jacobs, Gen. Mgr.

For further information address

MARION MACHINE, FOUNDRY AND SUPPLY CO., MARION, IND.

It Looks Good

on paper.

It Looks Better

crushing shale, fire clay, rock and other hard material.

THE CHAMPION CRUSHER

is expensive, to do without, because it saves you money.

Catalogue is free on application. Address

AMERICAN ROAD MACHINE CO.

KENNETT SQUARE, PA.



NO. 5, 11x26 CHAMPION CRUSHER.

The Department of Clayworking and Ceramics

Established by the Legislature in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.

W. H. S. DEMAREST, D.D.

Department of Ceramic Engineering Ohio State University.

THE OHIO STATE UNIVERSITY offers complete courses in all of the usual engineering branches. It is prepared to offer especially fine facilities for the study of the clay industry in its department of Ceramic Engineering.

This department, located in a large new building, is entering upon its 15th year. Substantial additions to its equipment are now in process. Its laboratories and equipment are the most complete in the country. It offers regular courses in the technology of clayworking, glass and cement manufacture, and an opportunity for a limited amount of special study in these and similar fields.

Tuition is free. Laboratory fees are low. Living expenses moderate. The corps of instructors is composed of specialists who have had good practical experience.

For information or catalog address

PROFESSOR EDWARD ORTON, JR.,

Director of Department of Ceramic Engineering, Columbus, Ohio.

Brick Expert.

Thirteen years' practical experience. Graduate of German technical school of brick manufacture.

Will test clays and other materials and superintend the readjustment of old or installation of new machinery, etc.

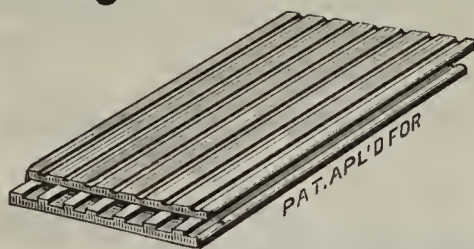
Specialty: Removal of difficulties or obstacles of operation.

Builder and operator of continuous kilns.

H. O. POMMER,

1017 Dillon St. St. Louis, Mo.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

MUELLER BROS.,

2935 Clark Avenue.

St. Louis, Mo.

C. K. WILLIAMS & CO.,
EASTON, PA.

Largest Manufacturers in
United States of

Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
on application.

Chattanooga Paint Co.,
Chattanooga, Tenn.

Manufacturers of

**Red Oxides for Brick-
makers' Use.**

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

COLORING

All Mineralogists Know

Clinton Hematite Red
is the highest grade
Oxide of Iron.

Be sure you get the genuine, with the "Little
Yellow Side Label" on each package.

MADE ONLY BY
Clinton Metallic Paint Co.,
CLINTON, N. Y.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.
NEW YORK.

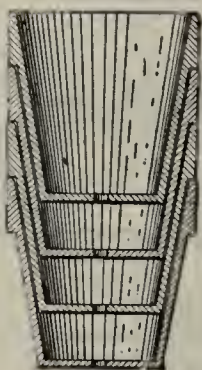
Sole Importers in the United States of the

Precipitated  Carbonate
of Barites

The only preventative for scum and discolor-
ation on Facing Brick and Terra Cotta, neu-
tralizing the Sulphate of Lime in the Clay and
Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;

4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

Some Claims Made for the Dennis Double Cham-
ber Down Draft Brick Kilns.

Some New Features About This Kiln.

No buck stays, rods, or braces of any kind are used, the only metal used being furnace doors, grate bars, and sheet iron for chimney dampers, and as outside walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation when in use, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except the very costly and complicated continuous kilns, and by chimney dampering, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent, of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

I can surely improve the quality of your brick. Write me for information.

Wood burning up draft kilns changed to down draft coal burners. Brick plants installed and put into operation. Write for printed matter.

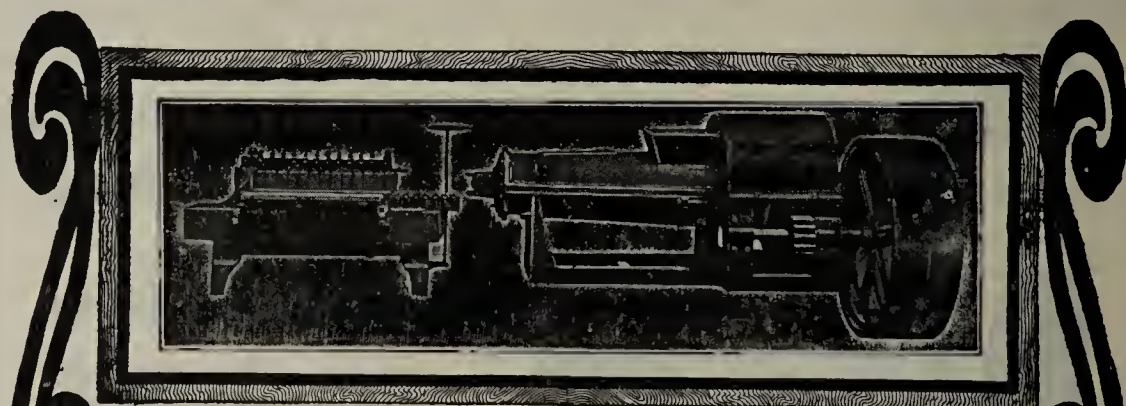


Double Up and Down Draft Kiln.

ADDRESS

F.W. Dennis

145 Water St.,
NORFOLK, VA.



THE PIONEER. Kells Brick and Tile Machine

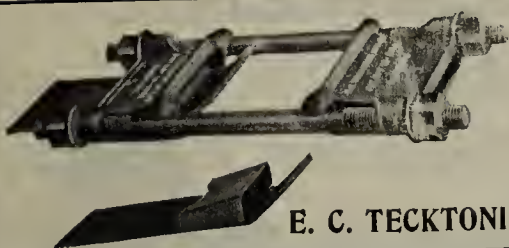
has been the synonym of excellence in the Brick and Clay-
working industry for the past thirty years.

It has had few rivals and no superiors. Improved from
year to year to gain increased

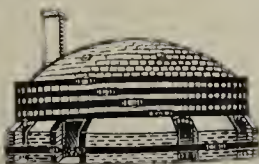
Strength, Simplicity, Durability, Efficiency and Quality
of finished product, until it has reached the highest state of
the Mechanical Arts in Brickmaking.

Our new handbook will give you the detailed informa-
tion desired.

The Kells Foundry and Machine Co.
ADRIAN, MICH.



The Best and Cheapest
BAND LUG
on the market.
Write us for price.



E. C. TECKTONIUS MFG. CO., Racine, Wis.

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

White Pine Pallets

For Brick, Roofing Tile,
And Sewer Pipe Boards.

The Best Are the Cheapest.

Send Specifications and Get Prices.

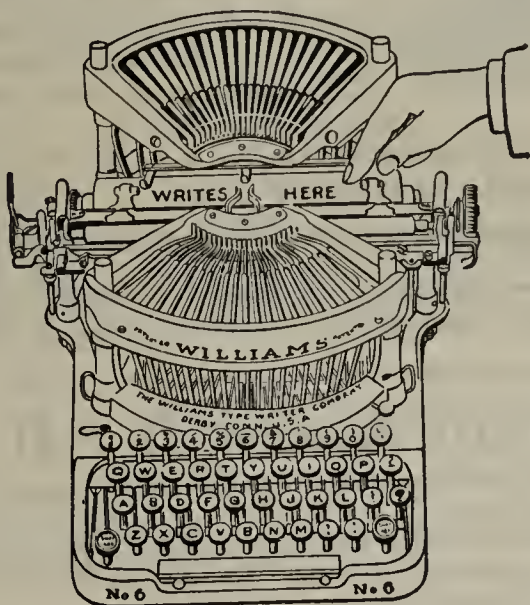
Mershon, Schuette, Parker & Co.,
Saginaw, Mich.

SEEING

Saves the beginner time when learning.

Saves the learned time when beginning.

New
Number
Six
Visible
Writer



Saves time, energy,
worry and money.

Gives speed, simplicity
and beautiful work.
Single shift. Strictly
visible writing.

Old machines of any
make taken in trade.

The Williams is sold
under a positive guar-
antee and on easy
terms.

If you want the best
value in a typewriter
ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.

\$2.00

THE CLAY-WORKER
ONE YEAR (IN ADVANCE)

\$2.00

MANGANESE

FOR ALL USES.

LUMP, GRAIN AND GROUND

60-70% 70-80% 80-90% OXIDE.

CLAY WORKERS GOODS A SPECIALTY.

SAMPLES AND PRICES ON INQUIRY.

METALLIC ALLOYS CO.

99 JOHN ST NEW YORK, N.Y.

SUCCESSORS TO KENDALL & FLICK.

TAPLIN, RICE & CO.,
AKRON, OHIO.

Sewer Pipe and Clay-
Working Machinery.

ESTABLISHED 1862.

The Anton Vogt
Down Draft Kiln

and the

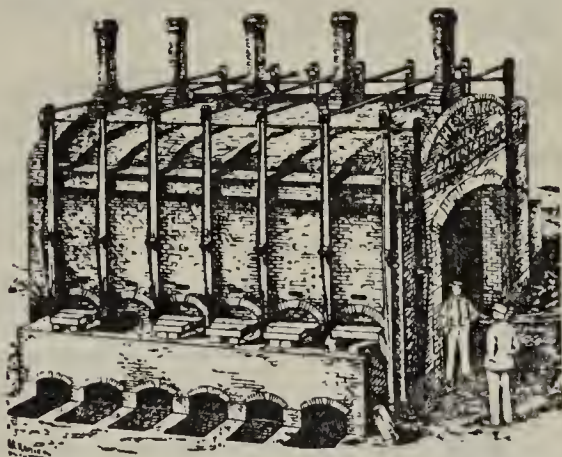
QUESTION OF THE HOUR.

Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,

Ada, Okla., U. S. A.



The Yates Patent Down-draft Kiln.
Also Continuous.

References: Kane Brick Co., Kane, Pa.;
Kushequa Brick Co., Kushequa, Pa.; Queen
City Brick & Tile Co., Cumberland, Md.;
Shawmut Brick Works, Shawmut, Pa.; Corry
Brick & Tile Co., Corry, Pa.; and the John-
sonburg Vitrified Brick Co., Johnsonburg, Pa.

ALFRED YATES,
SHAWMUT, PA.



If...

**You Want
to Sell
or Buy...**

Second-hand Claywork-
ing Machinery, Tile Mills,
or anything pertaining
thereto.

**If...
You Want
a Man**

for any position or a posi-
tion in any connection
with the Clayworking
Trades use the

**For Sale
and Want
Columns
of...**

**The...
Clay-Worker.**

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For all transient advertisements, such
as "For Sale," "Wanted," etc., the rate
is 25 cents a line per insertion. Aver-
age of seven words to line. Head line
counts as two lines.

The Best, Quickest, Cheapest
Method of Securing Results.

PHILLIPS & McLAREN CO.

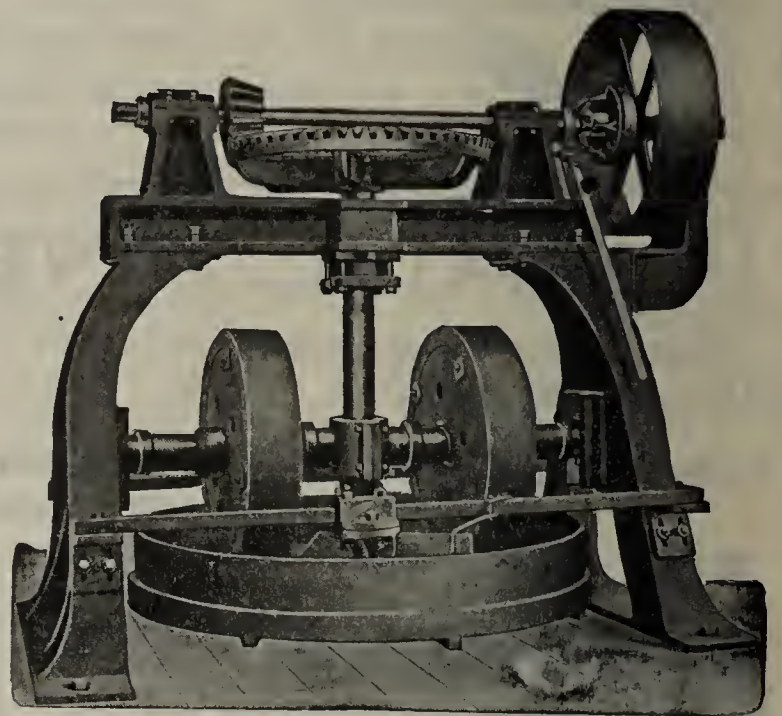
PITTSBURG, PA.

Builders of
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Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.

Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



WHEN WRITING TO ADVERTISERS
Mention the CLAY-WORKER.

CHOOSE WISELY...

when you buy a SEWING MACHINE. You'll find all sorts and kinds at
corresponding prices. But if you want a reputable serviceable Machine, then take
the

. WHITE .



27 years experience has enabled us to bring
out a HANDSOME, SYMMETRICAL and
WELL-BUILT PRODUCT, combining in its
make-up all the good points found on high
grade machines and others that are exclusively
WHITE—for instance, our TENSION INDI-
CATOR, a device that shows the tension at a
glance, and we have others that appeal to care-
ful buyers. All Drop Heads have Automatic
Lift and beautiful Swell Front, Golden Oak
Workwork. Vibrator and Rotary Shuttle Styles.

OUR ELEGANT H. T. CATALOGUES GIVE FULL PARTICULARS, FREE.
WHITE SEWING MACHINE CO. CLEVELAND, O.

— To the Man Who Don't Know It All —

THE MAN WHO KNOWS IT ALL can hardly be interested in what we have to offer. We are brick plant con-
sultants, planning and building complete brick plants, and remodeling old ones, with but one object in view—and that
is: THE BEST POSSIBLE RESULTS FOR THE LEAST AMOUNT OF MONEY.

¶ We inspect and appraise properties, issue complete prospectuses on clay propositions, and advise as to the feasibility of any
proposed undertaking which may involve the investment of money in new plants or old ones.

¶ We are not salesmen or sales agents, have nothing to sell in the way of patent dryers, kilns, testing instruments or equip-
ment, and we can therefore advise with absolute impartiality.

¶ Our engineers are just plain, practical brick plant consultants, who want your patronage.

LUCE ENGINEERING COMPANY 1815 THIRD NATIONAL BANK BUILDING St. Louis, Mo.

The

ROESSLER-HASSLACHER
CHEMICAL COMPANY,

100 William Street,
NEW YORK.

As a Preventative of Scums Use

CARBONATE OF BARYTES

R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese and
all Chemicals used by the Clay Trades.

The Ceramic Supply and Construction Company

Write us for Clayworking Specialties, Brickyard and Pottery Supplies, Controlling Apparatus for
Power Plants, Factories, Dryers and Kilns.

See display advertisement in THE CLAY-WORKER next month.

CATALOG?

280 North Front St., Columbus, Ohio.

PRICES?

Start the Wheels of 1909 Right

By Buying Wonder Machinery.

We Sell the Best and Most Economical
Brick and Tile Machines
On the Market—

The Wonder Machinery.

No Lamination if Our Machine is Used.

Our machines have large
capacity and an unequalled
record for durability.

Brick, Tile and Hollow Block Machin-
ery of every description. Granulators,
Pug Mills, Disintegrators, Crushers, Cut-
ters, Dry Pans, etc.
Write for catalog.

WRITE FOR LIST OF PLANTS IN YOUR SEC-
TION WHERE WONDER MACHINES MAY
BE SEEN IN OPERATION.

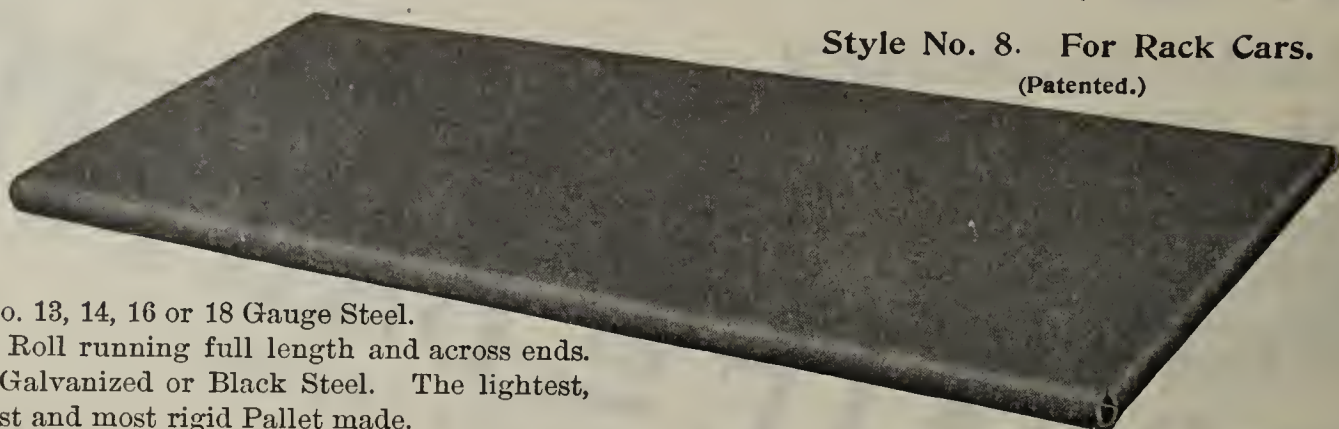
THE
WALLACE
MFG.
CO.

FRANKFORD
INDIANA

Mention The Clay-Worker.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.
(Patented.)

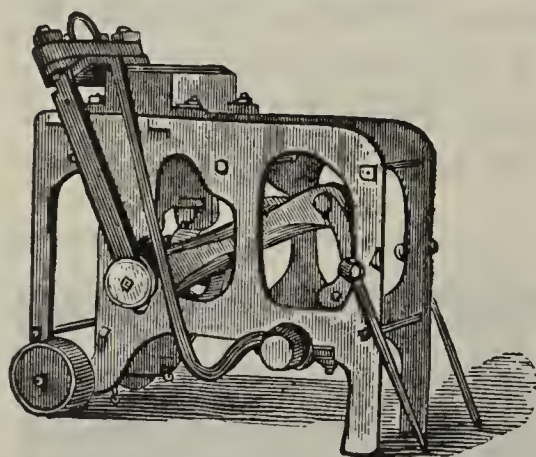


Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
Either Galvanized or Black Steel. The lightest,
strongest and most rigid Pallet made.

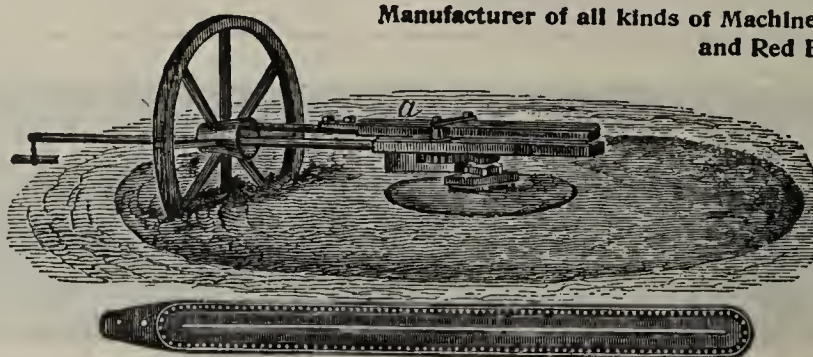
THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.



RED BRICK PRESS.



Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.

These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price-List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

The RICHARDSON-LOVEJOY ENGINEERING COMPANY,

Consulting Engineers and Factory Architects.

Geological Examination of Properties.
Chemical Analyses.
Clay Testing.
Investigation of Manufacturing Propositions.
Plants Designed and Construction Superintended.
Dryers for Any Clay Product.
Kilns of Every Type.
Faults of Manufacture Corrected.
Modernizing for More Economical Operation.

PUBLICATIONS.

Ceramic Engineering.....	Free
Brick Kilns.....	Free
Drying Brick.....	\$.25
Burning Brick in Down Draft Kilns.....	1.00
Kiln Records.....	1.00
Scumming and Efflorescence.....	.25

If you are considering investment in a brickmaking or clayworking plant of any kind, good business judgment should dictate the employment of a competent and reliable ceramic expert to investigate and report upon your proposition, and that you should be guided by his advice rather than by that of one who has some axe to grind.

Expert service for special cases or by the year
at moderate prices.

TECHNICAL BUREAU FOR CLAYWORKERS,

Schultz Bldg., 232½ North High St. Columbus, Ohio.

HAIGH'S NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning

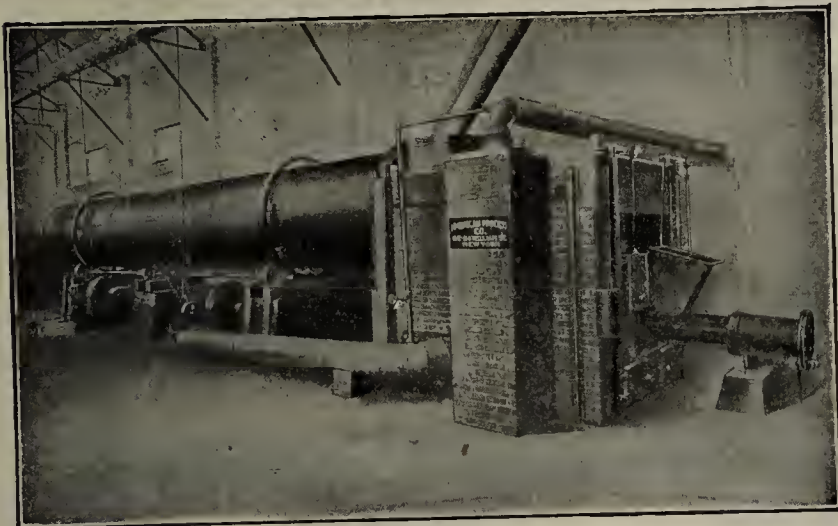
ROOFING TILE, DRY PRESSED, FACING, FIRE, PAVING AND COMMON BUILDING BRICK, and Burning from 5,000 to 100,000 Brick per Day.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

THIS KILN CAN BE FIRED WITH COAL, WOOD, OIL, NATURAL OR PRODUCER GAS.

For further particulars address

H. HAIGH, Brick Works Engineer, Catskill, N. Y.



Automatic Improved DRYERS

ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

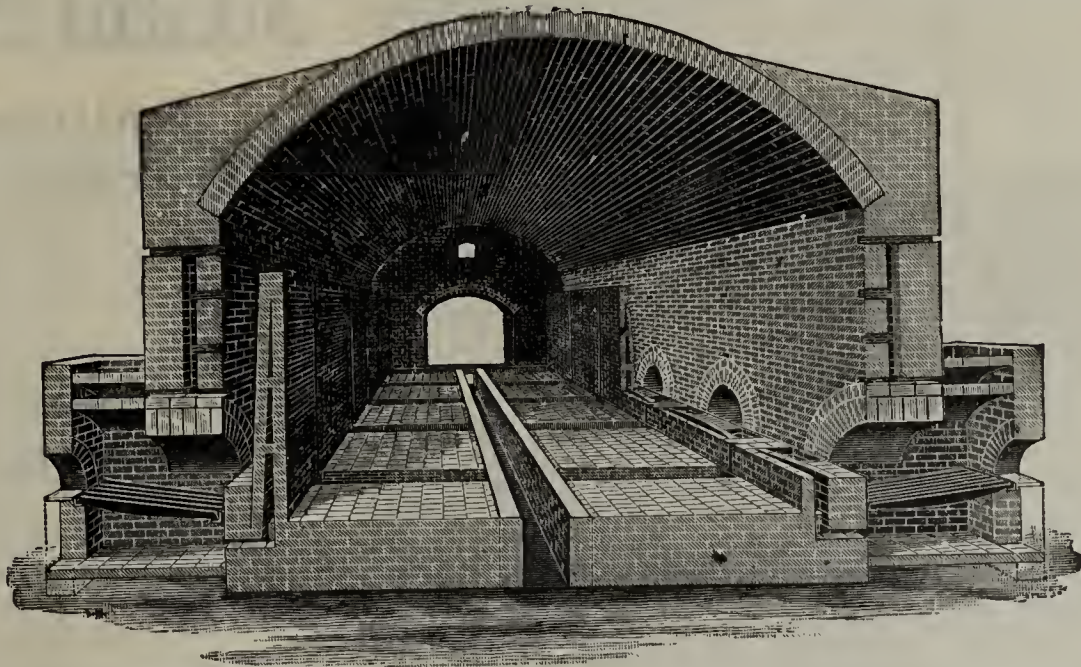
Send for Catalog "C. B."

AMERICAN PROCESS CO.,

68 William Street, New York.

The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

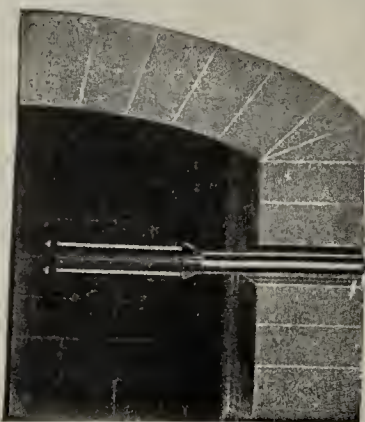
Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

Pittsburgh Kiln Construction Co.,
1251 Morse St., N. E., Washington, D. C.

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

EDWARD BROWN & SON,
311
Walnut St.,
Philadelphia,
Pa.

Triple Pressure BRICK PRESS

The strongest and most efficient Brick Machine made, and the only Press that gives three distinct pressures to the brick.

**We Build and Equip
Complete**

**SAND-LIME BRICK PLANTS,
SHALE AND CLAY
BRICK PLANTS.**

**Ross-Keller Triple Pressure
Brick Machine Co.**

**Offices
Fullerton Bldg., ST. LOUIS, MO.**



Steam Shovels,

**Railroad and
Traction Trucks,**

all sizes and suitable for all
classes of work.

**Placer Mining Dredges,
River, Harbor and
Ditching Dredges.**

For information write

**The Marion
Steam Shovel Co.,**

671 West Center St., MARION, OHIO.

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.
F. H. HOPKINS & CO., Agents,
Montreal, P. Q.



"If you have not used a Leviathan Belt you have no right to pass judgment upon it."

That's just to the point, and we are always responsible for its proving worth more, dollar for dollar, than any other belt.

Name a belt and ask our proposition.

MAIN BELTING COMPANY,

1224 Carpenter Street, Philadelphia.
59 Market Street, Chicago.

THE BOSS SYSTEM Of Burning Brick.

We Are the Originators of the
Modern Way

Applying

**AIR UNDER PRESSURE,
THE PRINCIPLE of which is
CORRECT.**

**BURNS WITH ALL SLACK OR LIGNITE
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME AND LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS ANY KIND OF CLAY WARE.**

Write for Catalogue.

JOHN C. BOSS,

Monger Bldg.

ELKHART, IND.

**Handle Your Clay
With One Man and**

The Thew Steam Shovel.



Type No. 3—George Gynn Brickyard, Cleveland, Ohio.

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

Made in four sizes.

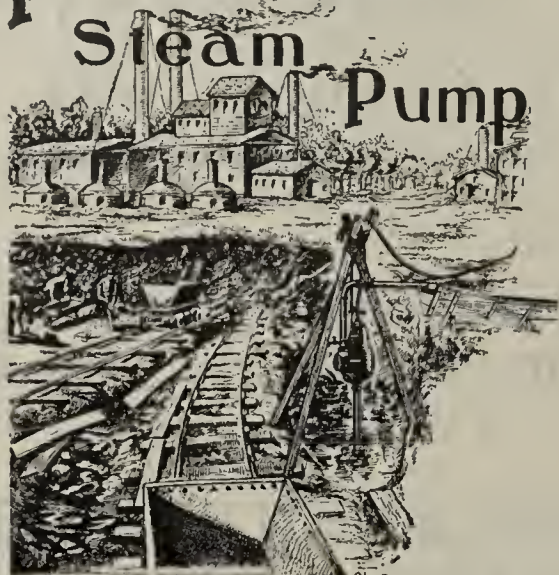
Mounted on Car Wheels
or Traction Wheels.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

WRITE US FOR CATALOGUES OR INFORMATION.

THE THEW AUTOMATIC SHOVEL CO., LORAIN, OHIO.

Pulsometer Steam Pump



THE IDEAL

means of removing water from **Clay Pits**, Excavations, Foundations, etc., and any other place where the liquid to be handled contains much

Grit, Mud or Sediment.

No engine, belt, oil, packing or special foundation required; just a steam pipe from boiler—that's all. Operates as well suspended as stationary.

Simple. Handy. Durable. Effective.

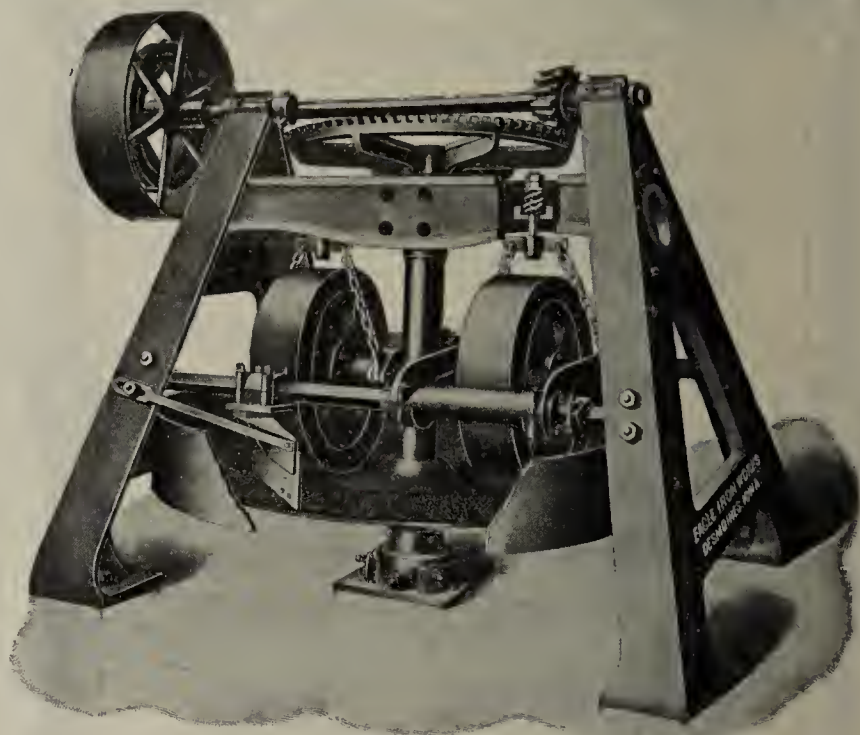
Illustrated, descriptive catalogue gratis.

PULSOMETER STEAM PUMP CO.,

14 Battery Place, New York.
Chicago Office, 61-69 No. Jefferson St.

Independent and Suspended Mullers

the distinguishing feature of our **DRY PANS.**



Other valuable features which our catalogue fully describes.

EAGLE IRON WORKS,
Des Moines, Iowa.

Record of a Six-Track King Radiated Heat Dryer.

"This dryer has tunnels 110 feet long, and is in operation on the brickyard of W. Benj. Davis, Manchester, Va. Dryer has been in use 17 months with no expense for repairs on dryer or cars; present condition of each is excellent. Use three men to move cars from machine into dryer, attend furnaces night and day and take cars out of tunnel ready for the setters. Consumes $2\frac{1}{2}$ tons of coal each twenty-four hours. Highest temperature in tunnels 136 degrees. Number of brick dried as taken from Mr. Davis's books: 1908—June 8, 44,520. June 9, 48,230. June 10, 42,930. June 11, 37,100. June 12, 42,400. June 13, 32,330. Brick dried in six consecutive days 247,510, an average of 41,251 each day."

The above are extracts from a letter written Sept. 26, by Mr. J. W. Holt, manager of Mr Davis's brickyard.

THE KING ENGINEERING CO.,

309 American National Bank Bldg., Richmond, Va.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.



These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Sqaure Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.



ARTHUR KOPPEL COMPANY

1760

To Win in Competition

You *must* have modern equipment.

**KOPPEL CARS
And PORTABLE TRACK**

reduce manufacturing cost and increase profits.

Write for catalog.

ARTHUR KOPPEL COMPANY

Offices and Warehouses

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136 Morris
Bldg.

CHICAGO
339c Monadnock
Bldg.

BOSTON
53 Oliver
St.

PITTSBURG
1607 Machesney
Bldg.

SAN FRANCISCO
1515 Chronicle Bldg.

BALTIMORE
449 Equitable Bldg.

WASHINGTON, D. C.
11 Fleming Bldg.

WORKS AT KOPPEL, PA.

The Original ^{EXHAUST STEAM} Dryer is the National.

ROCKFORD BRICK COMPANY.

Rockford, Wash., June 9, 1908.

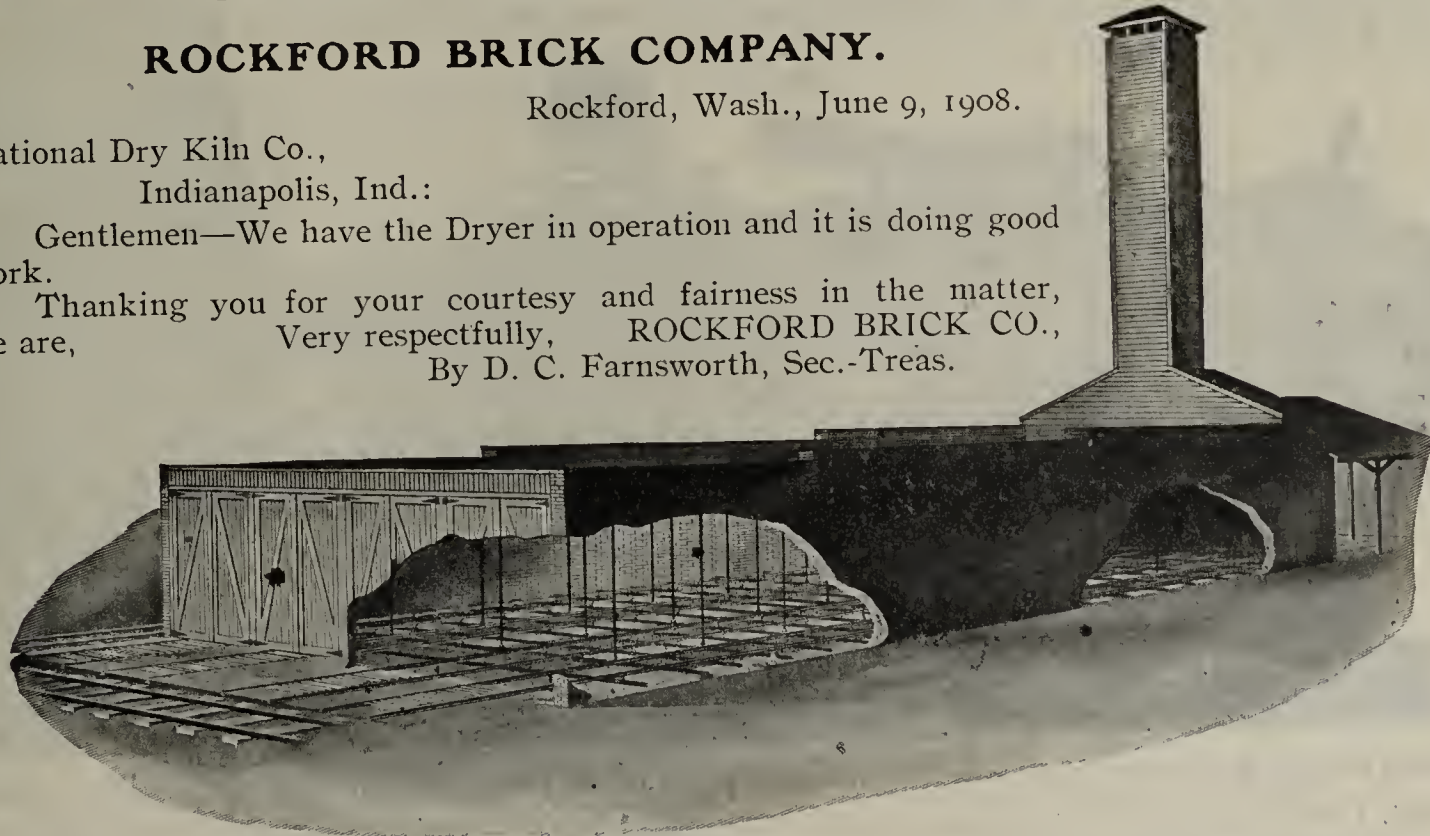
National Dry Kiln Co.,

Indianapolis, Ind.:

Gentlemen—We have the Dryer in operation and it is doing good work.

Thanking you for your courtesy and fairness in the matter,
we are, Very respectfully, **ROCKFORD BRICK CO.,**

By D. C. Farnsworth, Sec.-Treas.



No Fan.
Steel Roof Supports.

No Engine.

No Fire Danger.
Steel Roller Bearing Cars, etc.

Steel Foundations.
Ask for Cat. 200

C. H. BEALE, Southern Manager,
Montgomery, Ala.

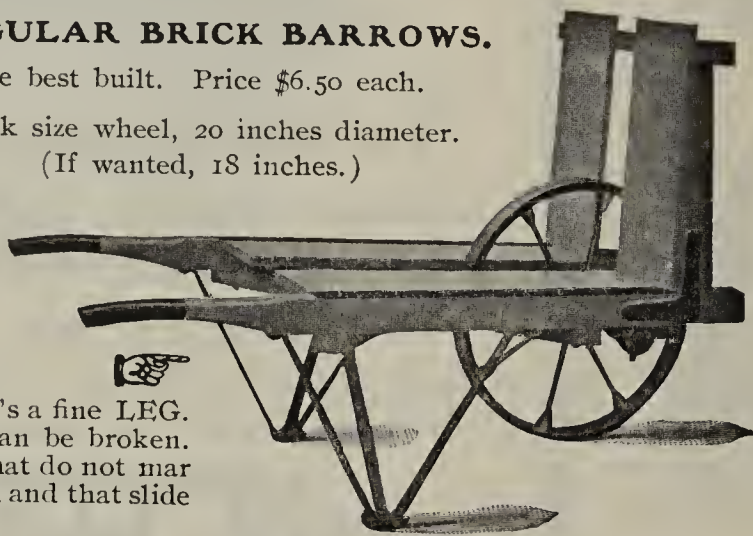
The National Dry Kiln Co., Indianapolis, Ind.

We manufacture a complete line of
BRICK MACHINERY
 and make a specialty of equipping yards.

REGULAR BRICK BARROWS.

The best built. Price \$6.50 each.

Stock size wheel, 20 inches diameter.
 (If wanted, 18 inches.)



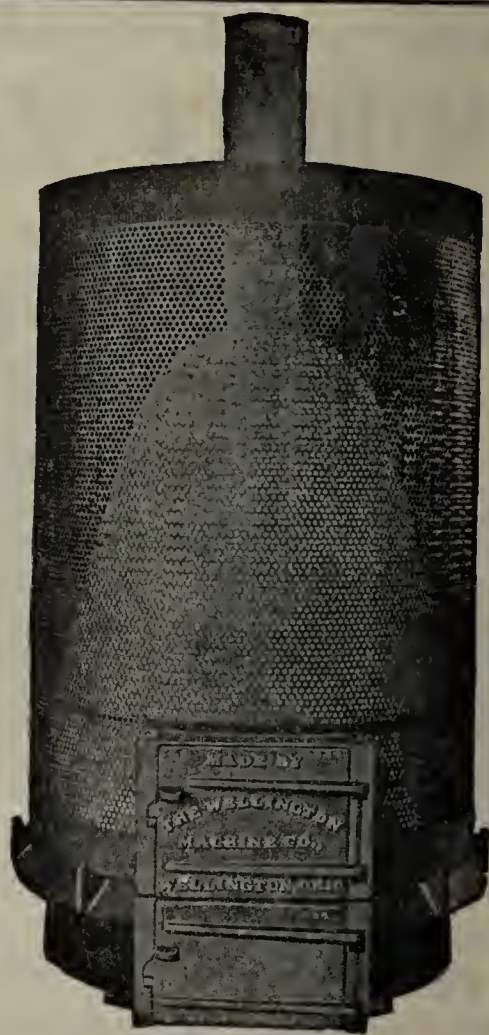
There's a fine LEG.
 Never can be broken.
 Shoes that do not mar
 the yard and that slide
 easily.

For catalogue and any further information address

James W. Hensley,

Successor to S. K. Fletcher.

Indianapolis, Ind.

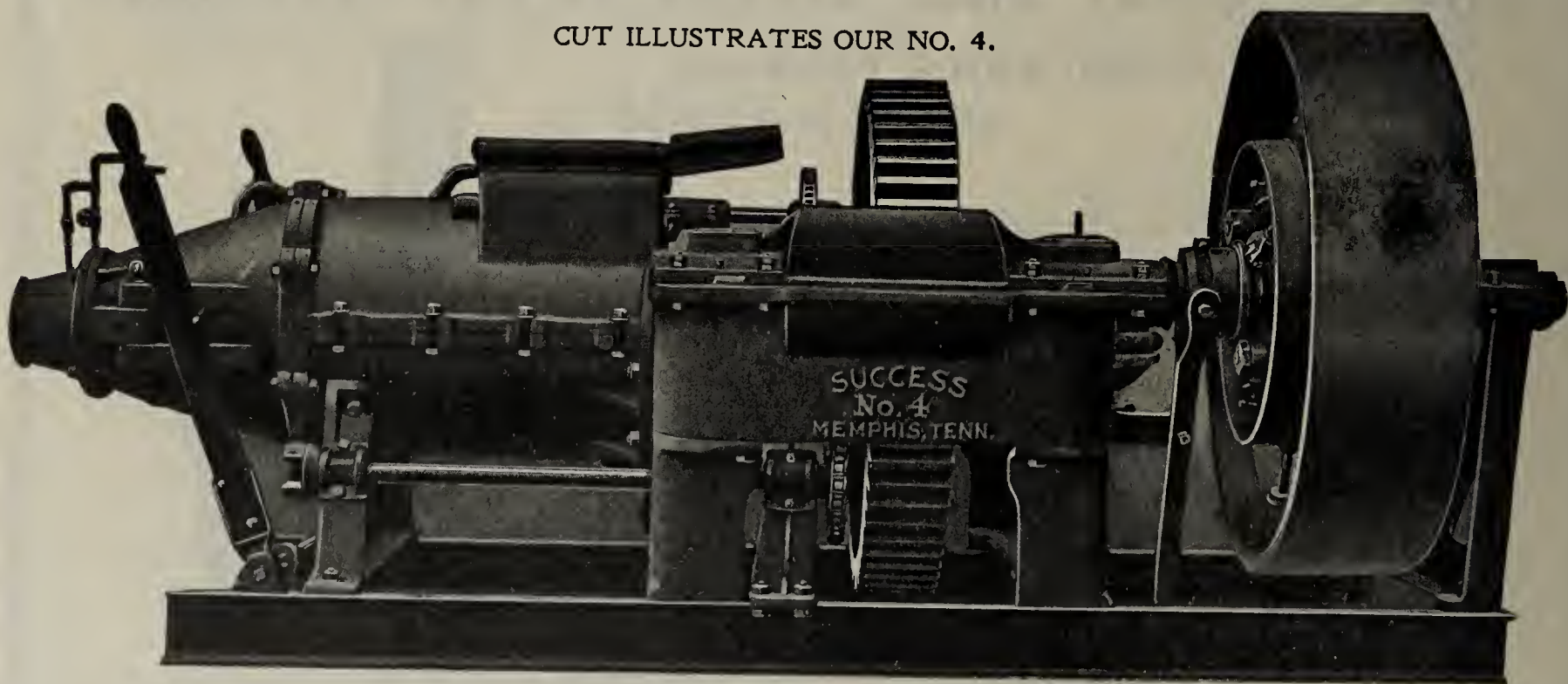


SAND DRYER.

Weight, 1,100 lbs. Every brick work needs one. Diameter over all, 3 ft. 1 in. Height 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for; write us.

Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.

Madden New Model Vertical Auger Machine

for

The Larger Sizes of

Drain Tile, Conduits,
Hollow Ware, etc.

*Send for Bulletin
with
Specifications.*

GET OUT OF THE RUT.

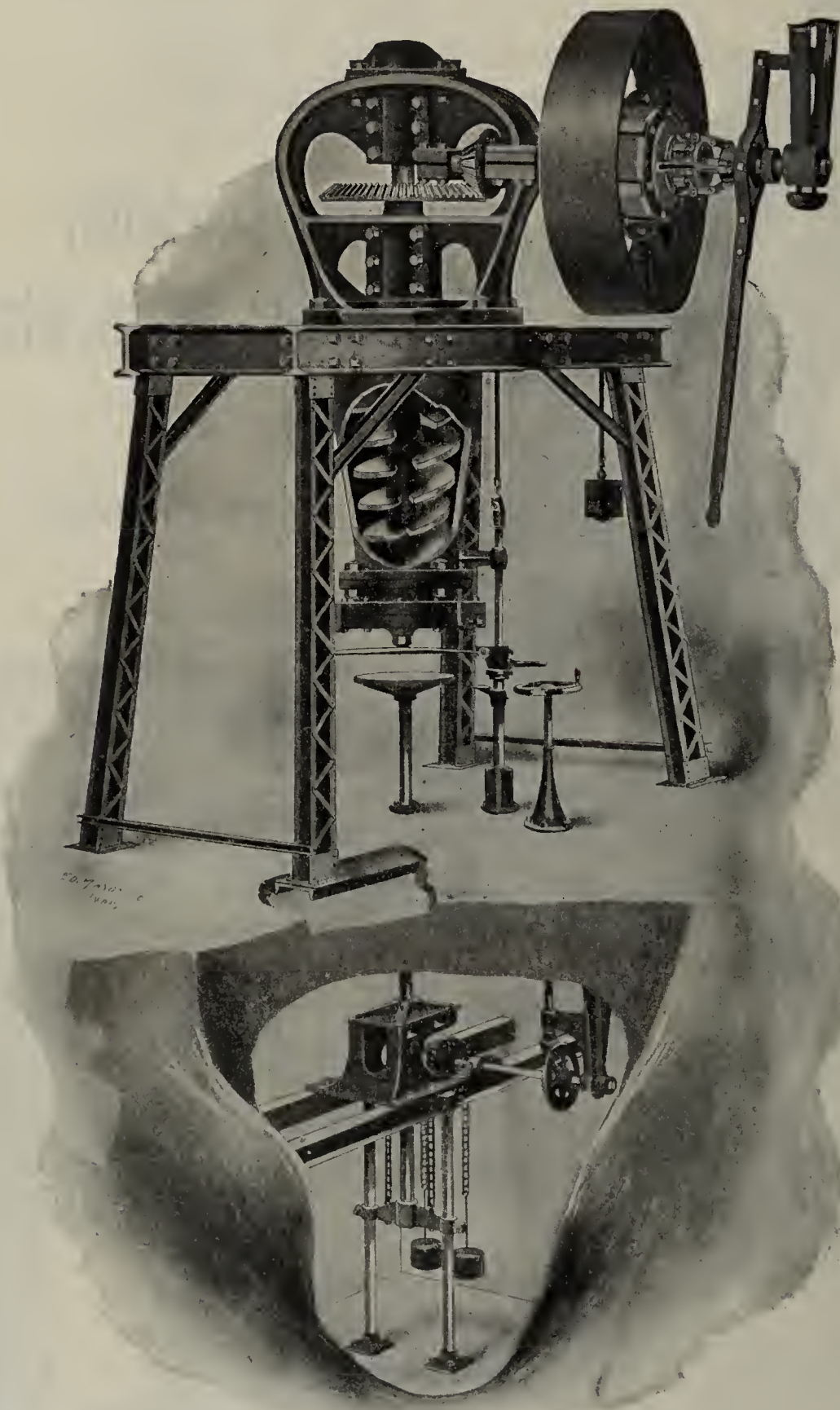
There is not the slightest excuse for your clinging to out of date methods and machines.

Modern needs and requirements must be met with modern means. Clay manufacturers using Madden Machinery are making big money.

MADDEN & CO.,
Rushville, Ind.

See our ads on following pages.

The Hoosier Vertical Tile Mill



*Another Design of
Auger Machine
for
Drain Tile, Conduits,
Hollow Ware,
etc.*



*Erected with either
Steel or Timber Sup-
ports, or without, if
desired.*



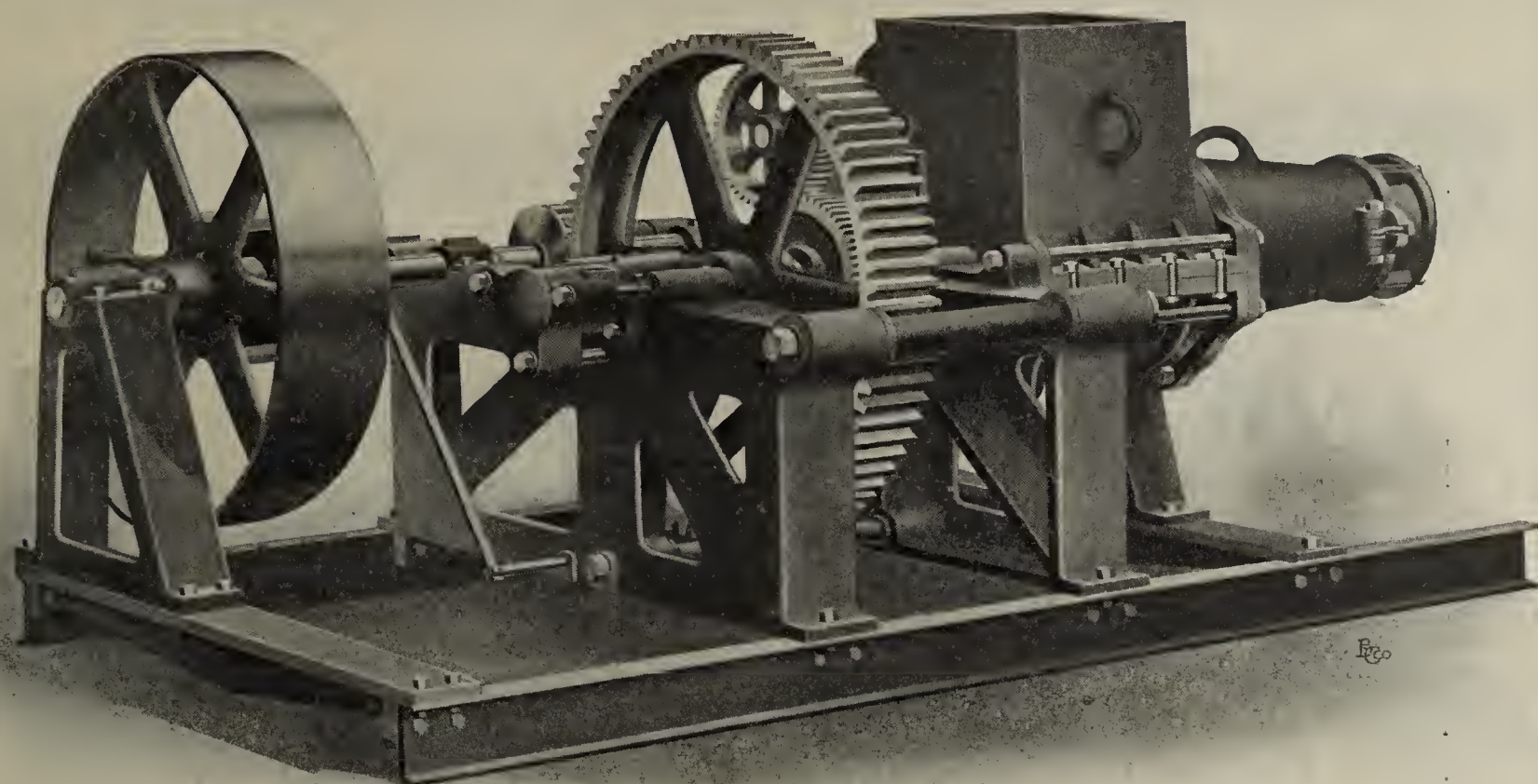
*STRONG,
LIGHT
RUNNING.*



*Tested Thirteen Years
in
Stubborn Clay.*

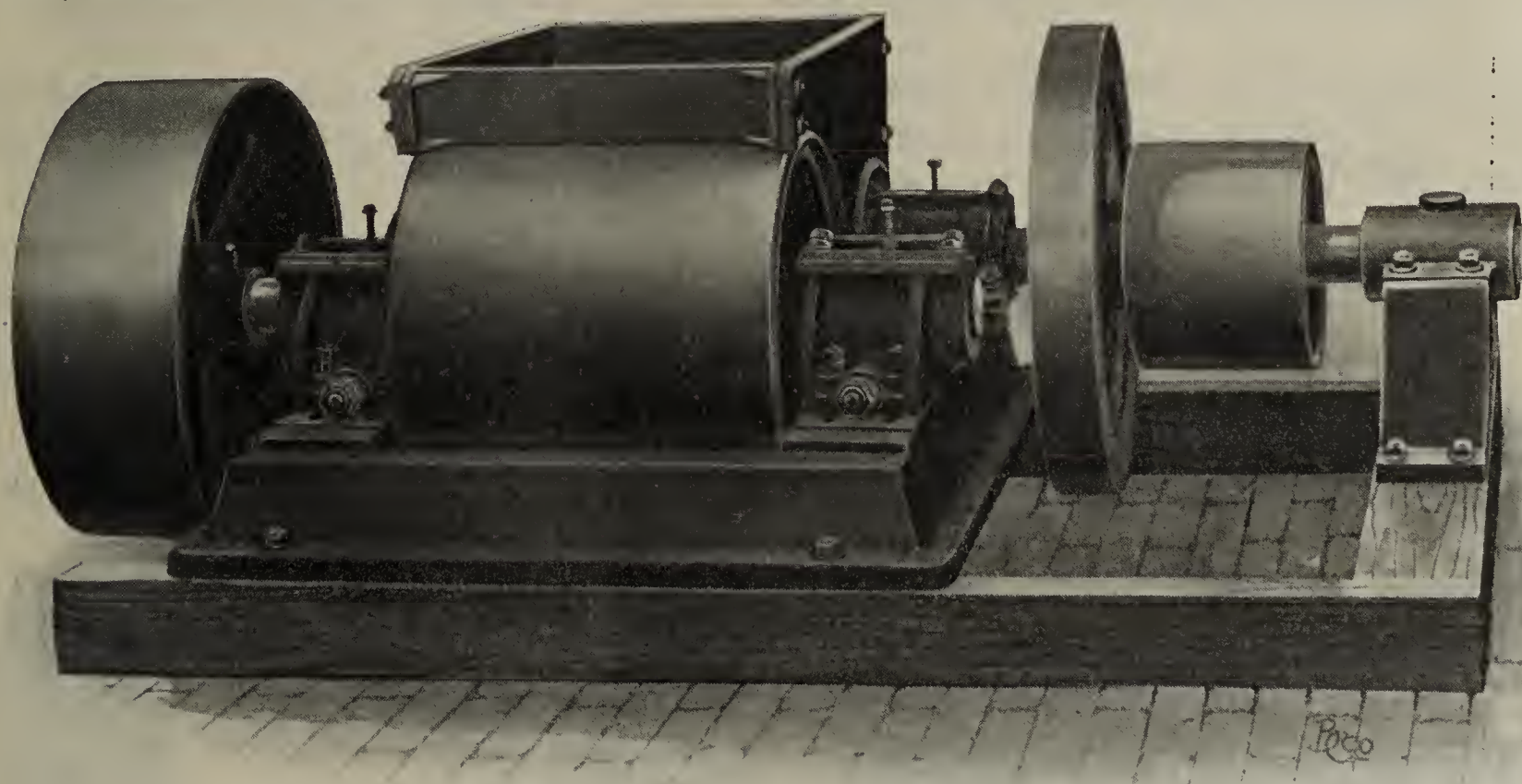
Full description and specifications in catalog. Address

MADDEN & CO., Rushville, Ind.



A MODERN VERSION OF A GOOD OLD TYPE.

Here is the Madden Horizontal Brick and Tile Machine in its Twentieth Century form, changed and improved to the minute. Note the large diameter and wide face of main gear. Hexagon hammered main shaft. Roller thrust bearing. Wedge adjustment in main shaft bearings. Bearings and caps planed to standard dimensions.

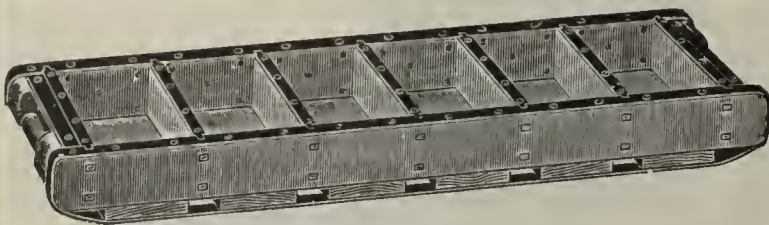


AN EASY LEADER IN DISINTEGRATORS.

The new No. 3 Disintegrator of Madden & Co. is an easy leader of all other machines of its size on the market. Note rigid design of Bed Plate, of liberal length. Bearings divided at an angle of 45°. Ring Oiler Type, lined with genuine copper hardened babbitt. Rolls—fast roll 14 x 24; feed roll 24 x 24. Shafts 4-in. diam.

MADDEN & CO., Rushville, Ind.

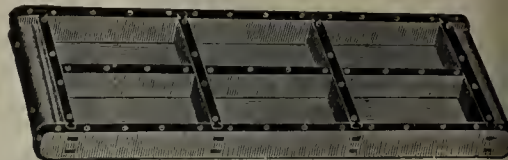
Mention The Clay-Worker.



Machine Mould, Steel Lined.



Hand Mould, Three Brick.



Hand Mould, Six Brick.

WE'RE READY ARE YOU?

During the recent "breathing spell" we have made preparations for more business than ever. There is still, however, a limit to our output, and as we do not wish to disappoint any of our friends, we request all to let us have their orders for supplies as early as possible. Shipment can then be made whenever desired.

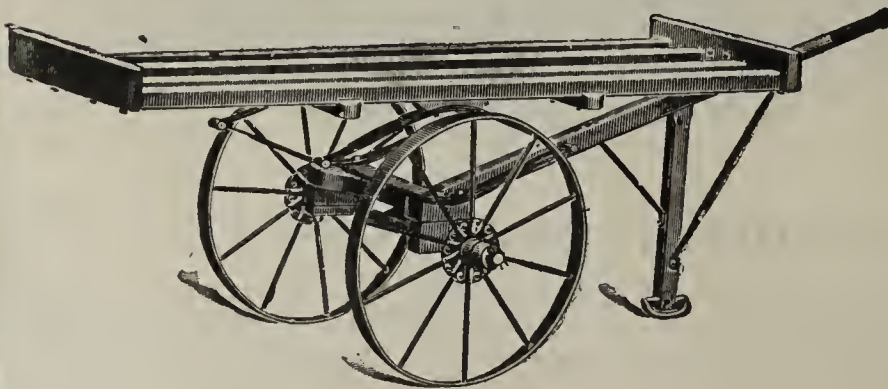
To those not yet acquainted with the quality of our goods, we earnestly advise a trial. There is a significance in the fact that we have been making

MOULDS, BARROWS AND TRUCKS

for nearly thirty years. We now manufacture a complete line of soft and stiff mud machinery and are prepared to furnish everything for the brickyard. And **NOW** is the time to figure on new equipment.

GET IN LINE FOR 1909.

THE ARNOLD-CREAGER CO.,
NEW LONDON, OHIO.



No. 25 Dry Press Truck.



No. 1 Ironclad Brick Barrow.

Mention The Clay-Worker.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO

Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

\$2.50

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The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

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T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

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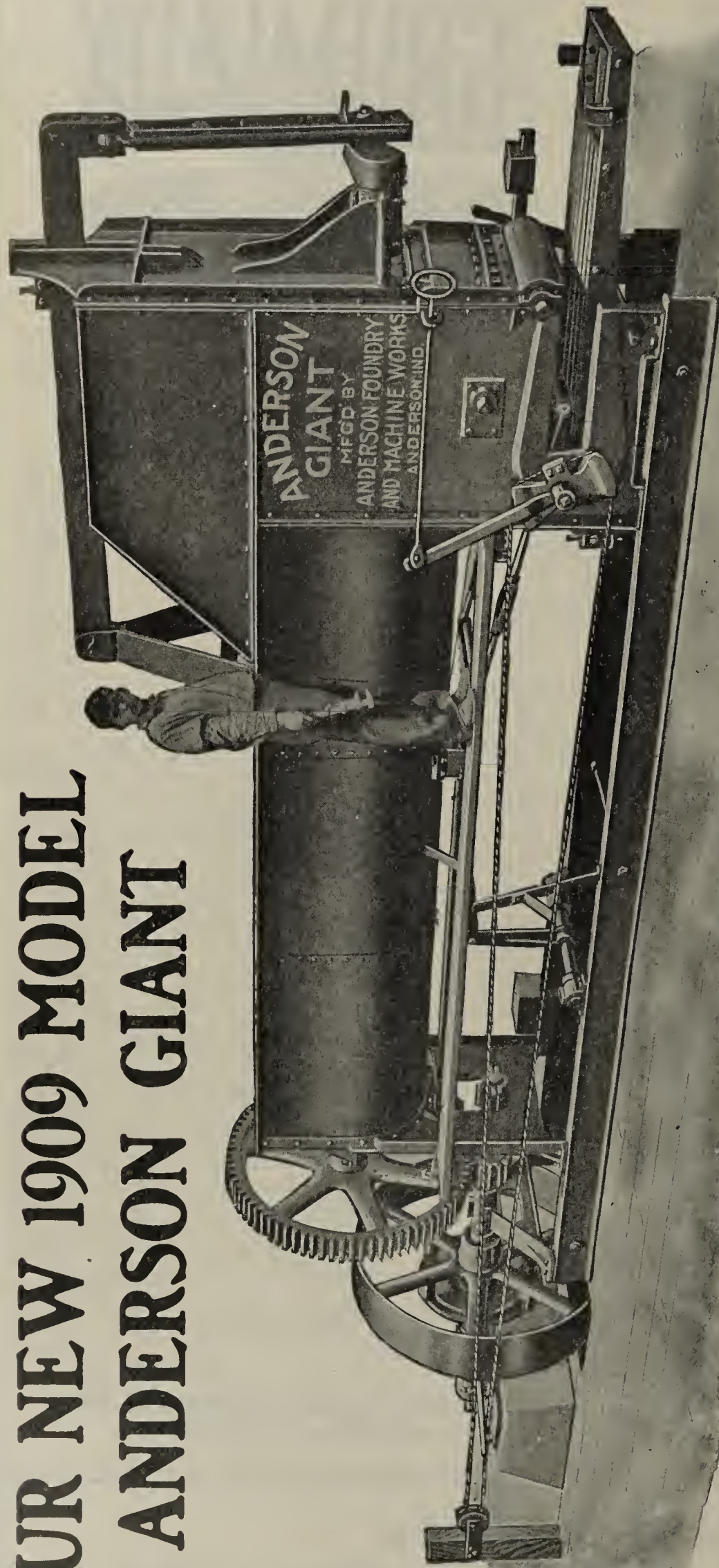
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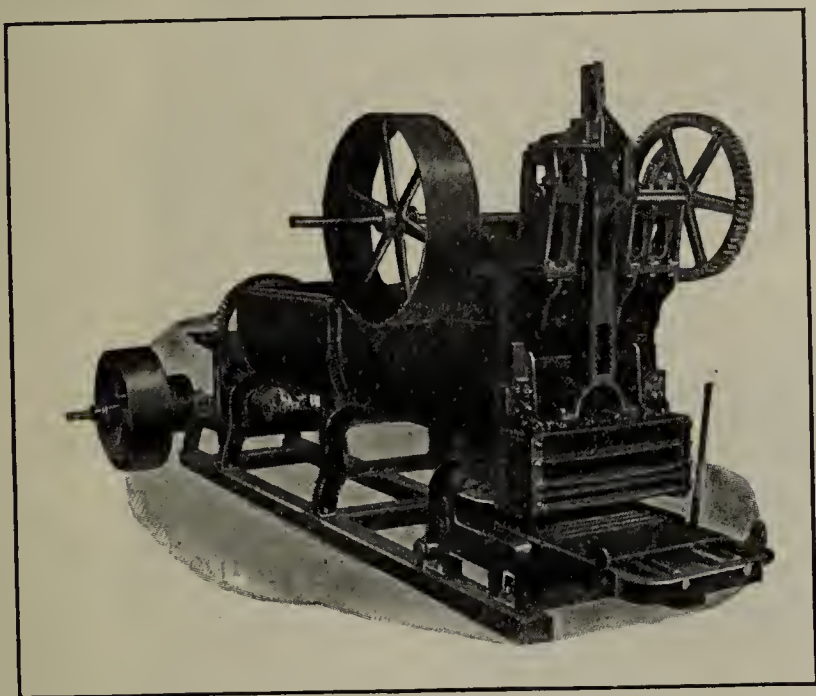
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SAND MOULD BRICK MACHINES DISINTEGRATORS AND MOULD SANDERS OUR SPECIALTY.



POTTS HORIZONTAL BRICK MACHINE.

Cast Steel Gears.
Steel Shafts.

No
Extra Pug Mill
Required.

As we make a specialty of

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equipping the yard complete from Clay Bank to Kiln, we are in position to give the very best designed and constructed machinery.

WE GUARANTEE RESULTS.

We are manufacturers of

Brick Machines, Disintegrators,
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Clay Cars,
Elevators, Barrows and Trucks.

Let us quote prices on your wants. We can please you.

C. & A. Potts & Co., Indianapolis, Ind.

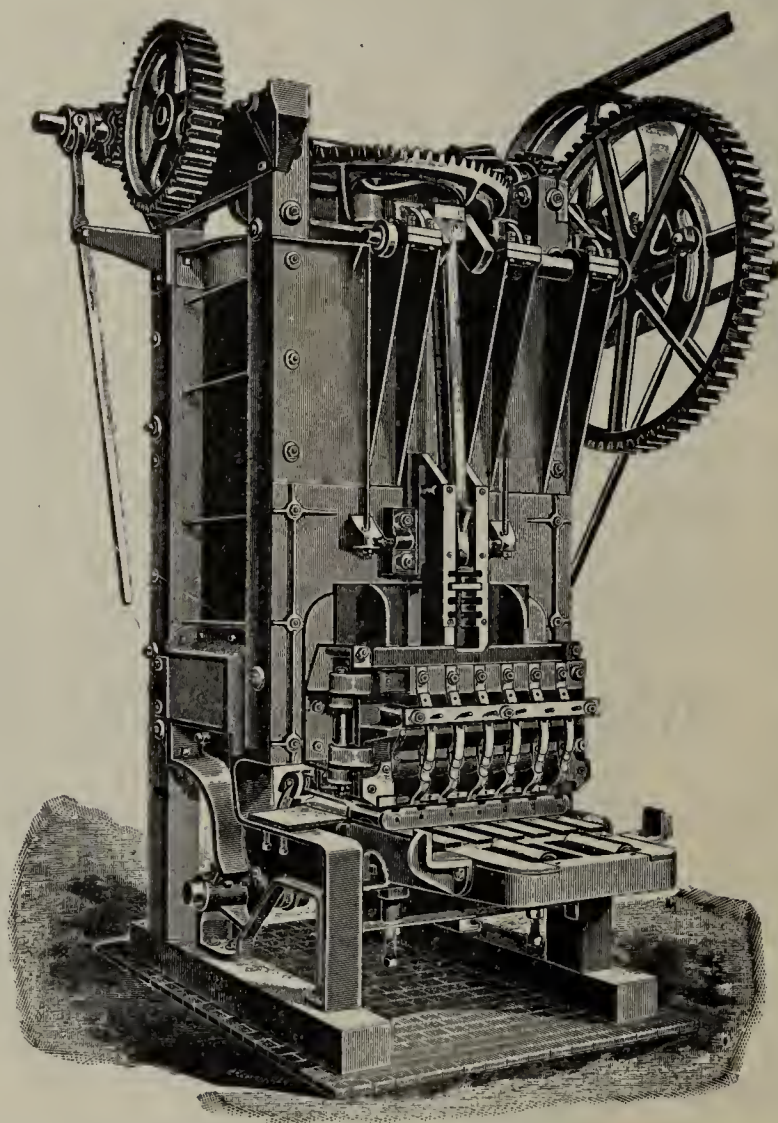
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Every Buyer of New Haven Machines A Satisfied User.

The "New Vertical" Brick Machine is the most substantial Upright Soft Clay Brick Machine in the world.

We manufacture a full line of supplies including

Pug Mills,
Coal Crushers,
Clay Elevators,
Winding Drums,
Tempered Steel
Brick Strikes,
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Brick Trucks,



Stamp Mills,
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"New Haven" Vertical Machine.

In fact we can furnish machinery of the most improved modern construction for brick manufactories of any capacity. Competent workmen are employed in every department, hence we can guarantee our machinery to be well made and capable of performing the work for which it was designed.

The EASTERN MACHINERY CO.,

NEW HAVEN, CO N

OVER
250
"Monarch"
Brick
Machines
in use.

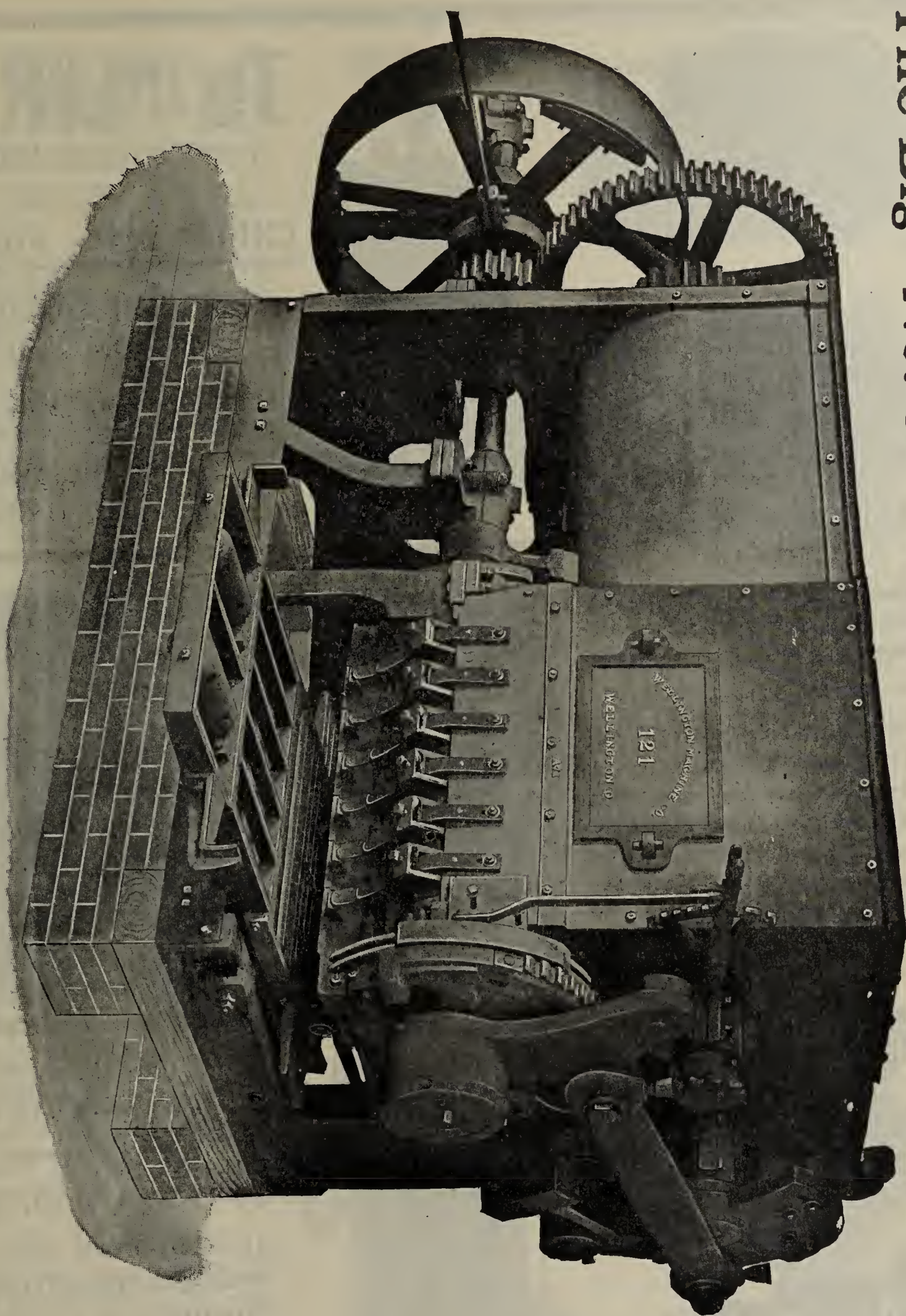
OVER
600
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators,
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Clay Cars,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

**ROLLER-BEARING
BARROWS.**

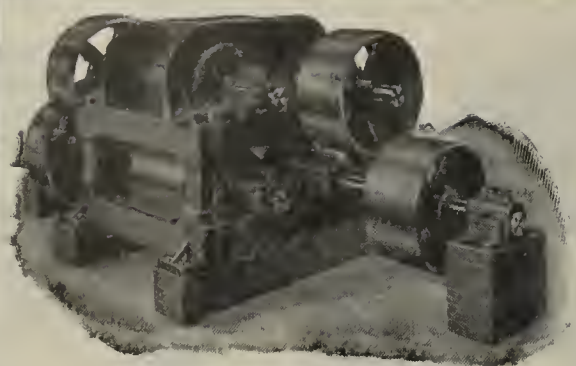


The Big "No. 6" "Monarch" Brick Machine.

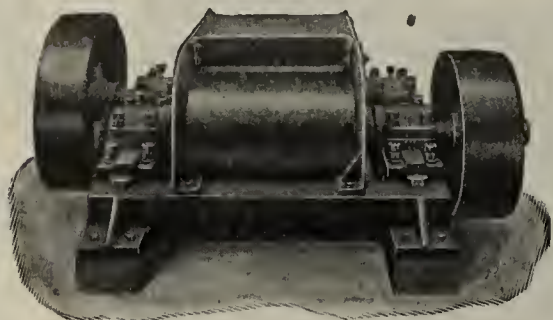
The Wellington Machine Co.,
WELLINGTON,
OHIO.

Send for Catalogue.

Mention the Clay-Worker.



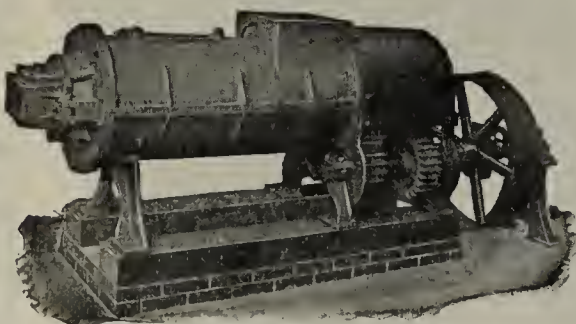
DISINTEGRATOR



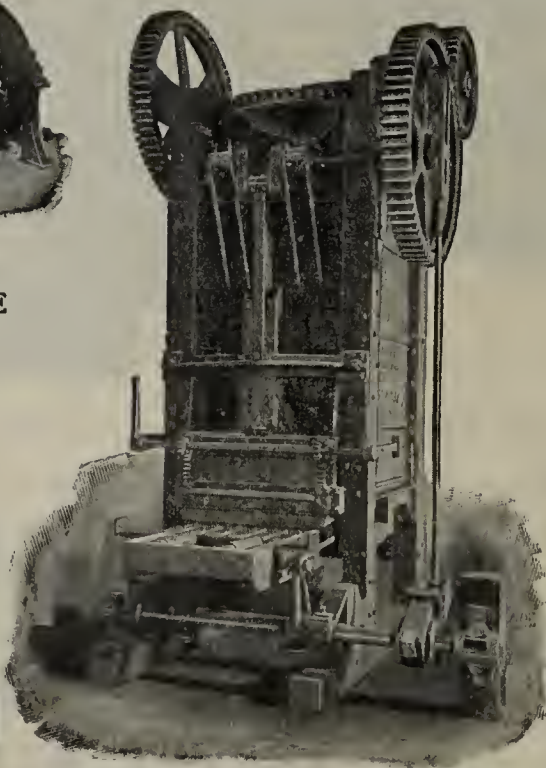
LET'S FIGURE TOGETHER

Handling Brick From the Brick Machine to the "Martin" Patent Dryers

We Build the Most Complete Line of Brick Machinery, Disintegrators, Pug Mills, Elevators, Conveyors, Clay Cars, Hoisting Drums, Mould Sanders, Barrows and Trucks.



STIFF MUD BRICK MACHINE

ANIMAL POWER
BRICK MACHINE

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THE "MARTIN"

PLANS, SPECIFICATIONS, ETC.

WILL BE

CHEERFULLY FURNISHED

ON APPLICATION

FOR CONSTRUCTION OF

COMPLETE BRICK PLANTS

FOR THE MOST

LABOR-SAVING SYSTEM



"WE FURNISH EVERYTHING
THE BRICKMAKER NEEDS"

DO YOU HAVE OUR CATALOG?

It Will Show You How to
Manufacture High-Grade
Building or Paving Brick

THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

THE "MARTIN"

BRICK DRYERS

ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

FULLY COVERED BY PATENTS

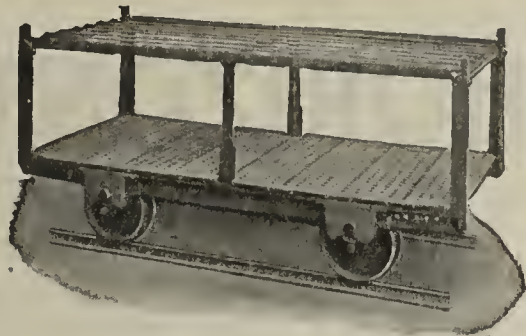
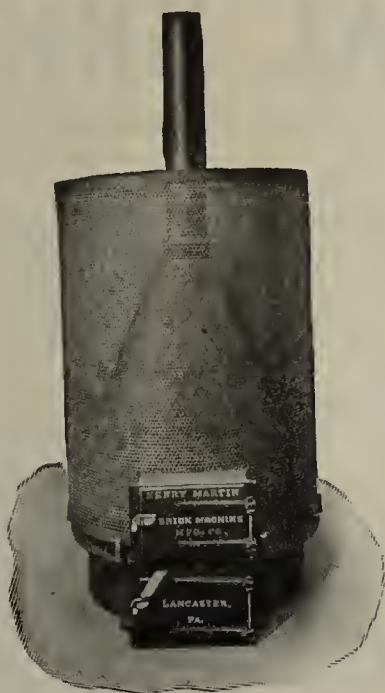
PATENTED

Feb. 22, 1898 .. 599509
Oct. 10, 1905 .. 95520
Nov. 14, 1905 .. 804489
May 26, 1908 .. 888831

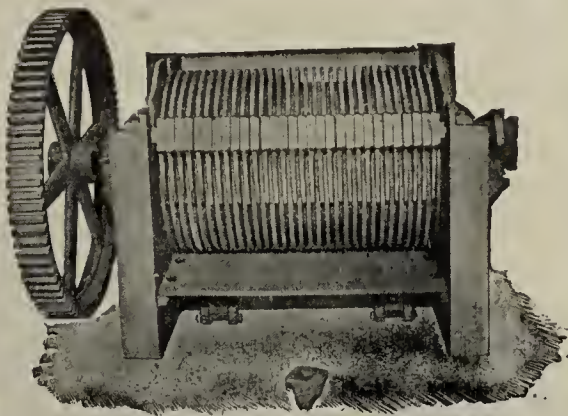
And Additional Patents Pending.

UNITED STATES & CANADA

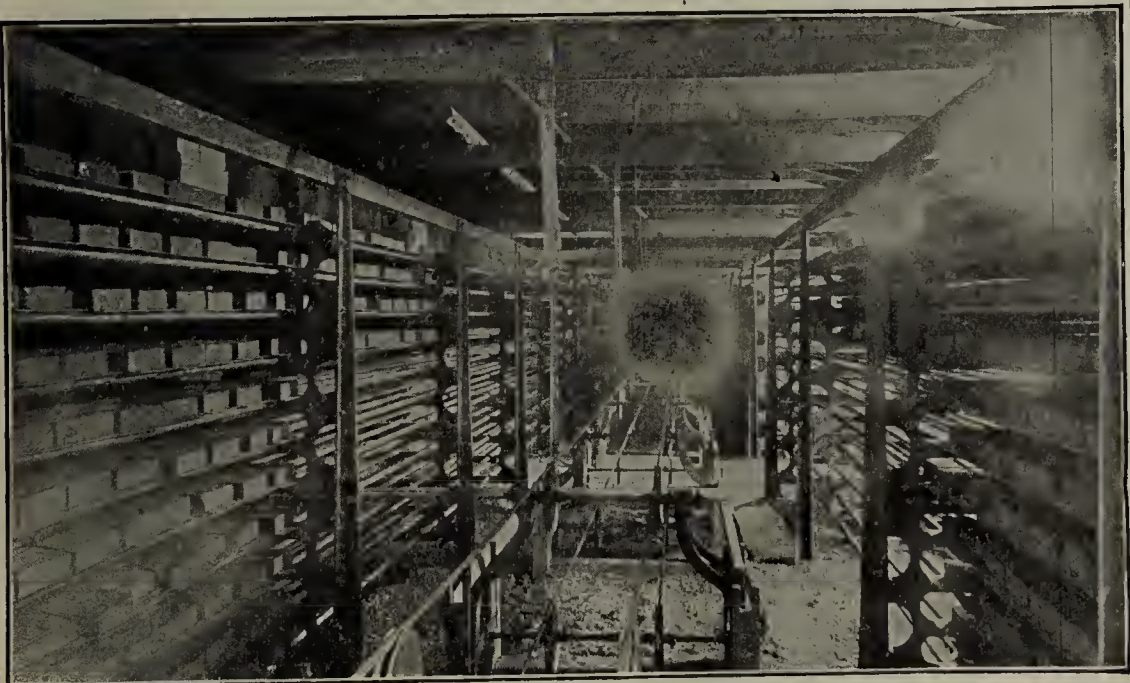
SATISFACTION
SAND DRYER



DRYER CARS



CLAY SCREEN



Interior View of a
"Martin Patent System"
STEAM BRICK DRYER

The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem--Quick to Install and
Low in Price--Write Us.

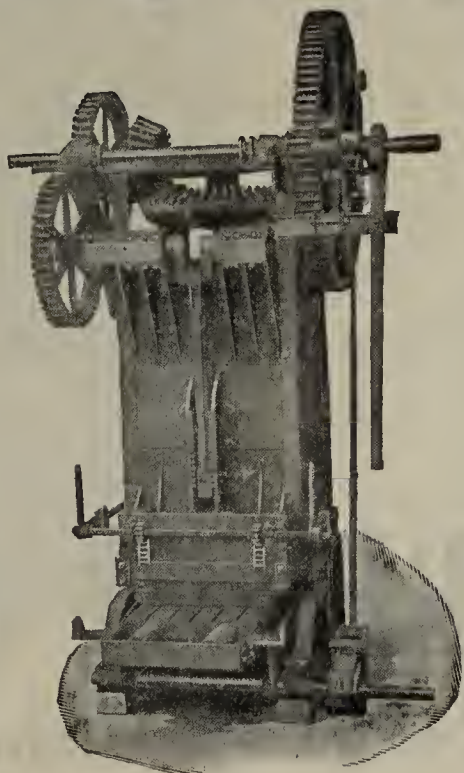
THE "MARTIN" COMPANY
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Own and Control These
Important Dryer Patents
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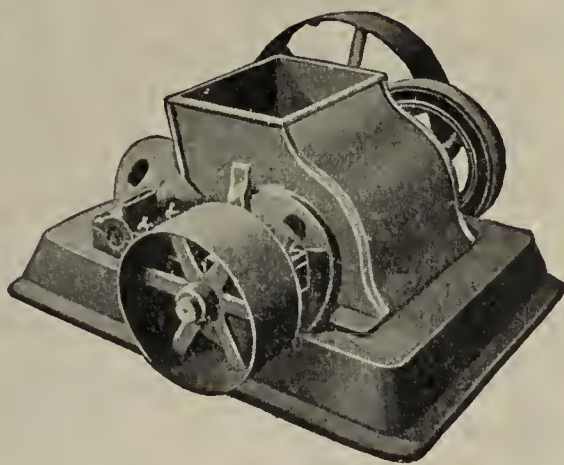
— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

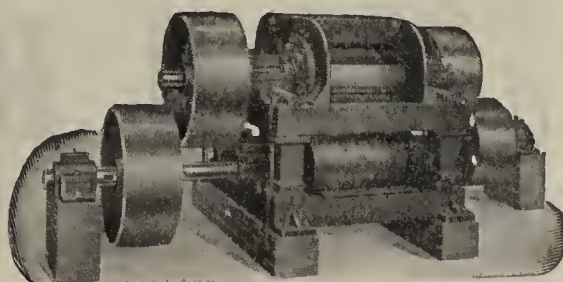
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**THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.**



STYLE "P" BRICK MACHINE

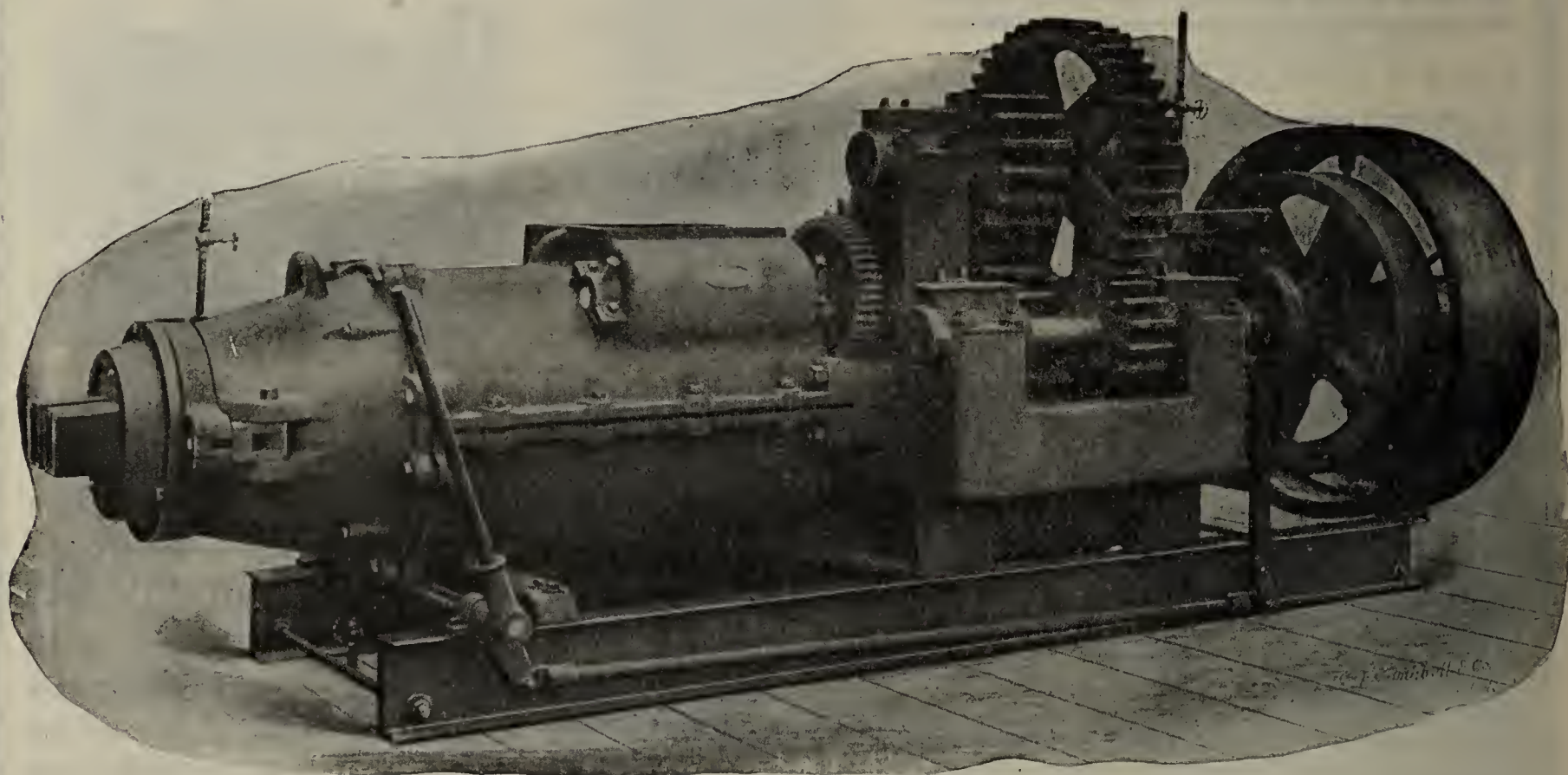


HIGH SPEED CRUSHERS



HORIZONTAL BRICK MACHINES.

Brewer patterns embody all that is good. They have weight and strength in excess of any other models on the market, their design is modern to the minute and their efficiency the highest.



Some Features of Brewer Construction.

Gear frames cast in one piece. Back thrust bearings self-oiling, self-aligning and adjustable so that wear upon the expressing screw may be taken up. Knives forged from hard, high carbon steel; each one adjustable for pitch and can be set out as it wears. Journals self-oiling. A feed-roll to keep the hopper clear. Mounting, upon steel I-beams, self-contained.

There are three sizes ranging in weight from 5,500 to 15,000 pounds. In capacity from 1,000 to 5,000 bricks per hour.

Our catalog shows a full line of stiff-mud clayworking machines. It will be mailed upon request.

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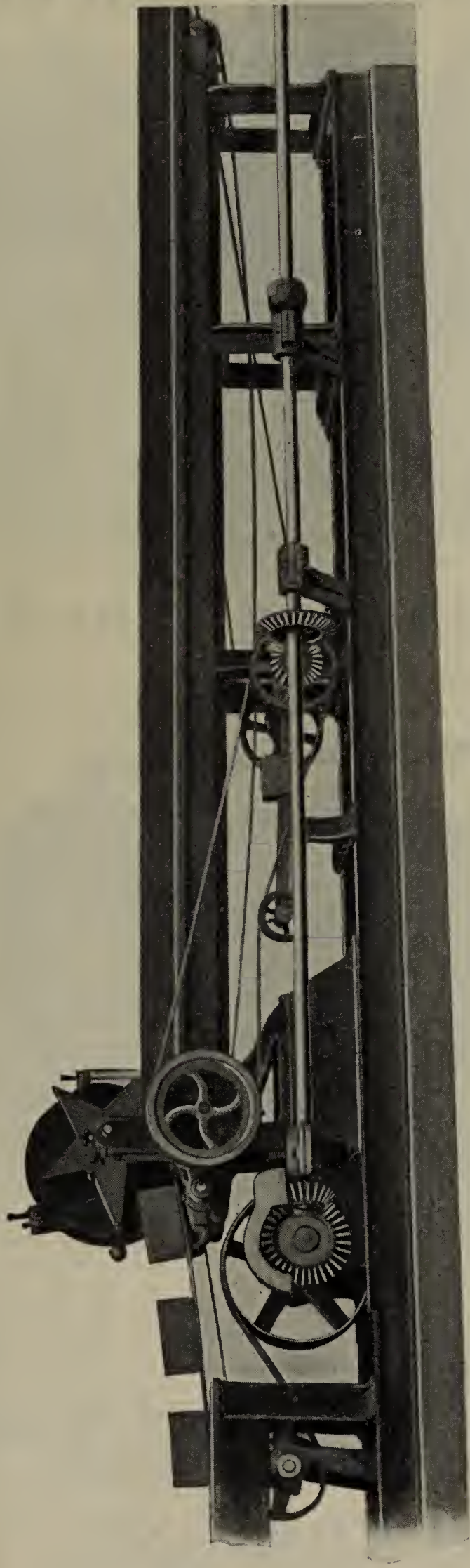
 It's Good.

H. BREWER & CO.,
 Tecumseh, Michigan.

If Marked

 It's Good.

The Steele Automatic Cutter.



Lavonia, Ga., Dec. 9, 1907.

Messrs. J. C. Steele & Sons, Statesville, N. C.:

Gentlemen—It is pleasant and delightful work when operating your No. 3 machine with a 20 h.p. engine and making 3500 bricks per hour. Your rotary automatic cutter can't be beat; it cuts square and smooth, Messrs. Bowers Bros. of the Canon Brick Yard, came to my plant at Royston, Ga. to see my machine work and of course were so pleased they ordered one of your machines. I have run two machines of other manufacture and they were both more complicated and expensive to keep repaired. I recommend your machines to anyone entering the business.

Very respectfully,
W. E. STEVENSON.

(Signed)

We build a complete line of clayworking machinery.

Write for further information.

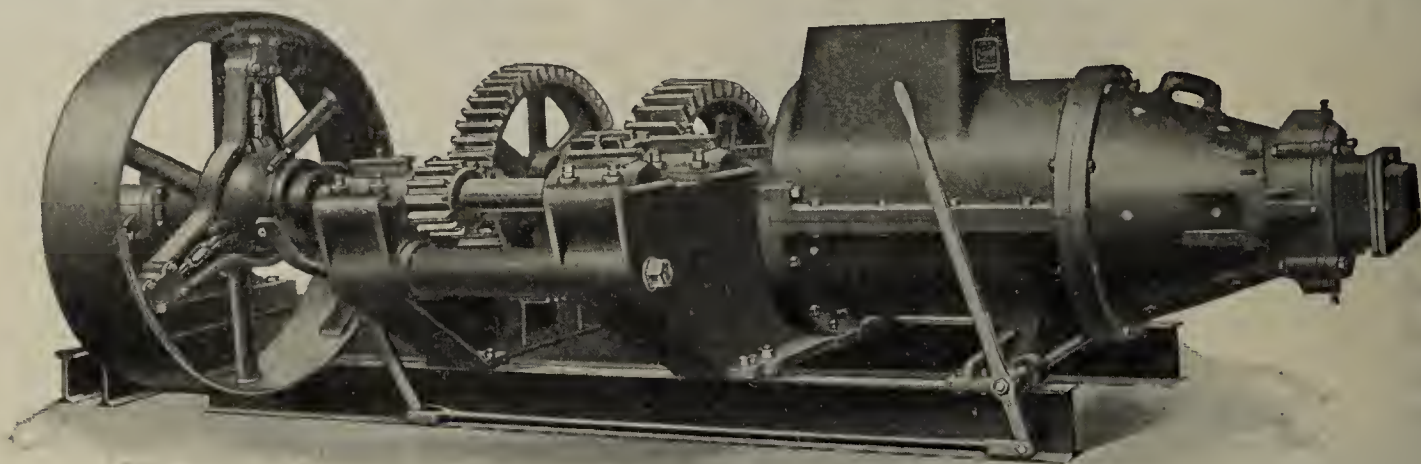
J. C. STEELE & SONS,

STATESVILLE, N. C.

Success Brick Machinery Co., Memphis, Tenn.,
Western Agents.

Mention The Clay-Worker.

Modern Clayworking Machinery

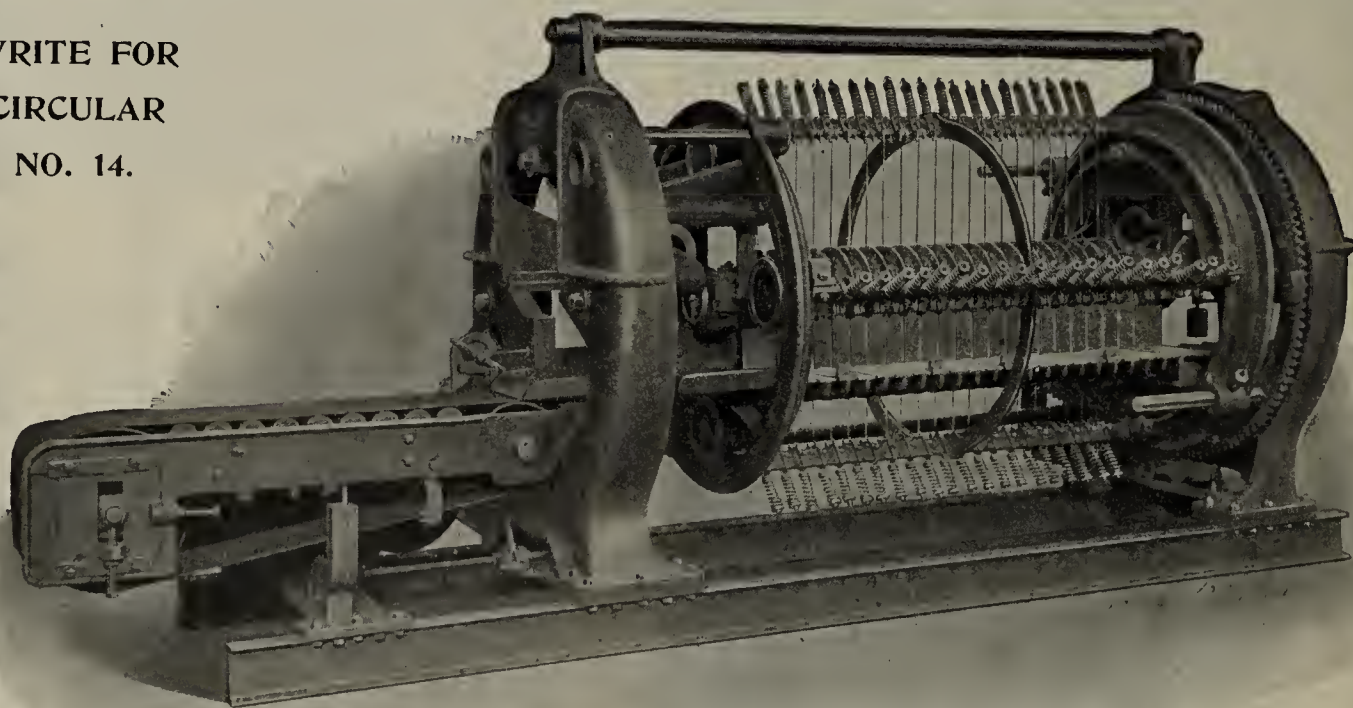


No. 10 Auger Brick Machine.
Capacity 50,000 to 75,000 per Day.
A GOOD MACHINE AND EASILY GET-AT-ABLE.

CANTON REPRESS is the Best of its Class.

ASK US FOR THE PROOF.

WRITE FOR
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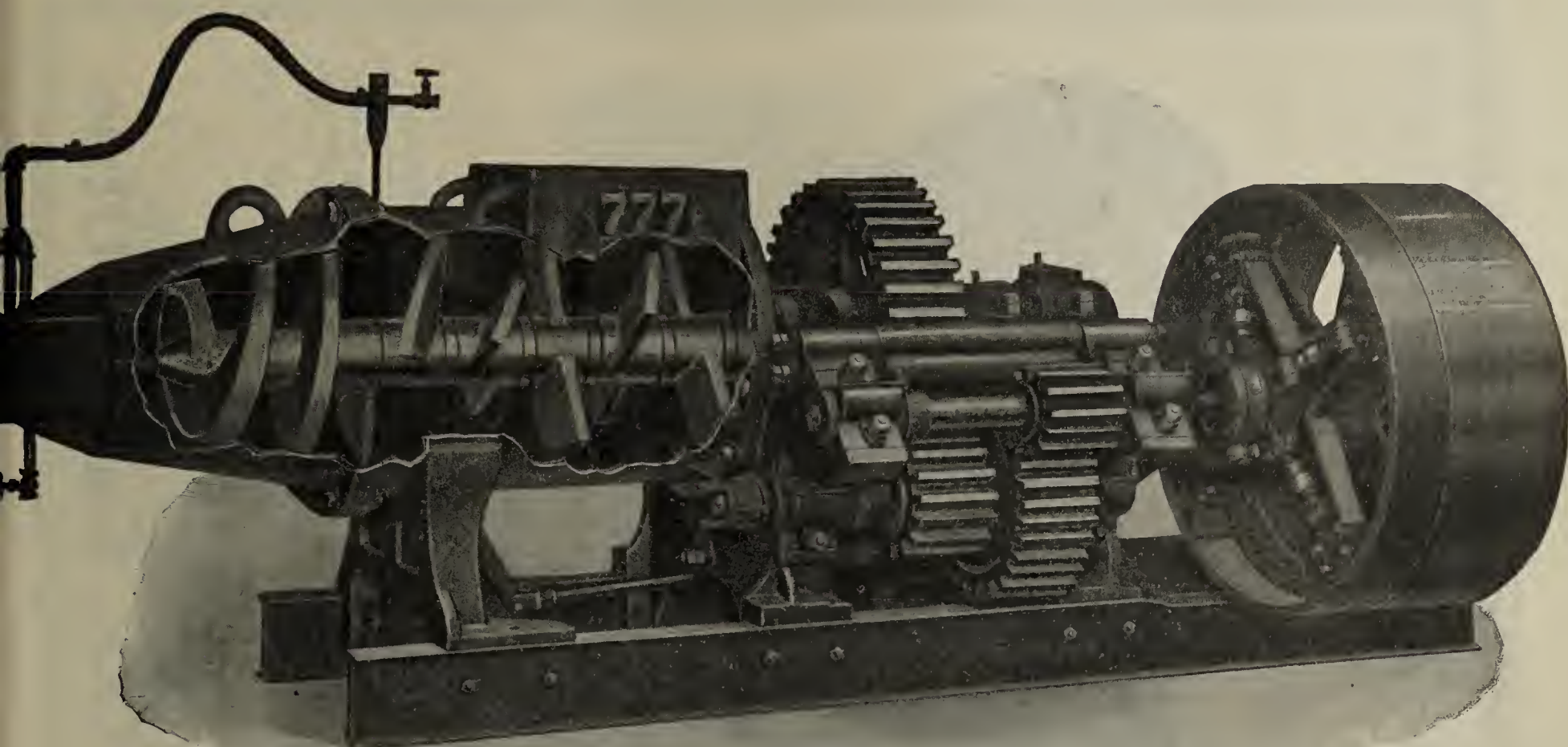


Rotary Automatic Cutting Table.
Capacity Up to 100,000 Daily.
Cuts Brick Within 30 Inches of the Die. End Frames are Stationary.
COMPLETE LINE OF CLAYWORKING MACHINERY.

THE BONNOT COMPANY,

305 NEW YORK LIFE BLDG.,
KANSAS CITY, MO.

Canton, Ohio.



RAYMOND "777" BRICK MACHINE.

Over six million brick made every day on the famous Raymond "777" Brick Machine.

It is the embodiment of strength, durability and performance—so with all of our manufacture.

We issue the following publications which may be obtained upon application to our Publicity Department:

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- 2042. No. 2 Rotary Automatic Cutting Table.
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- 2045. Perfection Hand Represses.
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- 2061. Dry Presses and Dry Press Machinery.
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- 2063. System of Open Air Drying.
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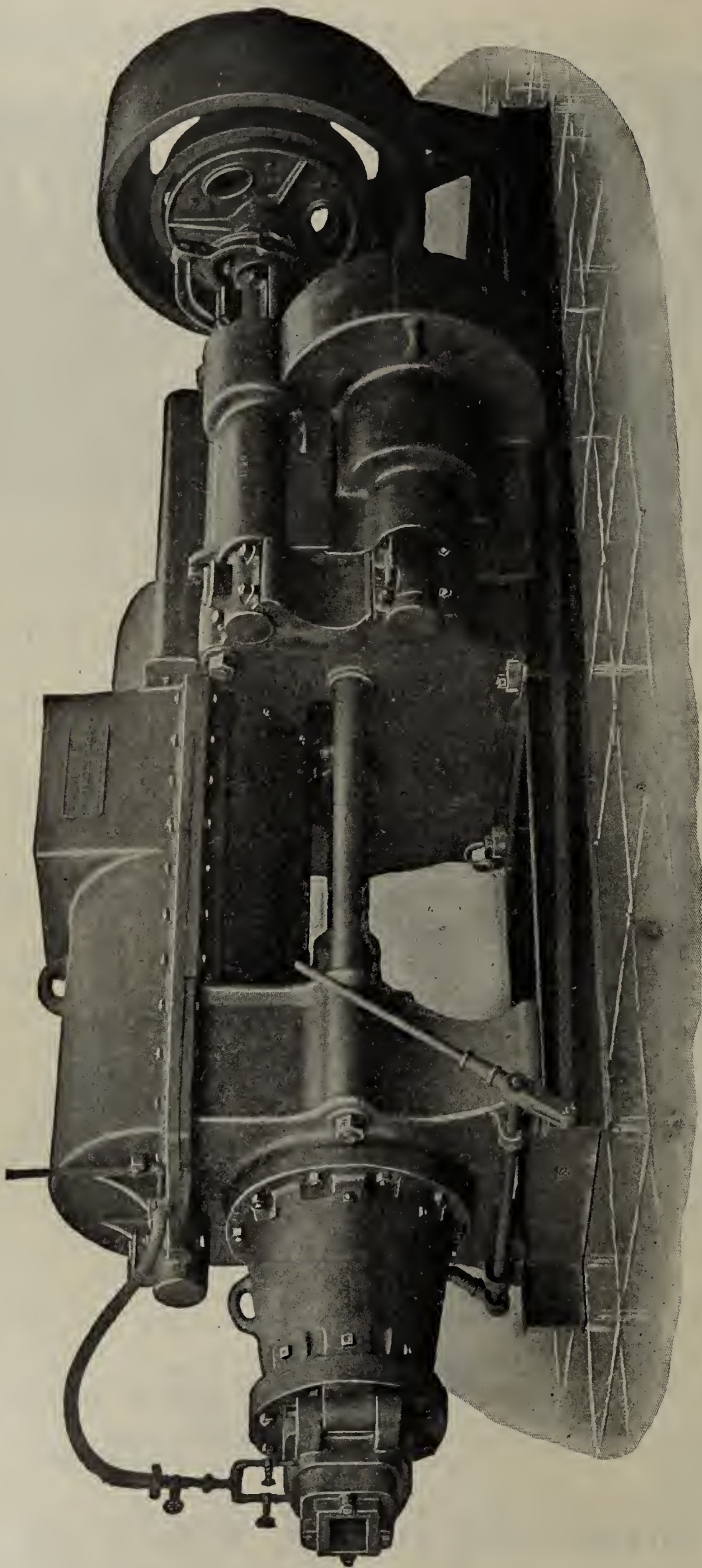
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- 2072. Single Geared Pug Mills.
- 2075. Semi-Automatic Cutter.
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- 2078. Soft Mud Machinery.
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- 2080. "555" Brick Machine.
- 2081. Automatic Wet Pan Emptier.
- 2082. Piano Wire Screens.
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- 2086. Automatic End Cutter.
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THE C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

The Largest Exclusive Builders of Clay Working Machinery in the World.

Another Brick Machine.



This is a Brick Machine of massive proportions and of modern construction throughout, designed for large capacity and severe service. The gearing, shafting and other parts are very heavy. The gearing is protected by a removable dust and accident proof covering, hinged for convenient access to the interior. The feeding chamber is of ample diameter and length, and this result is obtained without excessive overhang of auger shaft. The auger shaft is supported by three journal bearings of sufficient distance apart to give it a substantial support. The part of the auger shaft in the clay chamber is about 4 feet in length, while the part outside is more than 9 feet long.

The machine is mounted on steel "I" beam sills between which are placed heavy cast iron spreaders with flanges, affording a substantial method of attaching the machine to its foundation. The outer end of the pulley shaft is supported by a rigid stand having an adjustable journal box.

Length of machine over all, 19 ft.

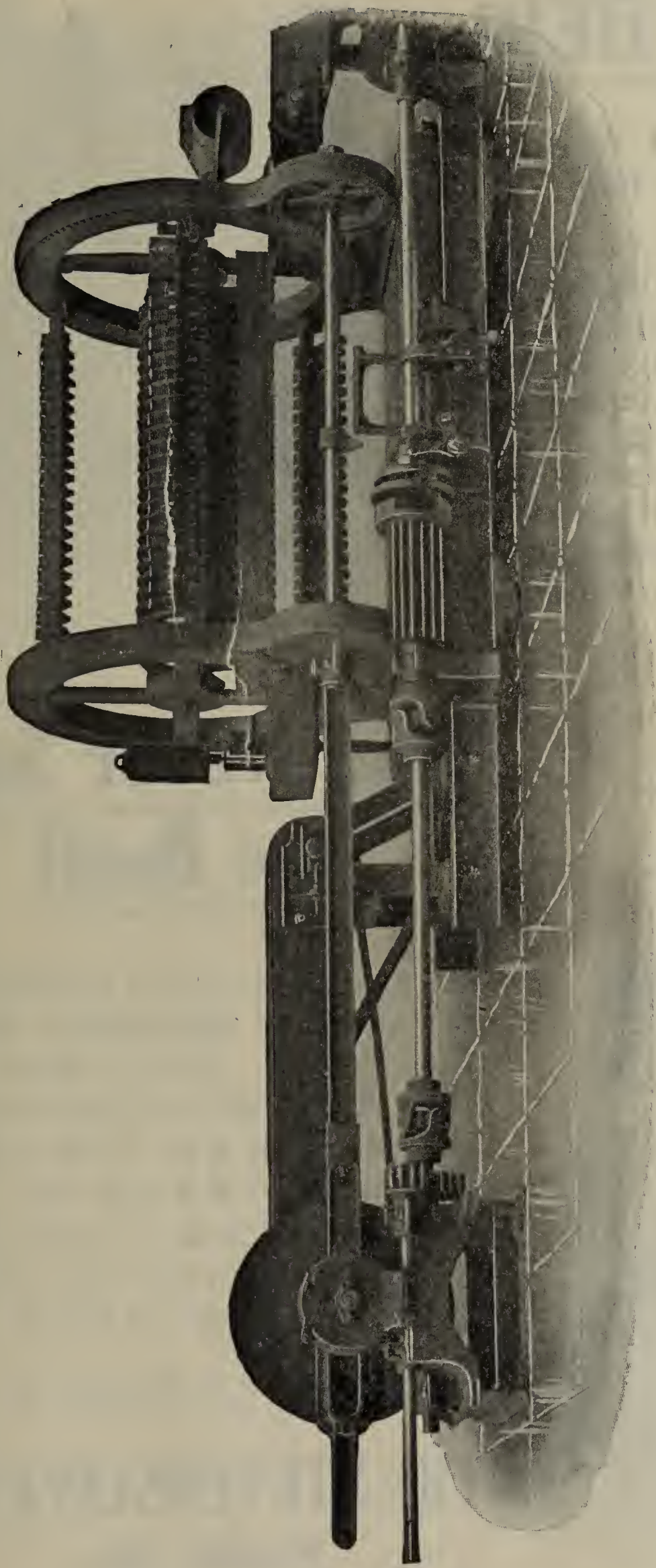
Height from floor to top of hopper, 5 ft. 8 in.

Size of hopper, 26-in. x 26-in. Weight of machine about 26,000 pounds.

(Mention The Clay-Worker.)

E. M. FREESE & CO., Galion, Ohio.

An Improved Rotating Automatic Cutter.



Our Rotating Automatic Cutters are the result of many years' constant hammering at a single type of Cutter. One of the three sizes we are building will suit your Stiff Mud Brick Machine.

We ship on trial—YOU say whether our guarantee of "satisfactory operation" is fulfilled. If desired a man will be sent to arrange details of installation. These Cutters will give you satisfaction when all others have failed.

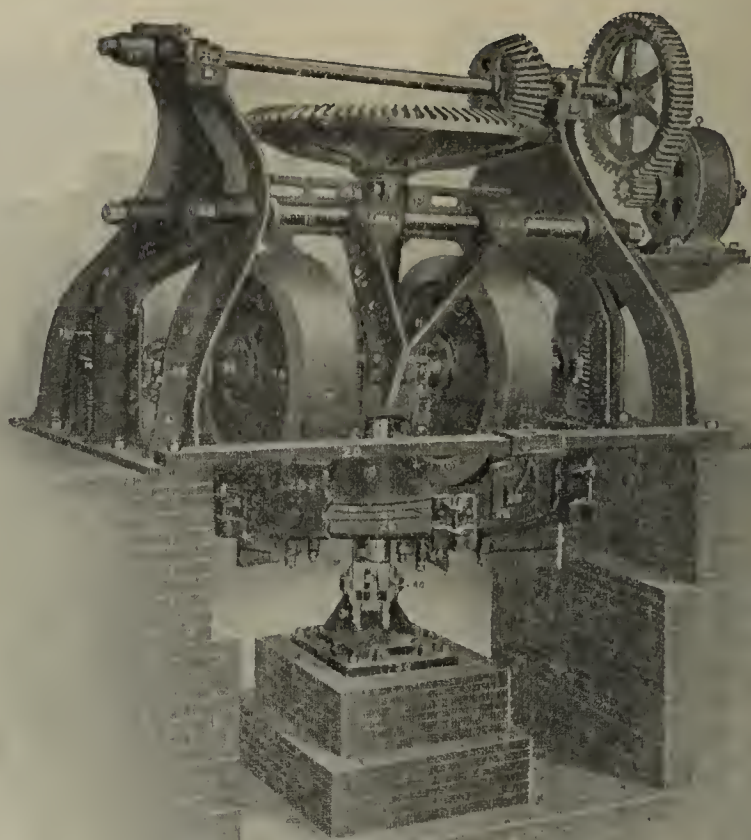
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E. M. FREESE & CO., Galion, Ohio.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



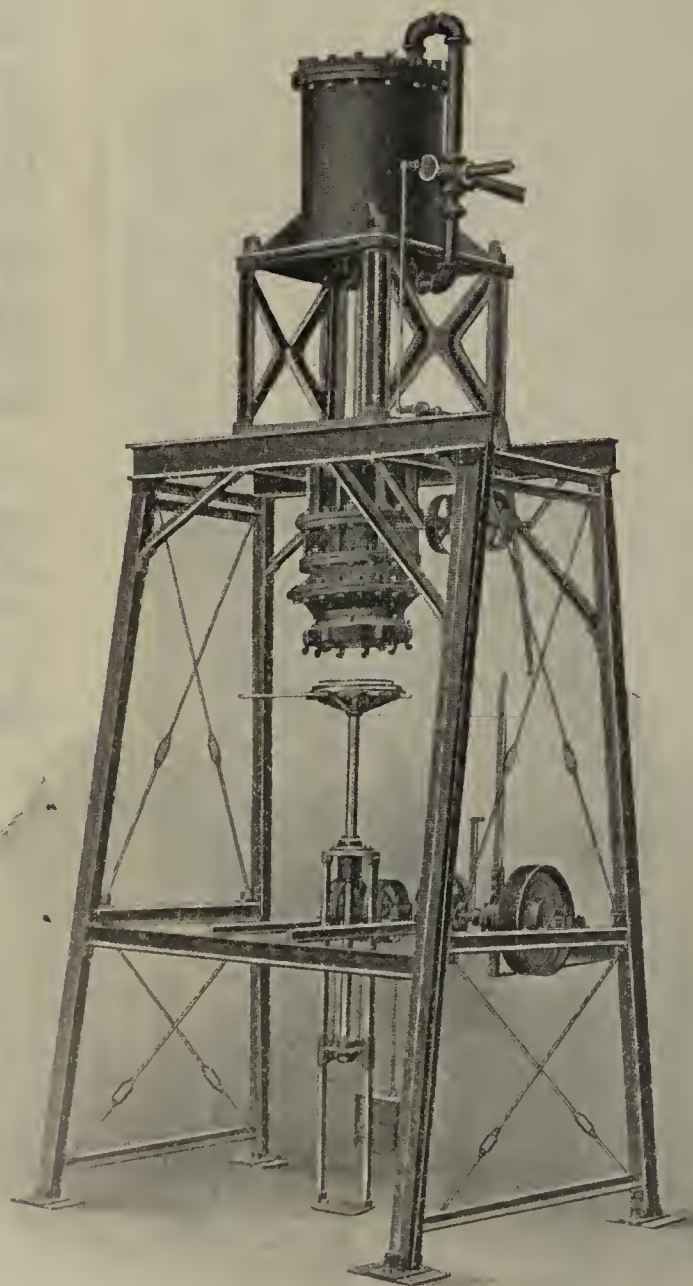
You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.



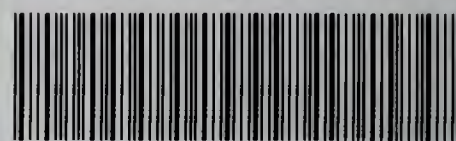
Mention The Clay-Worker.

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